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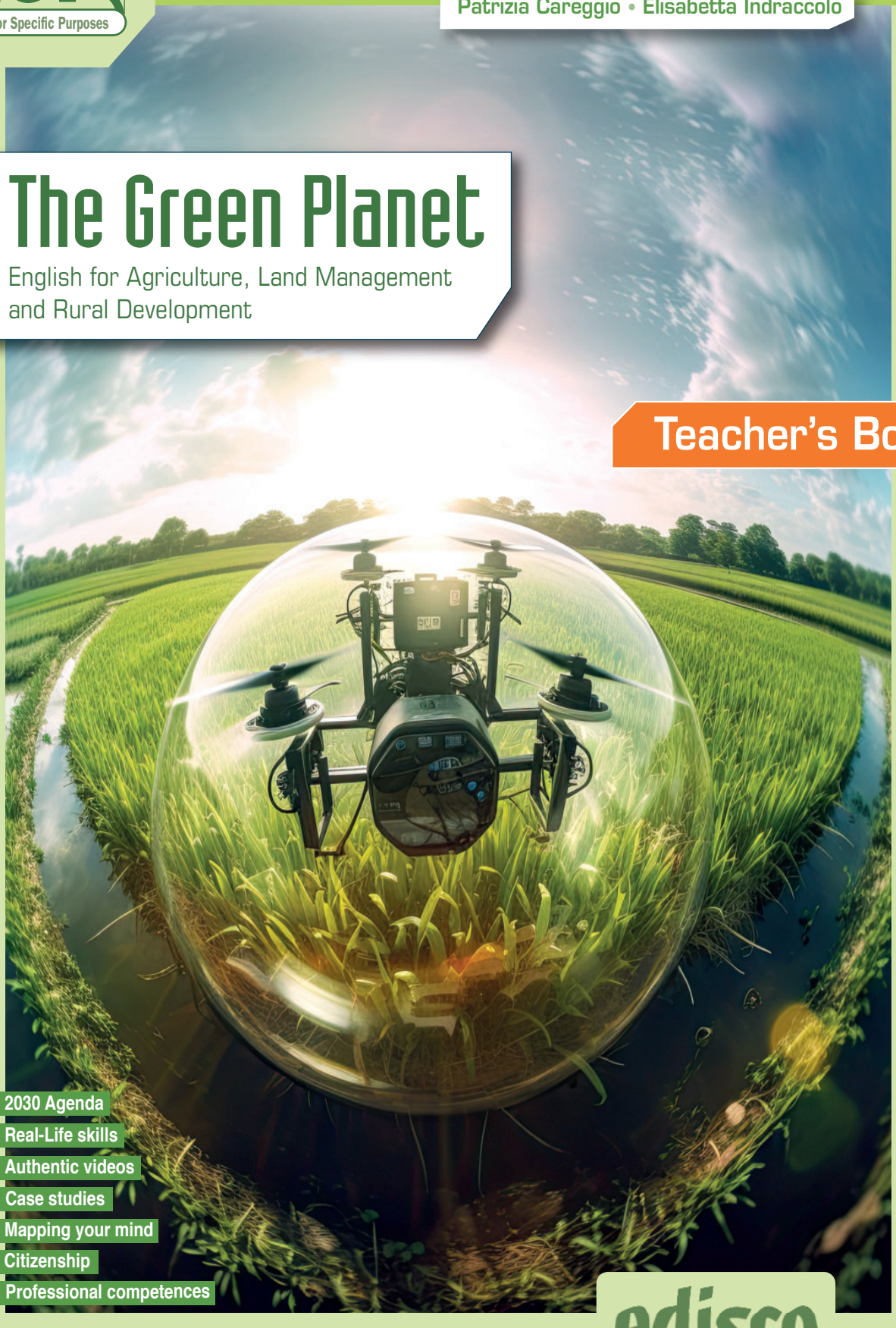
Patrizia Careggio • Elisabetta Indraccolo

The Green Planet

English for Agriculture, Land Management and Rural Development



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Patrizia Careggio · Elisabetta Indraccolo

The Green Planet

English for Agriculture, Land Management and Rural Development

Teacher's Book

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THE GREEN PLANET • Teacher's Book

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– Revisione testi: Lunella Luzi

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L'opera è altresì disponibile in edizione DIGITALE per gli studenti diversamente abili e i loro docenti. L'Editore mette a disposizione degli studenti non vedenti, ipovedenti, disabili motori o con disturbi specifici di apprendimento i file pdf in cui sono memorizzate le pagine di questo libro. Il formato del file permette l'ingrandimento dei caratteri del testo e la lettura mediante software screen reader.

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INTRODUZIONE

The Green Planet è un corso di inglese specialistico che promuove lo sviluppo di competenze specifiche, linguistiche e professionali richieste dal mondo dell'impresa agricola. L'acquisizione progressiva e flessibile di tali competenze contribuisce significativamente alla costruzione delle competenze generali richiamate nelle indicazioni nazionali per la programmazione e nel profilo professionale del diplomato **di Istituto Tecnico - Settore Tecnologico – Indirizzo "Agraria, Agroalimentare e Agroindustria"** e di **Istituto Professionale – Servizi per l'Agricoltura e lo Sviluppo Rurale.** A questo proposito deve anche essere sottolineato il fatto che le stesse competenze costituiscono elemento selezionante per la partecipazione a progetti UE (Erasmus +) e risultano essere un bagaglio utile per la partecipazione attiva alle attività di PCTO, obbligatorie dal terzo anno.

OBIETTIVI DEL TESTO

La finalità educativa generale del testo è quella di fornire una sintesi che integri al suo interno competenze di carattere comunicativo e pratico-operativo con elementi culturali. ***The Green Planet*** pone l'accento sull'apprendimento autonomo fornendo materiali di facile consultazione e utilizzo finalizzati all'acquisizione non solo di contenuti, ma anche di strategie di apprendimento. Nello specifico, gli obiettivi che ci si propone di raggiungere sono i seguenti:

- formare un tecnico che possa lavorare nel settore agrario, agroalimentare, agroindustria e sviluppo rurale;
- offrire un percorso sistematico, ma allo stesso tempo flessibile e personalizzabile, in grado di soddisfare i diversi bisogni di docenti e studenti del settore;
- sviluppare la consapevolezza di un sapere unico, e competenze culturali trasversali, soprattutto nel settore pertinente all'indirizzo di studio;
- favorire l'acquisizione di specifiche abilità orali e scritte di comprensione e produzione;
- proporre un lessico specifico ampio e moderno che tenga anche conto della lingua del web;
- favorire l'autonomia linguistica e operativa;
- sviluppare strategie per il lavoro in team e stimolare la soluzione di problemi;
- offrire spunti per moduli e percorsi trasversali;
- proporre materiali fruibili anche da allievi BES.

STRUTTURA DEL TESTO

The Green Planet è diviso in sei Moduli, ognuno dei quali è ripartito in un numero variabile di Unità. Ogni Unità è suddivisa in brevi Capitoli su due pagine – teoria ed esercizi – per favorire non solo uno studio più parcellizzato, ma anche la scelta dei contenuti antologica da parte dell'insegnante. I contenuti dei capitoli sono divisi in paragrafi titolati per renderne la comprensione più agevole. I testi vengono affrontati in modo graduale, attraverso esercizi di esplorazione del lessico specifico, comprensione scritta e orale, globale e specifica, reimpiego dei termici tecnici e produzione scritta e orale. Brevi link arricchiscono i brani per consentire una maggiore interattività con l'allievo. Si tratta di curiosità, ampliamenti, rimandi, attività o mini-approfondimenti che hanno l'intenzione di favorire una lettura più interessante ed offrire spunti di riflessione o interazione. Sono cromaticamente differenziati: verdi per i link con attività, arancioni per quelli informativi. Alcune rubriche di approfondimento o curiosità, inoltre, corredano la pagina degli esercizi. Un ricco apparato iconografico correda i brani di lettura, per ognuno dei quali è previsto un esauriente glossario.

Ogni Unità termina con la sezione:

- **Mapping your Mind**: mappa concettuale che rappresenta la rete di relazioni tra i vari argomenti dell'unità e utile strumento per riassumere i concetti chiave e ripassare.

Al termine di ognuno dei sei Moduli, il testo propone delle ulteriori attività, suddivise nelle seguenti parti:

- **Vocabulary**: pagina di esercizi di revisione e consolidamento del lessico introdotto nel Modulo;
- **Real-life skills**: in questa parte gli studenti sono chiamati a mettere in pratica quanto studiato attraverso attività varie, compiti di realtà e collaborativi, lavori di gruppo e a coppie, che, sempre avendo l'apprendimento linguistico come obiettivo principale, hanno un taglio di tipo pratico calato nella realtà;
- **Case study**: presentazione di un argomento di attualità collegato ai contenuti introdotti, tratto da fonti autentiche e corredato di esercizi mirati anche all'approfondimento e alla discussione tra gli studenti dell'argomento presentato;
- **Clip**: Attività relative una breve clip tratta da film o documentari le cui tematiche sono attinenti ai contenuti presentati nel Modulo.
- **Debate time:** facendo riferimento ad articoli giornalistici, si offrono spunti per la discussione di varie mozioni secondo la tecnica del debate.

Il testo contiene inoltre un Modulo Extra che include:

- **Cross-curricular topics:** concetti o temi centrali intorno ai quali convergono diverse discipline;

- **Grammar:** revisione delle strutture grammaticali più comuni accompagnata da esercizi di rinforzo calati in contesto;
- **How to…:** sezione che riassume le tecniche per preparare una presentazione orale, un tema, un riassunto o un report, recensire un prodotto o scrivere un articolo promozionale, descrivere tabelle, grafici e diagrammi, preparare e affrontare un *debate*.

MATERIALE DEL TESTO

Audio e Video

Per le tracce audio viene proposto un elevato numero di attività di ascolto in tutte le Unità; il contesto è collegato agli argomenti trattati nel Modulo; la lunghezza e la complessità sono graduate. Dal punto di vista lessicale gli ascolti riprendono i vocaboli chiave dell'unità inseriti in contesti reali e di vita professionale con l'utilizzo di registri linguistici diversi, da informale e familiare a più formale. I video sono tutti reali, tratti dalla rete e quindi materiale esclusivamente autentico e non creato ad hoc. La trascrizione dei testi è fornita nel *Teacher's Book*.

Digitale

Un'ampia sezione di risorse online è collegata al testo. I vari materiali proposti possono essere utilizzati in modo flessibile: possono offrire spunti per altre attività, anche di gruppo, e offrono la possibilità di impostare percorsi personalizzati e in armonia con il livello di competenza raggiunto da ogni singolo allievo.

Disponibili sul sito www.edisco.it:

- file audio formato MP3 con la registrazione delle attività di ascolto;
- film clip e video;
- approfondimenti relativi ai vari moduli;
- esempio di prova INVALSI;
- civiltà: compendio schematico e comparativo tra UK e US delle loro principali caratteristiche geografiche, storiche, politiche e culturali con anche riferimenti all'Unione Europea e alle organizzazioni internazionali;
- test doppio per ogni Unità e Modulo, anche per BES, in formato editabile.

Esame di Stato

Essendo la lingua straniera coinvolta solo in forma orale nell'attuale Esame di Stato, vengono fornite delle proposte di possibili spunti per il lancio della discussione che affronti i nodi disciplinari come richiesto dalla normativa. Si tratta di immagini, citazioni o affermazioni ispirate a ogni Modulo che possano agganciarsi alle discipline studiate nel corso dell'ultimo anno e consentire lo sviluppo di un'analisi da parte degli studenti.

Test

Il *Teacher's Book* contiene test formativi (due per ogni singola Unità) e test sommativi (due per ogni singolo Modulo). Ciascun test propone diverse tipologie di esercizi e può essere adattato alle diverse esigenze dei docenti a seconda degli studenti con cui si trovano a lavorare. Ogni test è anche disponibile in formato editabile – ed è quindi possibile adattarlo per ogni studente – per poter garantire al docente la scelta della lunghezza della verifica, l'eventuale ulteriore riduzione del numero degli item/esercizi e la scelta della tipologia di esercizi da proporre. Le chiavi di ogni test sono disponibili all'interno del *Teacher's Book*.

Recupero, obiettivi minimi e BES

The Green Planet è corredato da materiali che rendono il testo fruibile anche da studenti in difficoltà. Gli strumenti che facilitano la comprensione, semplificano i contenuti e agevolano il lavoro e lo studio individuale sono i seguenti:

- la grafica del testo tende a tener conto delle difficoltà di lettura di alcuni DSA e le pagine chiuse che caratterizzano il libro possono anch'esse rappresentare una risorsa perché facilmente consultabili per lo studio e nei momenti di verifica;
- il libro di testo in formato digitale può favorire il lavoro in classe e a casa;
- le mappe e il glossario possono rientrare nelle misure compensative suggerite nella maggior parte dei casi per lo svolgimento delle prove in classe;
- le tipologie di attività, sia del testo che dei test, sono molto spesso adatte a studenti con problematiche di dislessia o difficoltà di apprendimento: ***The Green Planet*** è molto ricco di esercizi a risposta chiusa, quali vero/falso, abbinamento, scelta multipla e riconoscimento – attività generalmente suggerite per le prove scritte;
- i test per il docente sono forniti in formato editabile per facilitarne la personalizzazione a seconda delle esigenze particolari di ciascun studente, in conformità con le misure dispensative o compensative individuate.

Per ulteriori informazioni si può consultare la normativa di riferimento composta dalla Legge n. 170/2010 e dai Decreti Attuativi n. 5669 del 12 luglio 2011 con le relative Linee Guida.

Educazione Civica

Diversi sono i materiali proposti che possono offrire spunti e collegamenti con i temi trattati in Educazione Civica. In particolare, si veda la sezione dedicata a *Cross-curricular topics,* nel Modulo Extra.

Didattica Orientativa

Secondo le Linee Guida del D.M. 22 dicembre 2022 n. 328, l'orientamento è un processo volto a facilitare la conoscenza di sé, del contesto formativo,

occupazionale, sociale culturale ed economico di riferimento, delle strategie messe in atto per relazionarsi ed interagire in tali realtà. Obiettivo di tale processo è favorire la maturazione e lo sviluppo delle competenze necessarie per poter definire o ridefinire autonomamente obiettivi personali e professionali aderenti al contesto, elaborare o rielaborare un progetto di vita e sostenere le scelte relative.
Le scuole secondarie di secondo grado attivano a partire dall'anno scolastico 2023-2024 moduli curriculari di orientamento formativo degli studenti del triennio di almeno 30 ore per anno scolastico. Tali moduli rappresentano uno strumento essenziale per aiutare gli studenti a fare sintesi riflessiva e interdisciplinare della loro esperienza scolastica e formativa, in vista della costruzione in itinere del personale progetto di vita culturale e professionale.
In quest'ottica, il testo ***The Green Planet*** propone attività mirate di *real-life skills* atte a sviluppare abilità di auto-orientamento e *problem solving*.

GLI ISTITUTI TECNICI

L'identità degli Istituti Tecnici

I nuovi ordinamenti del secondo ciclo del sistema educativo di istruzione e formazione di cui al decreto legislativo n. 226/05 e che ebbero attuazione dall'anno scolastico 2010/11, sono fondati sul principio dell'equivalenza formativa di tutti i percorsi con il fine di valorizzare i diversi stili di apprendimento degli studenti e dare una risposta articolata alle domande del mondo del lavoro e delle professioni. La diversificazione dei percorsi di istruzione e formazione ha proprio lo scopo di valorizzare le diverse intelligenze e vocazioni dei giovani, anche per prevenire i fenomeni di disaffezione allo studio e la dispersione scolastica, ferma restando l'esigenza di garantire a ciascuno la possibilità di acquisire una solida ed unitaria cultura generale per divenire cittadini consapevoli, attivi e responsabili.
Nel quadro sopra delineato, il rilancio dell'istruzione tecnica si fonda sulla consapevolezza del ruolo decisivo della scuola e della cultura nella nostra società non solo per lo sviluppo della persona, ma anche per il progresso economico e sociale; richiede perciò il superamento di concezioni culturali fondate su un rapporto sequenziale tra teoria/pratica e sul primato dei saperi teorici.
Agli istituti tecnici è affidato il compito di far acquisire agli studenti non solo le competenze necessarie al mondo del lavoro e delle professioni, ma anche le capacità di comprensione e applicazione delle innovazioni che lo sviluppo della scienza e della tecnica continuamente produce. Per diventare vere "scuole dell'innovazione", gli istituti tecnici sono chiamati ad operare scelte orientate permanentemente al cambiamento e, allo stesso tempo, a favorire attitudini all'autoapprendimento, al lavoro di gruppo e alla formazione continua.
In questo quadro, orientato al raggiungimento delle competenze richieste dal mondo del lavoro e delle professioni, le discipline mantengono la loro

specificità, ma è molto importante che i docenti scelgano metodologie didattiche coerenti con l'impostazione culturale dell'istruzione tecnica che siano capaci di realizzare il coinvolgimento e la motivazione all'apprendimento degli studenti. Sono necessari, quindi, l'utilizzo di metodi induttivi, di metodologie partecipative, una intensa e diffusa didattica di laboratorio, da estendere anche alle discipline dell'area di istruzione generale, con l'utilizzo, in particolare, delle tecnologie dell'informazione e della comunicazione, di attività progettuali e di PCTO per sviluppare il rapporto col territorio e le sue risorse formative in ambito aziendale e sociale.

La scuola e il mondo del lavoro

Soprattutto negli istituti tecnici, che offrono un'ampia possibilità, dopo il diploma, di intraprendere subito un percorso professionale, è auspicabile che gli studenti imparino il prima possibile ad elaborare le acquisizioni che la scuola propone loro attraverso lo studio delle discipline, arricchendole e integrandole con esperienze che li mettano in grado di confrontarsi con crescente autonomia con le richieste dal mondo del lavoro e delle professioni, per mettere in relazione questi dati con gli interessi e le aspirazioni personali. Nel rispetto dell'autonomia organizzativa e didattica di ciascuna istituzione scolastica, è auspicabile infine che l'impegno della scuola si concentri prevalentemente su principi che sviluppino gli aspetti educativi più intimamente connessi con la dimensione della progettualità personale, in funzione di una facilitazione oggettiva delle scelte degli studenti. Si tratta di valorizzare le potenzialità di ciascun allievo, soddisfare le aspettative di crescita e di miglioramento e individuare percorsi rispondenti ai bisogni degli studenti. In altre parole, promuovere un orientamento che sostenga l'esplorazione delle possibilità di sviluppo personale e professionale, che valorizzi la dimensione orientativa delle discipline, che favorisca il collegamento e l'interazione della scuola con il territorio e il mondo produttivo, e che proponga agli studenti attività coinvolgenti, utilizzando diffusamente metodologie attive e contesti applicativi. Per svolgere questo delicato compito, gli istituti tecnici possono contare su alleanze consolidate, a livello locale, regionale e nazionale, con le istituzioni e le associazioni professionali e imprenditoriali.

L'apertura della scuola al mondo del lavoro e delle professioni è, tra l'altro, un'opportunità, unanimemente riconosciuta, per prevenire e contrastare la dispersione scolastica, oltre che per favorire l'occupabilità. Per mantenere elevati i livelli di occupazione occorre puntare su livelli di istruzione più elevati, ma anche sull'apertura a esperienze e linguaggi diversi: contenuti specialistici e suddivisioni disciplinari tendono ad una crescente interdipendenza e contaminazione tra i saperi. Per far fronte alle nuove sfide dell'educazione, l'Unione Europea raccomanda ai paesi membri di rinnovare i sistemi educativi nazionali in modo da superare la contrapposizione tra cultura generale e cultura tecnica e professionale, creare nuovi ponti tra scuola, società e impresa, considerando quest'ultima anche come ambiente formativo, per garantire ai

cittadini e ai lavoratori un apprendimento lungo l'intero corso della vita.
In questo contesto sono sempre più necessari l'interazione e il dialogo, in forme non episodiche, tra le imprese, che per sopravvivere e svilupparsi devono divenire "fabbriche di conoscenza", e le scuole, tradizionali "fabbriche della conoscenza e della cittadinanza".
L'impianto del nuovo ordinamento accentua la rilevanza dell'istruzione tecnica come canale formativo dotato di una propria identità culturale e pedagogica, fondata sulla filiera scientifica e sulle tecnologie che caratterizzano gli indirizzi di studio.

LE ABILITÀ LINGUISTICHE

Le quattro abilità linguistiche fondamentali (lettura, ascolto, scrittura e parlato) possono essere divise in due gruppi:

1. abilità ricettive o di input (lettura e ascolto) vs. abilità produttive o di output (scrittura e parlato);
2. abilità orali (ascolto e parlato) vs. abilità scritte (scrittura e lettura).

La prima distinzione nasce dalla consapevolezza che nella comunicazione sono coinvolte due distinte sfere (e quindi capacità) che, pur influenzandosi a vicenda, si sviluppano secondo meccanismi differenti.
Quando si studia una lingua, infatti, è frequente trovare studenti che possono mostrare più difficoltà in entrambe le abilità linguistiche dello stesso gruppo. È probabile che uno studente che non riesce ad esprimersi compiutamente quando cerca di comunicare nella lingua straniera abbia problemi anche quando scrive in quella lingua oppure quando deve capire che cosa ha detto un parlante madrelingua, mentre è meno probabile che riscontri tali problemi quando legge. Ciò può naturalmente variare da individuo a individuo e/o con il passaggio da un livello linguistico all'altro; potenziando le abilità più carenti o facendo leva sulla *language skill* più sviluppata all'interno dello stesso gruppo, è infatti possibile equilibrare il livello delle varie abilità.

Ascolto (*Listening*)
È la prima *language skill* che mettiamo in pratica nella vita. Implica l'identificazione di suoni, accenti, inflessioni, intonazioni, ecc. e la comprensione di parole e frasi a livello orale per recepire un messaggio. Di solito ci sono due tipi di situazioni in cui possiamo ritrovarci a utilizzare questa abilità linguistica: situazioni interattive e situazioni non-interattive. Le prime sono rappresentate da conversazioni faccia a faccia o al telefono e comportano un'interazione con un altro parlante, a cui possiamo chiedere spiegazioni, chiarimenti o semplicemente di ripetere e parlare più lentamente. Le seconde, invece, sono costituite da tutte quelle situazioni in cui l'ascolto è "passivo": radio, televisione, registrazioni, conferenze, ecc. In questi casi non abbiamo l'opportunità di interagire con il parlante e pertanto esse richiedono solitamente uno sforzo maggiore.

È importante che lo studente non si scoraggi e pertanto è importante che capisca che il raffinamento di questa abilità richiede esercizio costante, che l'insegnante provvederà a fornire. Si deve insistere sulla concentrazione, nel caso di ascolto di test registrati, poiché gli stimoli non uditivi possono distrarre dal *task*. Inoltre, l'insegnante provvederà ad incoraggiare gli studenti a riconoscere parole/segmenti chiave della registrazione e li inviterà a non preoccuparsi eccessivamente di stringhe linguistiche non funzionali alla comprensione in oggetto.

Parlato (*Speaking*)

È strettamente legato alla capacità di ascolto, in quanto insieme rappresentano il fulcro primario della comunicazione. Parlare, così come scrivere, implica tante altre micro-abilità che permettono di veicolare al meglio un messaggio: ad esempio, il tono, il registro, la pronuncia, il ritmo, l'intonazione, ecc. Tutte queste caratteristiche sono parte integrante di questa abilità linguistica e, di conseguenza, la mancanza di anche una sola di tali caratteristiche può compromettere l'efficacia comunicativa del messaggio che vogliamo veicolare. Anche in questo caso, l'insegnante offrirà uno stimolo/pretesto per la comunicazione, preferibilmente basato sugli interessi personali o le curiosità disciplinari degli studenti. L'insegnante, inoltre, incoraggerà gli studenti al raggiungimento della comunicazione orale attraverso frasi non complesse ed alla ricerca di equivalenti comunicativi per veicolare concetti troppo complessi o al ricorso ad esempi per raggiungere lo scopo comunicativo.

Lettura (*Reading*)

È una delle *skills* che, anche nella propria lingua madre, richiede formazione e pratica. Oltre al riconoscimento dei caratteri, la lettura necessità anche la comprensione del significato delle varie parole codificate in quei caratteri e delle frasi che a loro volta queste formano. È importante incoraggiare gli studenti ad acquisire metodi di lettura selettiva come lo *skimming* (leggere velocemente un testo per estrapolarne un'idea generale – *general gist*) o lo *scanning* (andare alla ricerca selettiva dell'informazione richiesta dalla consegna) attraverso un esercizio alternato e costante di entrambi. Un'ottima attività introduttiva alla lettura di testi tecnici e quindi piuttosto specializzati linguisticamente, consiste in un'attività introduttiva di *brainstorming* su parole/concetti chiave che si incontreranno nel testo. Questo consente agli studenti di affrontare la lettura dotati di un minimo di pre-conoscenze.

Scrittura (*Writing*)

Pur sottostando a quasi tutte le norme che regolano il parlato, l'ascolto e la lettura, ha peculiarità proprie, specialmente in L2 poiché le regole stilistiche e la strutturazione della frase non sono sovrapponibili a quelle della lingua madre. È importante innanzitutto che gli studenti siano consapevoli dei diversi tipi di testo scritto (lettera, riassunto, relazione, messaggio, email, ecc.) e dei relativi registri (formale/informale) che si realizzano attraverso l'impiego di strutture linguistiche e lessico diversificati. Pertanto sarà cura dell'insegnante

offrire esempi e modelli di tali testi ed evidenziarne le peculiarità. I testi scritti dovranno preferibilmente aderire ad una traccia, inizialmente più dettagliata e via via più generica. È importante anche determinare la lunghezza del testo richiesto, segnalando le parole, da un minimo ad un massimo. Cura particolare nella correzione degli elaborati andrà nel tentativo di distinguere il tipo di errore (*vocabulary, word order, punctuation, grammar, appropriacy,* ecc.*)*

CLIL

Content and Language Integrated Learning (**CLIL**), o Apprendimento Integrato di Lingua e Contenuto, è un approccio educativo centrato su due obiettivi in cui una seconda lingua viene usata per insegnare ed imparare sia lingua che contenuti. Fu introdotto da David Marsh e Anne Maljers nel 1994. Il CLIL è una metodologia di insegnamento che si è sviluppata in diversi Paesi Europei a partire dalla metà degli anni '90; in questo periodo, anche in Italia, grazie allo sviluppo di progetti europei organizzati da varie istituzioni e Università, alcune scuole hanno attivato sperimentazioni di insegnamenti di contenuti disciplinari in lingua straniera.
Il CLIL è diventato un'innovazione che implica la costruzione di competenza linguistica e comunicativa contestualmente allo sviluppo ed acquisizione di conoscenze ed abilità disciplinari; non è apprendimento di lingua ma nemmeno di una materia, bensì una fusione di entrambe. L'approccio CLIL comprende sempre un duplice obiettivo in quanto in una lezione CLIL si presta contemporaneamente attenzione sia alla disciplina insegnata sia alla lingua straniera veicolare.
Grazie al suo approccio a doppia focalizzazione, il CLIL offre un contesto più naturale per lo sviluppo della lingua che porta immediatezza, rilevanza e valore aggiunto al processo di apprendimento della stessa, sviluppando competenze sia nella disciplina non linguistica sia nella lingua straniera in cui questa è insegnata. Conseguire questo duplice obiettivo richiede lo sviluppo di uno speciale approccio integrato sia all'insegnamento sia all'apprendimento e richiede che gli insegnanti dedichino attenzione speciale non solo a come insegnare la lingua, ma anche al processo educativo più in generale. Il CLIL si dimostra efficace in tutti i settori dell'istruzione, dalla scuola primaria fino all'istruzione degli adulti ed istruzione accademica.
Gli insegnanti che lavorano con il CLIL normalmente parlano fluentemente la lingua obiettivo, oppure sono bilingui o madrelingua. In molte istituzioni gli insegnanti di lingua lavorano in collaborazione con altri dipartimenti che offrono il CLIL in diverse materie. Il fattore chiave è che il discente acquisisce nuove conoscenze su una materia che non implica di per sé l'insegnamento della lingua, ma in realtà usa ed impara una lingua straniera. Le metodologie e le strategie usate sono spesso legate all'area della materia di riferimento, in cui sono i contenuti che guidano le attività. Inoltre, il CLIL permette alle lingue di essere insegnate in modo relativamente intenso senza richiedere una eccessiva parte dell'orario scolastico.

Il profilo del docente CLIL

Il profilo del docente CLIL della scuola secondaria di secondo grado è caratterizzato da:

- competenze linguistico-comunicative nella lingua straniera veicolare di livello C1 del Quadro Comune Europeo di Riferimento per le lingue (QCER);
- competenze metodologico-didattiche acquisite al termine di un corso di perfezionamento universitario del valore di 60 CFU (Credito Formativo Universitario) per i docenti in formazione iniziale e di 20 CFU per i docenti in servizio.

Iniziative dell'Unione Europea per supportare l'apprendimento attraverso le lingue

Data la sua efficacia e l'abilità di motivare i discenti, il CLIL è indicato come un'area prioritaria nel *Piano d'Azione per l'Apprendimento delle Lingue e la Diversità Linguistica* (Sezione 1 1.2). Il Simposio Europeo su "La classe europea che cambia – il Potenziale dell'Istruzione Plurilinguistica", che si tenne nel marzo 2005, ribadì il bisogno di assicurare che alunni e studenti partecipino al CLIL a differenti livelli dell'istruzione scolastica. Fu anche enfatizzato il fatto che gli insegnanti dovrebbero ricevere una speciale formazione per il CLIL.
In quello stesso anno, l'Unione Europea pubblicò uno studio approfondito su come il CLIL si stava svolgendo nelle scuole in tutta Europa. L'Unione Europea ha anche supportato molti progetti CLIL insieme allo sviluppo di un network europeo per Classi di Contenuto e Apprendimento Integrato.

Il percorso normativo in Italia

La Legge 53 del 2003 ha riorganizzato la Scuola Secondaria di Secondo Grado e i Regolamenti Attuativi del 2010 hanno introdotto l'insegnamento di una disciplina non linguistica (DNL) in una lingua straniera nell'ultimo anno dei Licei e degli Istituti Tecnici e di due discipline non linguistiche in lingua straniera nei Licei Linguistici a partire dal terzo e quarto anno.
La Legge 107 del 2015, all'articolo 7, definisce come obiettivi formativi prioritari "la valorizzazione e il potenziamento delle competenze linguistiche, con particolare riferimento all'italiano nonché alla lingua inglese e ad altre lingue dell'Unione Europea, anche mediante l'utilizzo della metodologia CLIL". Il Piano per la Formazione dei docenti 2016-2019, nel punto 4.4 Competenze di lingua straniera, evidenzia che i percorsi di metodologia CLIL sono fondamentali per:

- attuare pienamente quanto prescritto dai Regolamenti del 2010;
- ampliare l'offerta formativa attraverso contenuti veicolati in lingua straniera in tutte le classi delle scuole primarie e delle scuole secondarie di primo e secondo grado.

Il nostro è il primo paese dell'Unione Europea a introdurre il CLIL in modo ordinamentale nella Scuola Secondaria di Secondo Grado.

PROGETTARE PER COMPETENZE

I saperi e le competenze, articolati in conoscenze e abilità, con l'indicazione degli assi culturali di riferimento, sono descritti nel documento tecnico allegato al regolamento emanato con decreto del Ministro della Pubblica Istruzione n. 139 del 22 agosto 2007. La certificazione dei saperi e delle competenze acquisite dagli studenti nell'assolvimento dell'obbligo di istruzione è prevista all'art. 4, comma 3, del citato regolamento, in linea con le indicazioni dell'Unione europea, con particolare riferimento al Quadro Europeo dei titoli e delle qualifiche EQF.

"COMPETENZA: comprovata capacità di usare conoscenze, abilità e capacità personali, sociali e/o metodologiche, in situazioni di lavoro o di studio e nello sviluppo professionale e/o personale".

(*European Qualifications Framework* - Quadro europeo delle Qualifiche e dei Titoli)

La certificazione delle competenze è uno strumento utile per sostenere e orientare gli studenti nel loro percorso di apprendimento sino al conseguimento di un titolo di studio o, almeno, di una qualifica professionale di durata triennale entro il diciottesimo anno di età e si configura come "espressione dell'autonomia professionale propria della funzione docente, nella sua dimensione sia individuale che collegiale, nonché dell'autonomia didattica delle istituzioni scolastiche" (articolo 1, comma 2, del D.P.R. 22 giugno 2009, n. 122). I consigli di classe utilizzano le valutazioni effettuate nel percorso di istruzione di ogni studente in modo che la certificazione descriva compiutamente l'avvenuta acquisizione delle competenze di base, che si traduce nella capacità dello studente di utilizzare conoscenze e abilità personali e sociali in contesti reali, con riferimento alle discipline/ambiti disciplinari che caratterizzano ciascun asse culturale. Questo significa che l'insegnamento si deve slegare progressivamente dal nozionismo e far sì che l'allievo sappia utilizzare in modo autonomo, originale e consapevole quanto appreso in ambito scolastico. Quindi, è possibile apprezzare precise competenze solo in azione per affrontare e risolvere situazioni problematiche in cui occorre mobilitare conoscenze, abilità e disponibilità all'agire. Secondo le Linee Guida, la competenza si può "accertare facendo ricorso a *compiti di realtà"* che devono essere autentici e rispettare alcuni parametri:

- proporre tematiche che possono essere affrontate nel mondo reale, personale o professionale;
- offrire l'occasione di esaminare i problemi da diverse prospettive teoriche e pratiche;
- permettere più soluzioni alternative;
- fornire l'occasione di collaborare;
- estendere i loro risultati al di là di specifiche discipline;
- essere strettamente integrati con la valutazione;
- sfociare in un prodotto finale completo autosufficiente.

THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

The UN's 2030 Agenda for Sustainable Development is a comprehensive plan that outlines how we can transform the world into a peaceful and sustainable environment for all.

It was launched at the UN Sustainable Development Summit held in New York on 25-27 September 2015 and is aimed at ending poverty in all its forms. The UN 2030 Agenda envisages *"a world of universal respect for human rights and human dignity, the rule of law, justice, equality and non-discrimination"*. This historic document lays out the 17 Sustainable Development Goals which aim to mobilize global efforts to end poverty, foster peace, safeguard the rights and dignity of all people, and protect the planet.

It is grounded in the Universal Declaration on Human Rights (1948) and international human rights treaties and emphasises the responsibilities of all states to respect, protect and promote human rights. There is a strong emphasis on the empowerment of women and of vulnerable groups such as children, young people, persons with disabilities, older persons, refugees, internally displaced persons and migrants.

A Plan of Action to Change the World

The 2030 Agenda was endorsed by 193 member states that pledged to work towards social inclusion, environmental protection and sustainable economic growth. By committing to this agreement, the UN and its member countries across the globe are ensuring they build just and peaceful societies and work towards sustainability.

The Agenda has a ultimate goal that is to change the world; it is the most complete guide ever created pointing out strategies for:

- ending extreme poverty;
- helping the environment;
- diminishing inequality.

Before the 2030 Agenda

Before the Agenda are decades of debate and dialogue focused on how to face global challenges affecting the environment, society and economy. Talks started in 1972 with the UN Conference on Human Environment up to the 2015 UN Sustainable Development Summit.

The United Nations Millennium Development Goals (MDGs) signed in 2000 and set to expire at the end of 2015, acted as a springboard for the goals of the 2030 Agenda. All 191 United nations member states committed to help achieve by 2015 the following eight Millennium Development Goals:

1. to eradicate extreme poverty and hunger;

2. to achieve universal primary education;

3. to promote gender equality and empower women;

4. to reduce child mortality;

5. to improve maternal health;

6. to combat HIV/AIDS, malaria and other diseases;

7. to ensure environmental sustainability;

8. to develop a global partnership for development.

They represented a framework for the world's governments to tackle global issues like disease and hunger. In the 2030 Agenda a feedback about the MDGs is provided: "*the progress has been uneven … and some of the Millennium Development Goals remain offtrack, in particular those related to maternal, newborn and child health and to reproductive health… The new Agenda builds on the Millennium Development Goals and seeks to complete what they did not achieve, particularly in reaching the most vulnerable.*"

Adapted from: *https://www.coe.int/en/web/programmes/un-2030-agenda*
https://www.ie.edu/school-global-public-affairs/about/news/what-is-the-2030-agenda/
https://www.un.org/millenniumgoals/
https://www.unfpa.org/resources/transforming-our-world-2030-agenda-sustainable-development

Structure of the document

The UN General Assembly adopted the document entitled "Transforming our world: the 2030 Agenda for Sustainable Development" within the 70/1 Resolution on 25 September 2015.
The document is organised into sections, the most significant are:

- the **Preamble** – definition of the Agenda and of the purposes of the 17 Sustainable Development Goals; identification of the areas of critical importance for humanity and the planet (the five Ps);
- the **Declaration** – declaration of intent; vision; shared principles and commitments; our world today (main challenges to sustainable development and progress in meeting many development challenges); the new Agenda (introduction to the 17 Sustainable Development Goals; reaffirmation of the importance of the Universal Declaration of Human Rights; flexibility in achieving a sustainable development; pressure on States to refrain from promulgating unilateral economic measures; the importance of peace and security);
- **Sustainable Development Goals and Targets** – list and detailed description of the 17 Sustainable Development Goals with their 169 associated targets;
- **Means of implementation and the Global Partnership** – reaffirmation of the commitment to the full implementation of the Agenda; revitalization of the Global Partnership.

Testo originale in inglese: *https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E* (disponibile nello stesso sito anche in cinese, francese, spagnolo e russo per moduli CLIL o UdA di Educazione Civica)

Fundamental Principles of the 2030 Agenda

The 2030 Agenda consists of a few core principles:

- **Universality:** The Agenda applies to all countries, so it is expected that every country will work towards sustainable development despite economic and development issues.
- **Leaving no one behind:** All people must be considered, proper aid and assistance should be provided to the poorest and most vulnerable countries and categories of people.
- **Interconnectedness and invisibility:** The 17 Sustainable Development Goals are interconnected and indivisible. World leaders who are asked to implement the goals must consider them as a whole.
- **Inclusiveness:** Everyone should take action so as to achieve the goals of the Agenda, no matter their race, age, gender, geographic regions, ethnicity, political, religious and cultural identity.
- **Partnerships:** Multi-stakeholder partnerships should represent an efficient tool spread knowledge, technology and financial resources.

Adapted from: *https://www.ie.edu/school-global-public-affairs/about/news/what-is-the-2030-agenda/*

The 17 Sustainable Development Goals (SDGs) to transform our world

The 17 Sustainable Development Goals devised by the United Nations are the crucial part of the 2030 Agenda. The goals bring together nations around the world to solve global challenges, promote growth, and create a sustainable future.

The SDGs should be seen as a way to fulfil the fundamental principles of the Agenda, their 169 associated targets help to convert them into concrete actions with definite results, which can be measured and evaluated. The number of targets for each Goal can vary a lot.

GOAL 1: No Poverty
GOAL 2: Zero Hunger
GOAL 3: Good Health and Well-being
GOAL 4: Quality Education
GOAL 5: Gender Equality
GOAL 6: Clean Water and Sanitation
GOAL 7: Affordable and Clean Energy
GOAL 8: Decent Work and Economic Growth
GOAL 9: Industry, Innovation and Infrastructure
GOAL 10: Reduced Inequality
GOAL 11: Sustainable Cities and Communities
GOAL 12: Responsible Consumption and Production
GOAL 13: Climate Action
GOAL 14: Life Below Water
GOAL 15: Life on Land
GOAL 16: Peace and Justice Strong Institutions
GOAL 17: Partnerships to achieve the Goal

Adapted from: *https://www.un.org/sustainabledevelopment/*
https://www.un.org/development/desa/disabilities/envision2030.html

The five Ps

In addition to the fundamental principles and the 17 SDGs, there are five dimensions that are vital to the 2030 Agenda: the so called five Ps (people, planet, prosperity, peace and partnership). These represent the large-scale topics which the Goals must refer to.

- **People:** *"Determination to end poverty and hunger, in all their forms and dimensions, and to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment".*
  Goals 1, 2, 3, 4 and 5 can be combined into the category for people. The first five goals of the sustainable development goals are designed to provide appropriate target for meeting the fundamental needs of all people around the world.
- **Planet:** "*Determination to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations"*.
  Goals 6, 12, 13,14 and 15 present the challenges that our planet is facing around the world. The global community must become aware of the importance of saving our planet and of how our future depends on transforming our approaches to tackle the climate crisis.
- **Prosperity:** *"Guarantee that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature".*
  Goal 7 provides targets for the international community to be able to attenuate the negative impact from energy over-utilization and eventually achieving the appropriate and sustainable balance of its utilization. Goals 8, 9, 10, 11 involve fair and justice systems both in public and private communities and national entities. These goals assert sustainable economic successes must be achieved in manners that promote and attain fair justice system.
- **Peace:** *"Determination to foster peaceful, just and inclusive societies which are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development".*
  Goal 16 shows how the international community must come together to promote and protect peace around the world, not with military actions but with strong institutions of justice.
- **Partnership:** *"Determination to mobilize the means required to implement this Agenda through a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people".*
  Goal 17 shows how partnership is crucial in achieving the SDGs for the goals. Partnerships can involve any entities in the international community, public and private.

Adapted from: *https://www.unescwa.org/sites/default/files/inlinefiles/the_5ps_of_the_sustainable_development_goals.pdf*

EU contribution to the United Nations Agenda 2030

The EU made a positive and constructive contribution to the development of the 2030 Agenda, nowadays Europe is committed to implement the SDGs in all its policies and is encouraging EU countries in doing the same.
Due to the close connection between the Europe's objectives and the SDGs, the Agenda has also been highly relevant for the Council of Europe, which has, from the outset, been contributing to the process which led to its adoption. Considering its global and overarching political approach it has not been necessary to set up new European objectives, instruments or activities, but rather to align existing ones with relevant SDGs. Most, if not all, of Europe's activities contribute to the implementation of Agenda 2030 which is particularly important for the European development and co-operation programmes. For example to achieve SDG1 (No poverty) Europe is focused on projects aiming at leaving no one behind in the Sub-Saharan Africa, a particularly poor and instable region of the world. To achieve this, actions should necessarily involve partnerships involving humanitarian, civil and governmental actors.
The main responsibility for the implementation of Agenda 2030 lies with member States, Europe's role is to assist and facilitate member States in their contribution to SDGs implementation.
In these years Europe proved to be able to represent an added-value in the achievement of the Agenda Goals, this comes from a combination of:

- its members: 47 member States covering a large multicultural territory;
- its standards: a comprehensive measurable normative framework which can be used as indicators/benchmarks;
- its multi-stakeholder dimension: in addition to its intergovernmental bodies, the Council of Europe's structure includes the Parliamentary Assembly, the Congress of Local and Regional Authorities, the Commissioner for Human Rights the Conference of International NGOs, as well as the European Court of Human Rights. These various bodies and instruments are precious to support States in their efforts to translate the global agenda into action at both national and local levels;
- its monitoring/follow-up bodies and processes: essential to gather data, assess progress and provide further guidance;
- its technical support provided to individual countries for capacity-building and removing obstacles to implementation;
- its global outreach: most of the organisation's legally-binding conventions and activities are open to participation by non-member States.

Adapted from: *https://ec.europa.eu/international-partnerships/sustainable-development-goals_en*
https://www.coe.int/en/web/un-agenda-2030/home?desktop = true

DIDATTICA INCLUSIVA E BES

Suggerimenti per la programmazione e la valutazione

di Nadia Sanità

1. Normativa e inquadramento scolastico
2. Dislessia, didattica e inglese
3. Didattica inclusiva e resilienza
4. Altri tipi di Bisogni Educativi Speciali
5. Suggerimenti e modelli per la valutazione

1. NORMATIVA E INQUADRAMENTO SCOLASTICO

1.1 Introduzione

La presente sezione non ambisce a fornire un'illusoria ricetta di didattica miracolosa ai docenti, ma, nella pletora dei testi sul medesimo argomento, si impegna a chiarire alcuni punti e a fornire suggerimenti orientativi a quegli insegnanti di lingua inglese che sempre più intendono riuscire ad "includere" tutti gli studenti nelle proprie lezioni. La prima parte sarà dedicata alla normativa quadro che ci consente di categorizzare e definire il fenomeno – normativa intesa dunque come risorsa e non come qualcosa di noioso e astratto; si cercherà poi di inquadrare meglio il fenomeno della dislessia, poiché la lingua inglese, non essendo trasparente fonologicamente (cioè non avendo corrispondenza tra scritto e parlato come in larga misura sono l'italiano e il tedesco), causa notevoli problemi di decodifica agli studenti affetti da tale disturbo; infine, scopo ambizioso di tale pubblicazione sarà anche quello di tentare di contribuire a superare lo schema "misure compensative e dispensative", provando a suggerire una didattica qualitativamente diversa da inserire in un Piano Didattico Personalizzato che recepisca pienamente la CM n. 8 del 6/3/2013 e che diventi davvero adatta a tutta la classe: «Il piano Didattico Personalizzato non può più essere inteso come mera esplicitazione di strumenti compensativi e dispensativi per gli alunni con DSA».

1.2 La normativa inclusiva italiana: breve excursus

La normativa inclusiva italiana ha visto i propri albori negli anni Settanta, con l'inserimento degli alunni con disabilità nelle scuole statali e si è ampliata con la **legge 62/2000** che sancì il diritto all'integrazione degli alunni con disabilità anche nelle scuole paritarie. Precedentemente, l'obbligo scolastico era esteso solo ai ciechi e ai sordi (**Riforma Gentile** del **1923**). In seguito, l'istruzione speciale prevedeva classi differenziali per gli allievi con lievi ritardi, ospitate nei plessi scolastici ordinari e scuole speciali per sordi, ciechi e "anormali psichici" ospitati in plessi distinti.
I casi più gravi venivano separati dalle famiglie per lunghi periodi e ospitati in istituti speciali. Le classi differenziali, tuttavia, erano destinate anche agli allievi con problemi di condotta o disagio sociale o familiare. Talvolta il disagio familiare consisteva nel parlare esclusivamente un dialetto del sud. Si deve attendere il **1971** con la **legge 118** per superare la logica della separazione in cui il disabile veniva percepito come un malato e come potenziale elemento di disturbo. Tale legge però non accennava minimamente né alla didattica speciale, né allo sviluppo potenziale o alle risorse da impegnare. Con la **legge 104/1992** si giunge, invece, ad una legge quadro che non si concentra solo sull'assistenza, ma anche sull'integrazione e sui diritti dei disabili al fine di promuoverne la massima autonomia individuale, specificando che l'integrazione deve avvenire in ogni ciclo, università compresa, nelle classi comuni.

Negli altri paesi europei, invece, si era diffusa una normativa inclusiva che riguardava alunni con difficoltà di apprendimento non dovute a cause sanitarie ma a svantaggi socioculturali, ambientali, familiari e/o personali. Tali alunni venivano considerati alunni con SEN (*Special Educational Needs*), di cui l'acronimo italiano BES è la traduzione. L'apertura a questo nuovo approccio è stata la traduzione italiana degli ICF[1] (*International Classification of Functioning, Disability and Health*) dell'Organizzazione Mondiale della Sanità. Il modello diagnostico degli ICF considera la persona in modo olistico, in una prospettiva globale – dunque biologica, psicologica e anche sociale – prendendo quindi in considerazione la totalità e la complessità dei funzionamenti delle persone e non solo gli aspetti bio-strutturali. La **direttiva ministeriale 27** del **dicembre** del **2012** basa, quindi, il concetto di bisogno educativo speciale proprio sugli ICF:
«Gli alunni con disabilità si trovano inseriti all'interno di un contesto sempre più variegato, dove la discriminante tradizionale – alunni con disabilità/alunni senza disabilità – non rispecchia pienamente la complessa realtà delle nostre classi. Anzi, è opportuno assumere un approccio decisamente educativo, per il quale l'identificazione degli alunni con disabilità non avviene sulla base della eventuale certificazione, che certamente mantiene utilità per una serie di benefici e di garanzie, ma allo stesso tempo rischia di chiuderli in una cornice ristretta. A questo riguardo è rilevante l'apporto, anche sul piano culturale, del modello diagnostico ICF *(International Classification of Functioning)* dell'OMS, che considera la persona nella sua totalità, in una prospettiva bio-psico-sociale. Fondandosi sul profilo di funzionamento e sull'analisi del contesto, il modello ICF consente di individuare i Bisogni Educativi Speciali (BES) dell'alunno prescindendo da preclusive tipizzazioni. In questo senso, ogni alunno, con continuità o per determinati periodi, può presentare Bisogni Educativi Speciali: o per motivi fisici, biologici, fisiologici o anche per motivi psicologici, sociali, rispetto ai quali è necessario che le scuole offrano adeguata e personalizzata risposta».
Nel 2007, quindi diversi anni prima della direttiva ministeriale di cui sopra, la Regione Piemonte emise una delibera in cui si parlava di EES (Esigenze Educative Speciali). Successivamente, alcuni confusero i due acronimi, immaginando che fossero la stessa cosa. In realtà i BES (Bisogni Educativi Speciali) non devono essere intesi come una nuova categoria, ma come una macro-categoria, un termine-ombrello che comprende al suo interno tre sottocategorie:

- la **prima fascia**, corrispondente alla disabilità
- la **seconda fascia**, riguardante i disturbi evolutivi specifici e a sua volta divisa in DSA (Disturbi Specifici di Apprendimento) e EES (per la Regione Piemonte)
- la **terza fascia**, comprendente le difficoltà che nascono da uno svantaggio socio/economico, linguistico e culturale.

Di seguito, una tabella riepilogativa aiuterà a comprendere il quadro normativo di riferimento.

1. https://www.reteclassificazioni.it/portal_main.php?portal_view = public_custom_page&id = 25

FASCIA	NORMATIVA	OGGETTO	PUNTI CHIAVE
Prima	L. 104/92	Legge quadro per l'assistenza, l'integrazione sociale e i diritti delle persone handicappate	Tratta della certificazione di disabilità e invita a una lettura equa dei bisogni. Il *Profilo Dinamico Funzionale* e il *Piano Educativo* sono, per tale legge quadro fondamentale, i momenti concreti in cui si esercita il diritto all'istruzione e all'educazione dell'alunno con disabilità.
	L. 17/1999	Integrazione e modifica della legge quadro 104/1992	Garantisce agli studenti handicappati iscritti all'università sussidi tecnici e didattici specifici.
	L. 62/2000	Norme per la parità scolastica e disposizioni sul diritto allo studio e all'istruzione	Stabilisce che le scuole paritarie, svolgendo un servizio pubblico, devono accogliere chiunque, compresi gli alunni e gli studenti con handicap.
	DM 185 del 23/02/2006	Regolamento recante modalità e criteri per l'individuazione dell'alunno come soggetto in situazione di handicap	Prevede che ai fini della individuazione dell'alunno come soggetto in situazione di handicap, le Aziende Sanitarie dispongano, su richiesta documentata dei genitori o degli esercenti la potestà parentale o la tutela dell'alunno, appositi accertamenti collegiali, documentati attraverso la redazione di un verbale che rechi l'indicazione della patologia accertata con riferimento alle classificazioni internazionali dell'OMS.
	Nota MIUR del 4/08/2009	Linee guida sull'integrazione degli alunni con disabilità	Le direttive mirano ad innalzare il livello qualitativo degli interventi formativi ed educativi sugli alunni portatori di disabilità fisiche, psichiche e sensoriali, a garanzia di una più piena conformità ai principi dell'integrazione da parte di tutti gli operatori nel mondo della scuola. La prima parte consta di una panoramica sui principi generali (norma costituzionale del diritto allo studio, DPR 275/1999, Convenzione ONU per i diritti delle persone con disabilità, L. 18/2009) ribadendo il modello sociale della disabilità. La seconda parte entra nelle pratiche scolastiche, riconoscendo la responsabilità educativa di tutto il personale della scuola e ribadendo la necessità della corretta e puntuale progettazione individualizzata per l'alunno con disabilità, in accordo con gli Enti Locali, l'ASL e le famiglie. La terza parte prende in considerazione la dimensione inclusiva della scuola: il POF è inclusivo quando prevede nella quotidianità azioni da compiere per dare risposte precise ad esigenze educative individuali e non concepisce nella pratica scolastica la presenza dei disabili come un "incidente di percorso" da affidare al docente di sostegno.
	D. L.ivo 66 del 13/04/2017	Norme per la promozione dell'inclusione scolastica degli studenti con disabilità	Il decreto aggiorna, riorganizza e razionalizza i provvedimenti vigenti in materia, tenendo conto della nuova prospettiva nazionale ed internazionale dell'inclusione scolastica, riconosciuta quale identità culturale, educativa e progettuale del sistema di istruzione e formazione in Italia.
Seconda	L. 170/2010	Norme in materia di Disturbi Specifici di Apprendimento in ambito scolastico	Tratta della diagnosi del disturbo, della personalizzazione e relativa necessità di flessibilità. Riconosce la dislessia, la disgrafia, la disortografia e la discalculia quali disturbi specifici dell'apprendimento, "che si manifestano in presenza di capacità cognitive adeguate, in assenza di patologie neurologiche e di deficit sensoriali, ma [che] possono costituire una limitazione importante per alcune attività della vita quotidiana". Stabilisce inoltre misure educative e didattiche di supporto (strumenti compensativi e dispensativi).

FASCIA	NORMATIVA	OGGETTO	PUNTI CHIAVE
Seconda	DM 5669/2011	Linee guida per il diritto allo studio degli alunni e degli studenti con Disturbi Specifici di Apprendimento	Fornisce precisazioni sulle lingue straniere, invitando le istituzioni scolastiche ad attuare ogni strategia didattica per consentire agli studenti con DSA l'apprendimento delle lingue straniere (valorizzazione delle modalità attraverso cui il discente meglio può esprimere le sue competenze e dell'espressione orale, strumenti compensativi e misure dispensative). "In sede di esami di Stato, conclusivi del primo e del secondo ciclo di istruzione, modalità e contenuti delle prove orali – sostitutive delle prove scritte – sono stabiliti dalle Commissioni, sulla base della documentazione fornita dai consigli di classe. I candidati con DSA che superano l'esame di Stato conseguono il titolo valido per l'iscrizione alla scuola secondaria di secondo grado ovvero all'università. […] Solo in casi di particolari gravità del disturbo di apprendimento, anche in co-morbilità con altri disturbi o patologie, risultanti dal certificato diagnostico, l'alunno o lo studente possono – su richiesta delle famiglie e conseguente approvazione del consiglio di classe – essere esonerati dall'insegnamento delle lingue straniere e seguire un percorso didattico differenziato. In sede di esami di Stato, i candidati con DSA che hanno seguito un percorso didattico differenziato e sono stati valutati dal consiglio di classe con l'attribuzione di voti e di un credito scolastico relativi unicamente allo svolgimento di tale piano, possono sostenere prove differenziate, coerenti con il percorso svolto, finalizzate solo al rilascio dell'attestazione di cui all'art. 13 del DPR n. 323/1998."
	Nota MIUR 3573 del 26/05/2011	Diagnosi alunni con DSA precedente all'entrata in vigore della L. 170/2010	Stabilisce che gli alunni e gli studenti con diagnosi di DSA redatta anteriormente all'entrata in vigore della Legge 8 ottobre 2010 n. 170 potranno regolarmente usufruire degli strumenti compensativi e delle misure dispensative previsti, sia nella normale attività didattica sia nell'ambito degli Esami di Stato.
	Dir. Min. 27/2012	Strumenti di intervento per alunni con Bisogni Educativi Speciali e organizzazione territoriale per l'inclusione scolastica	Delinea e precisa la strategia inclusiva della scuola italiana. Estende il campo di intervento e di responsabilità di tutta la comunità educante all'intera area dei Bisogni Educativi Speciali, comprendente: "svantaggio sociale e culturale, disturbi specifici di apprendimento e/o disturbi evolutivi specifici, difficoltà derivanti dalla non conoscenza della cultura e della lingua italiana perché appartenenti a culture diverse". Stabilisce la redazione del *Piano Didattico Personalizzato*, strumento in cui si potranno includere "progettazioni didattico-educative calibrate sui livelli minimi attesi per le competenze in uscita, e strumenti programmatici utili in maggior misura rispetto a compensazioni o dispense".

FASCIA	NORMATIVA	OGGETTO	PUNTI CHIAVE
Seconda	CM 8/2013 (esplicativa della DM 27/2012)	Indicazioni operative alunni con BES	Ribadisce il nucleo fondante della Direttiva, aggiungendo che per gli alunni in possesso di una diagnosi di DSA rilasciata da una struttura privata, si devono adottare le misure della 170 nelle more del rilascio della certificazione da parte di strutture sanitarie pubbliche o accreditate. Richiama inoltre l'attenzione sul fatto che ogni alunno può manifestare Bisogni Educativi Speciali anche in modo temporaneo e che essi devono essere suffragati da elementi oggettivi. Per gli alunni stranieri è possibile attivare percorsi individualizzati e personalizzati, nonché strumenti compensativi e dispensativi. Rammenta infine che le due ore di insegnamento della seconda lingua comunitaria nella secondaria di primo grado possono essere utilizzate per potenziare l'insegnamento della lingua italiana.
	Nota MIUR 2563 del 22/11/2013	Strumenti di intervento per alunni con Bisogni Educativi Speciali. Chiarimenti	Richiama l'attenzione sulla distinzione tra ordinarie difficoltà di apprendimento, gravi difficoltà e disturbi di apprendimento che hanno carattere permanente e base neurobiologica. La scuola può intervenire nella personalizzazione in tanti modi diversi, informali o strutturati, secondo i bisogni e la convenienza; pertanto la rilevazione di una mera difficoltà di apprendimento non dovrebbe indurre all'attivazione di un percorso specifico con la conseguente compilazione di un *Piano Didattico Personalizzato*.
Terza	Dir. Min. 27/2012	Strumenti di intervento per alunni con Bisogni Educativi Speciali e organizzazione territoriale per l'inclusione scolastica	Identifica l'area dello svantaggio, e chiarisce la responsabilità pedagogico-didattica versus delega biomedica: "[o]ve non sia presente certificazione clinica o diagnosi, il consiglio di classe o il team dei docenti motiveranno opportunamente, verbalizzandole, le decisioni assunte sulla base di ben fondate considerazioni pedagogiche e didattiche; ciò al fine di evitare contenzioso." (CM 6/03/13). Vedi sopra.
	CM 8/2013	Indicazioni operative alunni con BES	Vedi sopra.
	Nota MIUR 2563 del 22/11/2013	Strumenti di intervento per alunni con Bisogni Educativi Speciali. Chiarimenti	Vedi sopra.

1.3 Bisogni Educativi Speciali: inquadramento scolastico

Per cercare di semplificare quanto attiene ai Bisogni Educativi Speciali, seguono un paio di tabelle riepilogative circa le varie tipologie, i vari gruppi/organi interessati e gli adempimenti didattico-burocratici che vedono il coinvolgimento del consiglio di classe a tutela del diritto allo studio e all'inclusione di tutti gli studenti.

BISOGNI EDUCATIVI SPECIALI (BES)			
FASCIA	**Prima**	**Seconda**	**Terza**
DEFINIZIONE	**Disabilità**	**Disturbi evolutivi specifici**	**Svantaggio socio-economico, linguistico, culturale**
CERTIFICAZIONE	**Sì**	**No**	**No**
DIAGNOSI[2]	**Sì**	**Sì**	**No**
TIPOLOGIE	• **Minorati psicofisici** • **Minorati vista** • **Minorati udito**	**EES** **Esigenze Educative Speciali** • **Disturbi del linguaggio** • **Disturbi delle abilità non verbali** (disturbo visuospaziale) • **Disturbi della coordinazione motoria**/ disprassia • **Disturbi da deficit di attenzione/iperattività** (ADHD)[3] • **Disturbo da comportamento dirompente** • **Disturbi d'ansia, disturbi dell'umore** • **Disturbo evolutivo specifico misto**[4] • **Funzionamento cognitivo limite** (o borderline)	• **Difficoltà derivanti da elementi oggettivi** (segnalazione servizi sociali, per esempio) oppure • **Fondate considerazioni psico-pedagogiche e didattiche rilevate dal Consiglio di Classe**

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2. La diagnosi deve essere a cura delle ASL (o dalle Aziende Ospedaliere e Universitarie e dalle IRCSS, ossia Istituti di Ricovero e Cura a Carattere Scientifico) o di un medico privato in attesa di quella dell'ente pubblico.
3. Nel caso di alunni con iperattività all'interno di un quadro clinico grave, anche per co-morbilità con altre patologie, può venire assegnato il docente di sostegno.
4. Qualora sia lieve e non rientri nelle previsioni della L. 104/1992.

		DSA **Disturbi Specifici dell'Apprendimento** • **Dislessia** (disturbo che impedisce la decodificazione del testo scritto) • **Disortografia** (disturbo specifico della scrittura che riguarda l'ortografia) • **Discalculia** (disturbo che riguarda il sistema numerico e i calcoli) • **Disgrafia** (disturbo specifico della scrittura che riguarda il tratto grafico)	
DIRITTI	• Insegnante di sostegno • PEI	• Personalizzazione del percorso di studio	• Personalizzazione del percorso di studio
DOCUMENTAZIONE DA PRODURRE DA PARTE DEL CONSIGLIO DI CLASSE	**PEI** (*Piano Educativo Individualizzato*): documento obbligatorio (redatto congiuntamente dalla scuola e dai servizi socio-sanitari che hanno in carico l'alunno in collaborazione con la famiglia) e parte integrante della programmazione educativo-didattica di classe. Le azioni definite nel PEI sono coerenti con le indicazioni espresse nella Diagnosi Funzionale e nel Profilo Educativo Funzionale (documenti predisposti dalla Neuro-psichiatria Infantile) e descrivono annualmente: – obiettivi educativi e didattici – metodi e criteri di valutazione.	**PDP** (*Piano Didattico Personalizzato*): documento obbligatorio redatto dal consiglio di classe entro tre mesi dalla ricezione della diagnosi da parte dell'istituto. Include: – la tipologia del disturbo – le attività didattiche personalizzate – gli strumenti compensativi – le misure dispensative – le modalità di verifica e valutazione personalizzate e comprende tutti i supporti e le strategie che possono portare al successo formativo dell'alunno. Le azioni in esso definite devono essere coerenti con le indicazioni espresse nella diagnosi consegnata alla scuola.	**PDP** (*Piano Didattico Personalizzato*): documento non obbligatorio ma consigliato redatto dal consiglio di classe entro tre mesi dalla ricezione di eventuali relazioni di esperti da parte dell'istituto o dalla rilevazione dell'area di svantaggio. Include: – la problematica rilevata – le attività didattiche personalizzate – gli strumenti compensativi – le misure dispensative – le modalità di verifica e valutazione personalizzate e comprende tutti i supporti e le strategie che possono portare al successo formativo dell'alunno. Deve tenere conto di eventuali relazioni cliniche, di esperti o educatori consegnate alla scuola.
TITOLI DI STUDIO CONSEGUIBILI AL TERMINE DELLA SCUOLA SECONDARIA SUPERIORE	• Attestato di credito formativo, nel caso di allievo con percorso didattico differenziato (art. 13, DPR 323/98) • Diploma, nel caso di allievo con programma ad obiettivi differenziati (DPR 323/98)	• Diploma • Attestazione, nel caso di studenti DSA con esonero totale delle lingue straniere[5]	• Diploma

5. Vedi tabella normativa, DM 5669/2011.

ACRONIMO	SIGNIFICATO	NORMA	FUNZIONE
CTS	Centri Territoriali di Supporto	CM 6/03/13	Interfaccia fra l'Amministrazione e le scuole, e tra le scuole stesse e rete di supporto al processo di integrazione, allo sviluppo professionale dei docenti e alla diffusione delle migliori pratiche.
CTI	Centri Territoriali per l'Inclusione	L. 35/2012	Definire, per ciascuna istituzione scolastica, "un organico per l'autonomia, funzionale all'ordinaria attività didattica, educativa, amministrativa, tecnica e ausiliaria, alle esigenze di sviluppo delle eccellenze, di recupero, di integrazione e sostegno agli alunni con bisogni speciali e di programmazione dei fabbisogni di personale". Si occupano anche della costituzione di reti di scuole, della prevenzione dell'abbandono scolastico e di contrasto alla dispersione scolastica e formativa e al bullismo.
GLI	Gruppo di Lavoro per l'Inclusione	Istituito dalla L. 104/92 e ripreso nella CM 8/2013	Rilevazione dei BES presenti nella scuola, raccolta e documentazione degli interventi didattico-educativi posti in essere; focus/confronto sui casi, consulenza e supporto ai colleghi sulle strategie e metodologie di gestione delle classi; rilevazione, monitoraggio e valutazione del livello di inclusività della scuola; raccolta e coordinamento delle proposte formulate dai singoli GLHI.
GLIP o **GLH**	Gruppo di Lavoro Interistituzionale e Provinciale	Istituito dalla L. 104/92 e definito nel DM 216/1992	Il GLIP è composto da operatori della scuola e delle altre Istituzioni che operano sul territorio. Svolge funzioni di consulenza alle scuole per quanto riguarda l'integrazione e promuove la piena attuazione del diritto allo studio.
GLHI o **GLIS**	Gruppo di Lavoro e di Studio d'Istituto	L. 104/92, art. 15	Consulenza e proposta al Dirigente scolastico regionale e alle singole scuole, collaborazione con enti locali e unità sanitarie locali per la conclusione e la verifica dell'esecuzione degli accordi di programma per l'impostazione e l'attuazione dei piani educativi individualizzati, nonché per qualsiasi altra attività inerente all'integrazione degli alunni in difficoltà di apprendimento.
GLHO	Gruppo di Lavoro per l'Handicap Operativo	L. 104/92	Per ogni alunno con disabilità certificata, in genere, viene costituita un'equipe di lavoro, composta dal Dirigente scolastico, da almeno un rappresentante degli insegnanti di classe, dall'insegnante specializzato sul sostegno, dall'assistente educatore eventualmente presente, dagli operatori della ASL o ente privato convenzionato che si occupano del caso, dai genitori o dai facenti funzione e da qualunque altra figura significativa che operi nei confronti dell'alunno. Per esercitare le sue funzioni di competenza, il gruppo elabora il *Profilo Dinamico Funzionale* e formula il *Piano Educativo Individualizzato*.
PAI	Piano Annuale per l'Inclusività	Istituito dalla L. 122/2010	Formulare, da parte del GLI, un'ipotesi globale di utilizzo funzionale delle risorse specifiche, istituzionali e non, per incrementare il livello di inclusività generale della scuola. È riferito a tutti gli alunni con BES e si deve redigere al termine di ogni anno scolastico.

2. DISLESSIA, DIDATTICA E INGLESE

2.1 Dislessia: una breve analisi

La dislessia non è una malattia, ma una neuro-diversità, cioè uno sviluppo neurologico atipico che è espressione della varianza della popolazione. Lo sviluppo atipico interessa i processi di apprendimento impliciti che non sono facilmente identificabili in maniera isolata e che partecipano alla costruzione dei macro-apprendimenti, tra cui quelli scolastici.

La Classificazione internazionale ICD10[1] (International Statistical Classification of Diseases and Related Health Problems) dell'Organizzazione Mondiale della Sanità registra i disturbi specifici di apprendimento nell'asse F81. Si tratta di disturbi evolutivi specifici delle abilità scolastiche, disordini in cui le normali modalità di acquisizione delle competenze sono disturbate fin dai primi stadi di sviluppo. Ciò, però, non in diretta conseguenza di una mancata opportunità di apprendimento, non come risultato di un ritardo mentale e non in conseguenza di alcuna forma di trauma cerebrale o di deficit.

Tali disturbi, che possono occorrere tutti insieme perché vi è spesso comorbilità, sono:

F81.0 – Disturbo specifico della lettura
F81.1 – Disturbo specifico della compitazione
F81.2 – Disturbo specifico delle abilità aritmetiche
F81.3 – Disturbi misti delle abilità scolastiche
F81.8 – Altri disturbi evolutivi delle abilità scolastiche
F81.9 – Disordine evolutivo di abilità scolastiche non meglio specificato.

Leggere vuol dire decodificare, ossia dover fare continue traduzioni, ma se la corrispondenza tra grafemi e fonemi non è stabilizzata, come nel caso della dislessia, le lettere vengono invertite, le desinenze dimenticate, la frase "Whatyouthinkdyslexialookslike" diventa "whatewtinhkdyxlesiaklooslke". La metafora che si usa più frequentemente è quella delle lettere che galleggiano[2].

Lo sviluppo delle tecniche di *neuroimaging* ha dato un contributo notevole alla ricerca sulla dislessia, arrivando a identificare un'elaborazione fonologica disfunzionale dei soggetti nella regione perisilviana, ossia tutta l'area intorno alla scissura laterale fra il lobo temporale e il lobo parietale. Sulla base dei risultati delle ricerche condotte sui task di discriminazione visiva, i sostenitori di tale ipotesi ritengono che le difficoltà correlate alla dislessia si manifestino a causa di una impossibilità di filtrare contemporaneamente i vari input e, pertanto, a categorizzare le informazioni in modo da distinguere i dati sensoriali importanti da quelli meno rilevanti.

Alternativa a tale ipotesi è quella del deficit fonologico, la *Rapid auditory processing theory,* in base alla quale il deficit principale risiede nella percezione di brevi e rapidi suoni

1. Cfr. http://www.who.int/classifications/apps/icd/icd10online/
2. Si consiglia la visione del seguente filmato: http://indy100.independent.co.uk/article/this-website-shows-what-its-like-to-read-when-you-have-dyslexia—bkvKwiQlJW

e nella valutazione dell'ordine temporale, fenomeno che spiegherebbe la difficoltà nel percepire, decodificare o riprodurre i suoni nella giusta posizione.

Per quanto concerne l'apprendimento della lingua inglese, si è sviluppato un filone di ricerche su studenti di nazionalità diverse che ha messo in luce come, nelle lingue in cui la dimensione grafica e quella fonetica è "trasparente"[3], l'incidenza delle difficoltà fonologiche derivanti dalla dislessia sia inferiore.

Secondo tali ricerche, tre fattori principali concorrono allo sviluppo delle attività di lettura. Il primo è costituito dalla disponibilità di diverse unità fonologiche pre-esistenti alla lettura; il secondo è rappresentato dalla coerenza nelle associazioni tra dimensione fonetica e dimensione grafica; il terzo è la *granularity*, per cui il numero di unità ortografiche da imparare è maggiore del numero di unità fonologiche utilizzate. Un sistema viene considerato completamente trasparente quando a ogni suono corrisponde un segno, cioè, nei sistemi cosiddetti alfabetici, quando a ogni fonema corrisponde una lettera (rapporto 1:1). Il grado di trasparenza si riduce quando la trascrizione ortografica di un fonema richiede più di una lettera e il rapporto fra fonemi e lettere non è più 1:1, ma diventa 1:2, come, per esempio, per il fonema che si riproduce con 2 lettere (il digramma GN in italiano, per esempio). Questa differenza di "granularità" dipende dalla difformità fra il numero di fonemi di una lingua e il numero di lettere di ciascun alfabeto. Per esempio, per l'italiano ci sono circa 30 fonemi, che devono essere trascritti con 21 lettere, anche se nella pratica sono utilizzate altre 5 lettere di origine non-latina (j, k, w, x, y). Il grado di trasparenza non può quindi essere perfetto perché il numero di lettere dovrebbe essere uguale a quello dei fonemi, tuttavia non c'è paragone con la lingua inglese: la regolarità dell'italiano è notevolmente maggiore di quella della lingua inglese, che ha circa 44 fonemi, ma solo 26 lettere a disposizione per la loro trascrizione.

Sulla base di questo criterio, è stata costruita la teoria della dimensione della granularità in base alla quale:

- nei sistemi ortografici ad alta regolarità la scrittura viene acquisita in tempi più rapidi;
- nei sistemi regolari la didattica di insegnamento della lettura e della scrittura più consona è quella sillabico/alfabetica, in quanto la segmentazione e la fusione fonemica risultano molto facili e si prestano a una transcodifica assemblativa (il metodo fonico-sillabico);
- nei sistemi regolari sia la lettura sia la scrittura vengono acquisite in tempi più rapidi che nei sistemi meno regolari;
- i bambini che imparano con i sistemi regolari commettono meno errori ortografici e di lettura di quelli che apprendono un sistema ortografico irregolare come quello inglese.

Secondo tale approccio, la lettura dipenderebbe quindi dall'astrazione di mappe ottimali tra unità grafiche e fonologiche della lingua e l'organizzazione lessicale, così come le strategie che servono a processare le parole al fine di leggere sarebbero fortemente influenzate dai limiti imposti dai diversi sistemi di scrittura. L'apprendimento di una lingua seconda, inoltre, non è inconscio come quello della lingua madre quindi non vi è solo la difficoltà dell'aspetto decifrativo, ma anche quello della fatica cosciente richiesta che è

3. V. Introduzione, p. 25.

necessaria per apprendere una seconda lingua, come l'inglese, con divergenze notevoli ma non omogenee e regolari tra pronuncia e resa grafica.

La letteratura scientifica attesta che le abilità di codifica (produzione in forma scritta e orale) e decodifica (comprensione di forme scritte e orali) richieste e quelle necessarie per processare l'aspetto fonologico-ortografico hanno bisogno di una motivazione molto forte che, nel caso dei dislessici, può essere pregiudicata dal basso livello di successo percepito e che quindi deve essere accresciuta con stimoli che rendano piacevole un apprendimento così ostico.

2.2 Dislessia: le difficoltà principali

Si elencano ora una serie di difficoltà che possono presentare gli studenti dislessici, con l'avvertenza, tuttavia, che esse potrebbero essere presenti solo in parte o solo in alcuni, o che, ancora, potrebbero essere già state compensate nell'età che qui si prende in considerazione (ossia quella degli alunni della scuola secondaria di primo e secondo grado), poiché gli alunni dislessici non rappresentano una popolazione scolastica omogenea – li accomuna la difficoltà di lettura, ma le differenze soggettive possono essere decisamente consistenti:

- lentezza nell'apprendere e nello stabilizzare la corrispondenza tra le lettere e i suoni nella lingua straniera
- difficoltà con parole funzionali (preposizioni, congiunzioni, ecc.)
- tendenza a non ricordare le elencazioni (nomi, cose, numeri, ecc.), specie se in sequenza
- la comprensione in lettura potrebbe essere compromessa per via della poca accuratezza, velocità e scorrevolezza di lettura
- difficoltà nell'indicare destra o sinistra, l'ordine dei giorni della settimana, dei mesi, ecc.
- difficoltà nella sintassi e nella punteggiatura
- difficoltà a riassumere e a sintetizzare
- difficoltà a prendere appunti o a copiare dalla lavagna
- difficoltà nell'uso del dizionario
- lentezza nel rispondere alle domande, soprattutto quelle aperte che richiedono una risposta articolata
- lentezza nel memorizzare.

In particolare, in inglese, i problemi di decodifica più frequenti sono:

- il cosiddetto *spoonerism,* ossia lo scambio di iniziali di due termini, ad esempio*: fips and chish* per *fish and chips*
- d per b, ad esempio *dog* al posto di *bog*
- confusione tra m e w
- parole lette al contrario (*tip* per *pit*)
- parole scambiate (*home* per *house*)
- confusione tra sequenze di lettere (ad esempio *soiled* per *solid*; *left* per *felt*)
- spelling incoerente: *dolls/dols, thanks/thinks, natulal/natural*
- conversione fonema/grafema: *ajsrink* (*icerink*), *distroyd* (*destroyed*)
- addizione/sottrazione di lettere: *ekspresioning (expressing), stoy (story)*
- scelte non interpretabili: *witol (vehicle), endangires (endangered).*

2.3 Qualche suggerimento operativo di facile attuazione

STRUMENTI COMPENSATIVI

- Uso di organizzatori anticipati per gli argomenti complessi, ossia schemi o mappe
- Possibilità di registrare le lezioni per uso personale
- Possibilità di usare il computer o il tablet
- Uso dei programmi di sintesi vocale
- Uso di dizionari elettronici
- Uso di calcolatrice, formulari e tabelle
- Uso di programmi di videoscrittura con correttori automatici

MISURE DISPENSATIVE

- Dispensa dalla lettura ad alta voce
- Dispensa dallo scrivere sotto dettatura
- Dispensa dal prendere appunti
- Dispensa dal copiare dalla lavagna
- Dispensa dalla scrittura alla lavagna
- Dispensa dallo studio mnemonico (es. poesie, forme verbali, sequenze…)
- Dispensa di un eccessivo carico di compiti con riadattamento e riduzione delle pagine da studiare mantenendo gli stessi obiettivi

VERIFICHE E VALUTAZIONI

- Interrogazioni programmate e/o concordate
- Dispensa dalle prove scritte in lingua straniera
- Prove orali equipollenti in sostituzione delle prove scritte
- Utilizzo di schemi/mappe/formulari durante le verifiche scritte
- Utilizzo di schemi/mappe/formulari durante le verifiche orali
- Valutazione attenta più ai contenuti che alla forma
- Diminuzione del numero di item per esercizio
- Tempi più lunghi nelle verifiche scritte
- Verifiche su porzioni ridotte di programma
- Utilizzo prevalente di domanda a risposta chiusa
- Lettura delle consegne degli esercizi
- Fornitura delle prove su supporto digitalizzato
- Consegne in italiano delle verifiche di lingua straniera
- Peso maggiore delle verifiche orali rispetto alle prove scritte di lingua straniera
- Tempi più lunghi ai fini del recupero
- Possibilità di utilizzare il dizionario bilingue cartaceo o su supporto informatico

LEZIONI

- Chiarire esplicitamente il piano della lezione e, a ogni passaggio a fase successiva, ricordare il piano
- Se si usa la LIM o un proiettore, fornire alla fine della lezione i file allo studente
- Prevedere esercizi di discriminazione fonologica (ad esempio distinzione tra fonemi dell'inglese che in italiano non hanno valore distintivo /n/ e /ŋ/)
- Ricordarsi di spiegare agli studenti che per motivi storici la lingua inglese è molto "opaca" e quindi…
  - **Una lettera, diversi fonemi: that's the problem!**
    O → **17** fonemi
    A → **10** fonemi
    E → **9** fonemi
  - **Una lettera → nessun fonema**
    gave, castle, subtle
  - **Un grafema multi-lettera → diversi fonemi**
    EA → *lead, meadow, sea*
  - **Grafemi diversi → uno stesso fonema**
    Be, chief, key
  - **Omografi non omofoni**
    Pear/pair
  - **Omofoni non omografi**
    Right, rite, wright, write

Quest'ultimo è un problema per tutti gli apprendenti, non solo per i dislessici. Sottolineare le difficoltà dovute alla scarsa "trasparenza" della lingua è molto importante, così come far conoscere agli studenti le seguenti percentuali di errori nella decifrazione delle parole al termine del primo anno di scolarità nel Regno Unito rispetto agli altri paesi europei la cui lingua è più "trasparente":

Regno Unito: 67% – Germania: 7% – Spagna: 6% – Italia: 5%

2.4 Qualche accorgimento nella didattica quotidiana

Spesso, purtroppo, nonostante i numerosi corsi di aggiornamento e le pubblicazioni su questo argomento – per tacere dell'ottimo e corposo materiale pubblicato online e dell'impegno dell'Associazione Italiana Dislessia – l'associazione tra dislessia e pigrizia è ancora molto frequente.

Gli studenti affetti da tale disturbo, talvolta, oltre a essere visti come problematici e trattati con malcelata insofferenza, vengono anche definiti svogliati, a riprova del fatto che il misoneismo – ossia il timore di ciò che è nuovo e scardina, o anche solo intacca, abitudini e stili di insegnamento, convincimenti e mode didattiche – è ancora molto diffuso.

Limitarsi infatti ad applicare misure compensative e dispensative in modo meccanico, senza invece pensare a una didattica inclusiva ad ampio raggio, per poi concludere che sono gli studenti DSA a non voler vedere applicate le misure o le strategie suggerite, non è forse la strada migliore da intraprendere per chi ha a cuore i propri studenti.

Sapere di dover svolgere la verifica in modo diverso dagli altri, per esempio, molte volte spinge gli adolescenti a non avvalersi delle misure compensative e dispensative proposte perché vengono intese come marcatori di differenza. Usare il tablet o un notebook quando i compagni usano il foglio protocollo, non è concepito come una strategia strumentale equiparabile a mettersi gli occhiali se non si vede la lavagna. E queste differenze, seppur minime, possono avere conseguenze serie per gli apprendenti.

Come osserva Giacomo Stella[4]: "Alla scuola superiore il problema viene accentuato dal rifiuto da parte degli studenti di utilizzare strumenti compensativi e misure dispensative per non essere identificati come 'diversi'". Quindi, oltre ai fattori di rischio di insuccesso, ci sono anche fattori di rischio psicosociale e psicopatologico. "Ci vorrebbe", sempre secondo Stella, "una scuola completamente diversa, basata sull'apprendimento e non sull'insegnamento. Questo significa non valutare unicamente le risposte alle nozioni, ma far crescere gli studenti agendo sulle loro potenzialità, senza diversificare chi necessita di computer o di tavola pitagorica da chi non ne ha la necessità. Inoltre, è necessario un nuovo contratto educativo in cui ciascuno viene riconosciuto per quello che può dare e superare, almeno alla primaria, l'attuale modello classificatorio. È importante una scuola senza compiti, ma con attività di potenziamento e di allenamento diversificate condotte all'interno della scuola, anche se affidate ad agenzie diverse. Insomma, una scuola amica che consideri l'apprendimento un'opportunità per tutti e non una punizione per alcuni."

Chi vive quotidianamente la realtà scolastica, che si sa essere fatta non solo di didattica ma anche di burocrazia, edilizia, sicurezza, arredi e programmazioni talvolta eccessivi e/o inadeguati, potrà considerare quanto sopra utopico, se non la solita aria fritta, ma, come si spera di poter dimostrare con alcuni esempi, basta estendere alcuni accorgimenti a tutta la classe per creare un ambiente inclusivo a costo zero.

La dislessia, da "problema" che affatica la vita dei docenti e la riempie di ulteriori e lunghi documenti e doppi lavori, che stigmatizza gli studenti in "diversi" e "difficili", può trasformarsi in "opportunità", occasione di dare una svolta al proprio metodo di insegnamento, riuscendo finalmente a trasformare la propria didattica, talvolta cattedratica, monodiscente e frontale, in una didattica più personalizzata, ricca e coinvolgente, a misura di ogni studente.

Gli accorgimenti che seguono tengono anche conto delle differenze tra le difficoltà di apprendimento nella scuola primaria e in adolescenza, momento nel quale il problema è

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4. Professore ordinario di Psicologia clinica all'Università di Modena e Reggio Emilia, fondatore dell'Associazione Italiana Dislessia, membro del comitato tecnico-scientifico per l'attuazione della legge 170 e del comitato promotore per il panel di aggiornamento e revisione della Consensus conference sui DSA, direttore scientifico della rete di centri clinici S.O.S. Dislessia per diagnosi e rieducazione dei DSA e di I.RI.DE, Istituto di Ricerca sulla dislessia evolutiva. Citazione tratta da http://www.sardegnamedicina.it/content/dislessia-e-dsa-sotto-la-lente-di-giacomo-stella.

più della memoria di lavoro che non nelle difficoltà di letto-scrittura, ossia la capacità di mantenere in mente e manipolare le informazioni per un breve periodo di tempo.
Essa è implicata in molteplici attività della vita quotidiana, come farsi la cartella e capire informazioni stradali, ma anche nell'attività scolastica, come ripetere una parola in una lingua straniera e memorizzare consegne complesse. Infatti, il recupero delle informazioni a lungo termine che opera quando l'insegnante spiega e lo studente ascolta oppure legge e prende appunti, interviene nell'organizzazione del discorso e nella comprensione del testo. Se si producono enunciati troppo complessi, si sollecita in modo eccessivo la memoria di lavoro, perché non si riesce a mantenere il collegamento tra l'inizio dell'enunciato e la fine, il che è necessario al fine dell'apprendimento.

Un esempio molto facile da capire è quello delle indicazioni stradali: "Svolta alla prima a destra e poi di nuovo a sinistra in corrispondenza del semaforo di fronte alla farmacia, poi procedi sempre dritto e, dopo aver oltrepassato alla tua destra il tabaccaio, svolta a destra e in corrispondenza della rotonda…". Questo tipo di informazione, nella vita reale, sarebbe interrotta dall'interlocutore con DSA che deciderebbe di chiedere la ripetizione della sequenza già dalla prima svolta oppure di affidarsi a un navigatore. In classe ciò non è possibile, ecco quindi che una modalità diversa di trasmettere i contenuti può essere risolutiva, poiché è il sovraccarico di informazione nella memoria che porta lo studente DSA a distrarsi e a cancellare anche le poche informazioni trattenute.

Nella scuola, spesso, il problema della memoria di lavoro non viene identificato, ma attribuito a scarsa attenzione[5]. Una capacità di memoria di lavoro inefficiente impedisce di manipolare le informazioni. Una semplice verifica per rendersi conto del problema potrebbe essere quella di far ripetere in ordine inverso sequenze di numeri o parole. A sviluppo di memoria terminato, ossia a 15 anni, si dovrebbe essere in grado di ricordare tra le 5 e le 6 parole dette in sequenza.

Accorgimento 1: abbassare il filtro affettivo

Secondo il celebre linguista statunitense Stephen Krashen, per acquisire una nozione è necessario che non sia inserito il filtro affettivo, altrimenti ciò che si comprende viene collocato nella memoria a breve termine e non diventa acquisizione stabile e definitiva.

Nelle situazioni di sfida piacevole, nella convinzione di poter riuscire, l'organismo rilascia neurotrasmettitori (come la noroadrenalina) necessari per fissare la "traccia mnestica", ossia per fare proprio l'input che viene recepito, mentre in stato di paura e stress si produce uno steroide che blocca la noradrenalina e fa andare in conflitto l'amigdala – la ghiandola "emotiva" che vuole difendere la mente da eventi spiacevoli – e l'ippocampo – la ghiandola che invece ha un ruolo attivo nell'attivare i lobi frontali e iniziare la memorizzazione.

Il filtro affettivo è dunque un preciso meccanismo di autodifesa che viene attivato da stati di ansia e condiziona negativamente il passaggio dei dati. In sostanza, lo stato

5. G. Stella, *La dislessia in adolescenza*, in https://www.youtube.com/watch?v = iiGNykzaAPI

emozionale del soggetto, causato dall'ansia di fronte al compito, può favorire o impedire l'elaborazione mentale di ciò che sente: in presenza di un filtro affettivo attivato non si può avere acquisizione, ma solo apprendimento.

Le modalità e l'intensità attraverso le quali il filtro agisce sull'apprendimento del soggetto dipendono dalle sue caratteristiche personali, ma anche e, in alcuni casi soprattutto, da come l'ambiente è in grado di "leggere" e di soddisfare le sue motivazioni profonde in relazione ai contenuti da apprendere, e di come questo possa procurare al soggetto benessere emozionale, in quanto "lo stato mentale rilassato dello studente […] aumenta la recettività verso la nuova materia"[6].

La soluzione dunque è quella di non far innescare tale filtro affettivo, solitamente attivato da:

- stati di ansia: ad esempio, un dettato autocorretto non è ansiogeno, ma solo una sfida con se stessi, mentre un dettato che poi viene corretto dall'insegnante crea ansia;
- attività che pongono a rischio l'immagine di sé che lo studente vuole offrire al resto della classe: ad esempio, chiedere a uno studente di parlare o dialogare in lingua straniera prima che egli si senta sicuro di riuscirci;
- attività che minano l'autostima: per esempio, la procedura *cloze* (tecniche di incastro), gli esercizi in cui occorre rimettere in ordine le parole e gli esercizi in cui si deve trovare un sinonimo sono attività che pongono lo studente di fronte alla propria capacità di *problem solving*, che può parere inadeguata;
- attività che provocano la sensazione di non essere in grado di apprendere: ad esempio, le attività di comprensione che aprono un'unità d'apprendimento devono facilitare al massimo il primo contatto con un nuovo testo in lingua straniera, evitando l'inserimento del filtro affettivo[7]. Un accorgimento quindi potrebbe essere quello di scegliere testi di questo tipo in modo da alzare il livello di autostima.

Quanto elencato non si riferisce esclusivamente a studenti con BES, si può dunque facilmente cogliere come la dislessia possa concorrere a moltiplicare gli stati d'ansia di fronte a una qualsiasi attività di apprendimento.

La chiave è, forse, aiutare chi la dislessia non ce l'ha, ossia rendere i docenti consapevoli che la didattica trasmissiva e gli esercizi di cui sopra escludono e non includono, e spingerli a chiedersi se abbassare il filtro affettivo non giovi a tutta la classe e non solo ai dislessici.

Accorgimento 2: multisensorialità

Come già accennato, occorre puntare sulla motivazione e su strategie didattiche appropriate, come l'approccio multisensoriale, per esempio, il cui principio fondante è che "gli studenti percepiscono l'input linguistico mediante il ricorso a più di un canale

6. Cfr. P. E. Balboni, *Le sfide di Babele. Insegnare le lingue nelle società complesse*, UTET, 2012, p. 39.
7. *Ibidem*, p. 40.

sensoriale, facendo sì che si realizzi simultaneamente un'elaborazione visiva, uditiva, e tattile-cinestetica dell'informazione"[8].

Scrivere e pronunciare le nuove parole sollecitando l'associazione a un simbolo visivo, compitare le parole ad alta voce, far percepire che quando si pronuncia la lettera "h" in inglese si emette dell'aria (espirazione) che ad esempio sposta una pallina di carta che l'insegnante tiene in mano, aiuta ad associare struttura grafica, pronuncia e significato della parole.

Trasformare la classe in un laboratorio multisensoriale o poter disporre di un laboratorio linguistico sarebbe l'optimum, ma, partendo da ipotesi più realistiche e cioè che non sia possibile accedere ad un siffatto laboratorio, che non vi sia una LIM in classe, né un proiettore collegato a un computer, si può chiedere agli studenti di portare i loro apparecchi in base alla nota strategia BYOD (*Bring Your Own Device*) oppure almeno reperire delle casse per il PC d'aula.

Accorgimento 3: flessibilità e clima relazionale positivo

Un'altra parola chiave è flessibilità, perché non esiste un alunno dislessico standard e spesso vi è un disturbo misto: si tratta quindi di trovare insieme allo studente strategie diverse che vanno adattate di volta in volta.

Ogni insegnante di lingua inglese conosce molto bene quale sia il ciclo di apprendimento delle lingue straniere: *comprehension-assimilation-production*. Tuttavia, talvolta non attribuiamo abbastanza valore all'aspetto della ricezione-comprensione, tendendo a darlo quasi per scontato. Ciò capita soprattutto con l'inglese, sia perché è la più romanza tra le lingue germaniche, sia perché nel registro formale annovera molti termini di derivazione greca o latina che la maggior parte degli studenti italiani non ha eccessiva difficoltà a comprendere. Valorizzare la comprensione del testo e non sottovalutarla potrebbe aiutare gli studenti ad elevare il livello di autostima e a rafforzare la fiducia nelle proprie abilità di comprensione, anche se si tratta di testi puramente referenziali, in questo modo affronterebbero con meno timore testi in cui abbondano verbi fraseologici, figure retoriche, polirematiche e proverbi.

Flessibilità significa anche non procedere per tappe forzate, ma privilegiare le attività in cui gli studenti riescono meglio in modo da trarre gratificazione da ciò che fanno.

Alcuni suggerimenti potrebbero essere:

- contestualizzare sempre i vocaboli anche rispetto a campi semantici vicini agli interessi dei ragazzi, come la musica, il calcio, la danza, per esempio, e rinunciare a un paragrafo del libro su una corrente letteraria o su un autore
- parlare di un autore raccontando aneddoti sulla sua vita privata che attirino l'attenzione degli studenti
- dire che Shakespeare non sapeva scrivere il proprio cognome e lo scriveva in modi sempre diversi

8. P. Aiello et alii, "Dislessia e complessità didattica della lingua inglese nei contesti scolastici italiani: proposta di un approccio multisensoriale ed interattivo" in *Italian Journal of Special Education for Inclusion*, anno I, n. 2, 2013, p. 113.

- raccontare le difficoltà che avevano a scuola letterati di primo piano, e, soprattutto, raccontare le proprie difficoltà di quando eravate voi gli studenti
- non aver paura di usare l'italiano per attirare l'attenzione: se gli studenti non capiscono, si distraggono, pensano che l'inglese sia troppo difficile e assumono atteggiamenti rinunciatari
- usare colori per le parole chiave
- usare lo stampatello e chiedere se capiscono, o scusarsi per la propria brutta grafia sono strategie che non costano niente e migliorano la relazione tra docenti e studenti, permettendo agli alunni dislessici di capire le parole meglio senza rivolgersi al compagno di banco
- sorridere, chiedere agli studenti come stanno, come si sentono, soprattutto se ci si rende conto che è successo qualcosa che li ha rattristati o agitati nell'ora precedente e rinunciare a spiegare quello che ci si era prefissi o a interrogare o a svolgere la verifica scritta è un esempio di flessibilità che influisce molto positivamente sull'aspetto emotivo-motivazionale, perché gli studenti associano inevitabilmente il docente alla materia e se il docente li considera persone e non secchi da riempire – per citare la celebre metafora di Yeats[9] – la fiamma prima o poi si accenderà
- lodarli: gli insegnanti madrelingua dicono continuamente "good" o "excellent": è una buona tecnica motivazionale
- mimate: mettetevi sotto la cattedra se dovete spiegare "under"o fate cadere una biro per spiegare "to drop": oltre a catturare la loro attenzione innescherete un altro canale di riconoscimento del nuovo vocabolo.

Liberate la vostra fantasia: in fondo le indicazioni nazionali stesse sottolineano l'importanza di programmare un'azione educativa che tenga in considerazione principalmente le risorse dell'individuo, puntando su un'accoglienza educativa che gli permetta di affrontare con serenità le attività richieste.

Accorgimento 4: lavori di gruppo o di coppia e *cooperative learning*

Lavorare in coppia o in gruppo è più delicato perché una cosa è doversi esporre di fronte all'insegnante e alla classe, altra cosa è, invece, relazionarsi tra pari, in un'intervista, in un *role play* o in un'attività di *work in pairs*.

Il confronto ridotto consente anche di lavorare sulle dinamiche relazionali della classe: gli studenti imparano a confrontarsi anche con i compagni meno simpatici o meno conosciuti e non solo con il compagno di banco; se il clima è positivo, si possono creare dei gruppi basandosi sulle date di nascita e associando tutti coloro che sono nati nello stesso mese o tutti coloro che sono nati in primavera o in estate in modo da evitare che qualcuno si senta escluso. Associare studenti che ottengono risultati molto positivi ad altri che non li ottengono, non è sempre una buona idea, perché talvolta il criterio è troppo ovvio e finirebbe per umiliare questi ultimi, se non si sa mediare e far accettare un messaggio di aiuto tra pari.

9. "Education is not the filling of a pail, but the lighting of a fire", W.B. Yeats.

L'importante è sempre chiarire perché si deve svolgere un determinato esercizio e che cosa si impara facendolo: se l'insegnante sa dove deve andare, gli alunni lo seguono, ma in coppia o in gruppo è più divertente.

Il metodo principe per quanto riguarda l'apprendimento cooperativo formale e strutturato, molto differente quindi dall'approccio grammatico-traduttivo, è il *cooperative learning*, ispirato alle teorie costruttiviste e alla teoria della valutazione autentica. Per quanto riguarda la didattica delle lingue straniere, l'approccio di Spencer Kagan[10] ha il vantaggio di essere di facile implementazione e di non richiedere una lunga progettazione preparatoria.

Nell'interazione "a stella", tipica della lezione frontale, al centro vi è sempre l'insegnante, mentre nelle attività di apprendimento cooperativo l'interazione è reticolare e coinvolge tutti gli allievi in modo olistico senza essere mediata dal docente.
Nell'interazione "a stella" gli alunni considerano importante solo il parlato di quest'ultimo e si sentono esonerati dall'ascoltare i compagni[11]. L'attività didattica suddivisa in momenti di spiegazione e interrogazione instaura un rapporto solitario, a due, tra alunni e insegnante, che alza il livello del filtro affettivo. L'interrogazione, tipico esempio di conversazione diseguale, è un *unicum* italiano che causa noia e distrazione, soprattutto nel caso delle interrogazioni cosiddette "programmate", negative soprattutto nell'apprendimento di una lingua straniera, in particolare nel caso di alunni dislessici che necessitano di sistematicità e non possono affrontare molte pagine di contenuti tutte insieme, anche se, ovviamente, devono sapere quando e su che cosa saranno interrogati.

Accorgimento 5: schemi/tabelle/quaderno compensativo/mappe

L'utilizzo di poster didattici, la realizzazione di schemi con la reiterazione di forme linguistiche di difficile memorizzazione, un formulario di rielaborazioni sintetiche da realizzare insieme, sono strategie che funzionano sempre. Tali attività sono socializzanti e favoriscono l'integrazione piuttosto che la differenziazione. Difficilmente gli studenti le rifiuteranno o le troveranno banali, soprattutto se si dirà loro che possono utilizzare tali materiali anche durante le verifiche scritte o orali (le neuroscienze hanno dimostrato che scrivendo si memorizza, tanto più se lo si fa con colori diversi). Gli studenti dislessici potrebbero disegnare i mediatori iconici oppure si occuperanno di reperire mappe e sintesi sul loro apparecchio elettronico in base alle loro preferenze.

In alcune facoltà universitarie si permette agli studenti di tenere aperto il libro di testo durante gli esami, perché se l'argomento non è stato compreso e non si è acquisito un metodo di studio adeguato, non si riesce comunque a svolgere il compito assegnato in maniera adeguata; quindi, perché puntare sulla memorizzazione non contestualizzata delle preposizioni dei *phrasal verbs*, per esempio, quando si apprendono in modo più proficuo utilizzandoli e magari disegnando delle vignette che li illustrino? Anche le *flash card* sono efficaci e divertenti. Si possono coinvolgere gli studenti nella loro creazione e

10. S. Kagan, *L'apprendimento cooperativo: l'approccio strutturale*, Edizioni Lavoro, 2000, Roma.
11. C. Lavinio, *Comunicazione e Linguaggi disciplinari*, Carocci, Milano, 2006, p. 190.

sono utili per ripassare il lessico e alcune regole grammaticali. O, ancora, si possono realizzare dei poster… per esempio dal titolo "Attenti a quei due" per elementi grammaticali o lessicali a confronto e soggetti a interferenze o "Usare solo in caso di necessità" (ma la creatività degli studenti sarà certamente più accattivante), oppure conseguenze temporali con traduzione a fianco per ricordare la differenza di uso tra L1 e L2…

Mangio una mela ogni giorno.	I eat an apple every day.
Oggi a pranzo *mangio* una mela.	I'm going to eat an apple at lunch.
Adesso *mangio* una mela.	I'm eating an apple now.
Ho fame: *mangio* una mela.	I'm hungry. I'll eat an apple.
Mangio solo una mela a pranzo da una settimana.	I've been eating just an apple at lunch for a week.

Agli studenti si può chiedere di osservare l'economicità dell'italiano rispetto all'inglese, una volta tanto, oppure semplicemente che in inglese cambia sempre il tempo e in italiano si usa sempre il presente indicativo per indicare azioni che si svolgono in tempi diversi, oppure si può parlare dell'aspetto del verbo, delle funzioni linguistiche, ecc., ma è importante che ce l'abbiano sempre davanti quando svolgono un esercizio di produzione scritta.

È fondamentale chiarire che questa differenza causa errori di interferenza e che ci sbagliavamo anche noi quando avevamo la loro età perché tutti traducono dalla lingua madre. È inutile ipotizzare situazioni di "bagno linguistico" e di metodo comunicativo puro che difficilmente sono praticabili in una classe con 24 studenti per tre sole ore alla settimana in cui si deve anche spiegare, correggere e valutare e che, comunque, funzionano solo con i bambini piccoli: l'adolescente vuole sapere perché e fa confronti con la lingua italiana. Rispondiamogli o, meglio ancora, anticipiamolo.

Lo studente dislessico potrebbe utilizzare un quaderno compensativo in cui inserire gli ostacoli alla memoria sia durante le verifiche scritte sia durante quelle orali. Ciò ovvierebbe al problema di confondere una parola con un'altra e consentirebbe di testare più la sua comprensione che la sua memoria.

La mappa concettuale è un altro strumento utile. Si tratta della rappresentazione grafica di un concetto, un'informazione o una conoscenza. L'utilizzo delle mappe concettuali nella didattica permette non solo un apprendimento significativo, ma anche lo sviluppo della meta-cognizione, intesa come la consapevolezza che un soggetto ha della propria capacità cognitiva. Non è da dimenticare, inoltre, che le mappe concettuali disegnano l'articolazione della rete cognitiva in cui un dato sapere è collocato e collegato ad altre conoscenze, pertanto la sua rappresentazione grafica obbliga ad una lettura di tipo ipertestuale e abitua chi le utilizza ad abbandonare il pensiero lineare/sequenziale e ad utilizzare il cosiddetto pensiero reticolare.

Imparare ad usare ed insegnare ad usare software specifici può essere una buona strategia. Tali software infatti solitamente utilizzano due strategie peculiari affinché una

mappa sia effettivamente utile: la riduzione del numero di informazioni e della complessità visiva e l'aumento del valore informativo del singolo nodo. Alcuni esempi sono: '*IperMAPPE*' (studiato appositamente per gli apprendenti dislessici), 'cmap', 'XMind', e 'Mindomo' (quest'ultima applicazione presenta anche la possibilità di collaborazione in tempo reale poiché più utenti possono lavorare contemporaneamente sulla stessa mappa). Tali mappe possono anche essere integrate da altre applicazioni o piattaforme eLearning (*Moodle*, *Blackboard*, *Desire2Learn*, *Clever*, *itslearning*).

In ogni caso, le mappe non si devono improvvisare e bisogna imparare a costruirle e a farle costruire, altrimenti si rischia di ottenere esiti opposti che confondono gli studenti. Le mappe non devono essere ricche, ma essenziali e con chiare relazioni. I ragazzi con DSA tendono a perdersi quando devono preparare un'argomentazione, sia scritta sia orale, a causa delle difficoltà che hanno nei processi di automatizzazione delle informazioni. La mappa aiuta a minimizzare i punti deboli dello studente, compensando la lentezza nella lettura, la stanchezza nella lezione, la disorganizzazione e la struttura sintattica esclusivamente paratattica, a patto che:

- si eviti la prima progettazione a mano libera da parte dello studente: la dislessia severa rende arduo individuare nel testo le parole grafiche, la memoria a breve termine fa dimenticare i collegamenti, la disgrafia rende incomprensibile la rilettura
- si faccia utilizzare il PC con sintesi vocale guidandoli nell'uso, non delegando al PC ciò che è peculiare del docente
- si forniscano le mappe nel caso di contenuti complessi di genere storico-letterario ricordandosi di individuare i nodi e i concetti associati, assegnando loro etichette significative (parole-concetto)
- si individuino i collegamenti (anche quelli che al docente paiono scontati) e si assegnino le parole-collegamento
- si facciano svolgere attività di preparazione alla costruzione delle mappe come, per esempio, imparare a scegliere il significato in base al contesto o saper ricavare informazioni dagli espedienti grafici dei libri di testo, dai mediatori iconici, dalle fotografie e dai titoli dei paragrafi.

Accorgimento 6: provare la *flipped classroom*

Anche la *flipped classroom* può essere una strategia per abbassare il filtro affettivo. L'idea è quella di fornire agli studenti dei materiali didattici appositamente selezionati o predisposti dall'insegnante prima di affrontarne il contenuto insieme in classe.

La prima cosa che gli studenti fanno diventa quindi quella di studiare guardando video, consultando i materiali ed adoperandoli più volte fino a quando i concetti non sono sufficientemente chiari. Visto che lo studente dislessico non può permettersi lo stesso metodo di studio dei normolettori – ossia leggere più volte il materiale di studio – dato che la difficoltà di lettura rallenta i tempi e affatica in modo eccessivo rendendo precari i processi di comprensione e elaborazione del testo, occorre spiegare quali siano le strategie per ottimizzare il metodo di studio. In questo caso il concetto di classe capovolta funziona solo se il docente conosce e fornisce prima il materiale da preparare

a casa e lo correda di una traccia per creare aspettative e focalizzare l'attenzione su determinati argomenti. L'insegnante potrebbe quindi, per esempio, dare come consegna di leggere il titolo e individuare l'argomento centrale del titolo e i sotto-argomenti; fornire un glossario evidenziando prima le parole più difficili che si troveranno nel testo; suggerire di gerarchizzare le informazioni utilizzando le congiunzioni, dopo aver fornito una tabella con i *linking signals;* o ancora usare colori diversi per far ricordare meglio le informazioni più importanti e le parole chiave.

La seconda parte del lavoro avviene invece in classe dove l'insegnante si troverà (almeno dal punto di vista teorico) un gruppo di studenti già preparato e, a detta dei sostenitori, finalmente omogeneo ed "allineato"[12]. Nella terza parte c'è un momento di recupero e sistematizzazione delle informazioni e una simulazione di verifica.

In sintesi:

SÌ	**NO**
Ridondanza (riutilizzo in vari contesti dei medesimi vocaboli)	Uso di sinonimi
Multisensorialità (vari linguaggi: paraverbali, iconici, uditivi)	Metodo '*talk and chalk*'
Input segmentato (tempi più lunghi e compiti scorporati in più fasi)	Assegnazione di contenuti da studiare "da pagina a pagina"
Input sistematico (schemi di riferimento e ricapitolazioni)	Scarso rinforzo, digressioni, pianificazione disordinata della lezione
Input ludico	Assegnazione di elenchi di vocaboli o verbi da sapere a memoria
Usare organizzatori anticipati: schemi, tabelle, mappe con uso di colori diversi per gerarchizzare le informazioni, le desinenze, l'ordine delle parole che devono imparare e controllare l'aggiornamento sistematico del quaderno compensativo	Non dare come consegna la rilettura di argomenti nuovi o poco chiari

12. In realtà non è proprio così, perché dipende dall'ambiente di apprendimento domestico e dalla possibilità di consultare il materiale o di farsi aiutare, ma è un tentativo che val la pena fare.

3. DIDATTICA INCLUSIVA E RESILIENZA

3.1 Superare la logica compensativa

In considerazione di una visione pedagogica che si proponga come ponte e non come muro e che non deleghi alle tecnologie il lavoro dell'insegnante, fatto di relazione e accompagnamento, si propone in questa sezione un approccio didattico orientato a superare la logica compensativa e a sviluppare le potenzialità individuali. Le misure compensative previste dalla normativa vigente sono già state accennate e sono in genere ormai note a tutti i docenti, ciò che forse è più opportuno ricordare è la differenza tra didattica individualizzata e didattica personalizzata[1].

Mentre "individualizzato" è l'intervento didattico misurato su ogni singolo individuo, tale intervento diventa "personalizzato" quando è ideato ad hoc per ogni studente, calibrato sulle sue necessità.

L'azione formativa individualizzata si prefigge obiettivi comuni per tutti gli studenti della classe, ma è concepita modellando le metodologie in funzione delle caratteristiche individuali dei singoli studenti. La didattica individualizzata si caratterizza per l'assegnazione di determinate attività individuali che può svolgere il singolo discente per potenziare specifiche competenze: ad esempio nella classe terminale della secondaria di secondo grado scrivere una mail all'Ufficio Relazioni con il Pubblico per lamentarsi della qualità del servizio, gerarchizzare le informazioni di un testo storico o in una biografia, individuare le informazioni referenziali e inferenziali in un dato testo, scrivere un testo argomentativo, svolgere un esercizio di scrittura documentata, individuare le figure retoriche di un testo poetico, scrivere un testo utilizzando solo termini denotativi e non connotativi e viceversa, o ancora distinguere il registro formale da quello informale in un articolo di giornale.

La didattica personalizzata, invece, gestisce l'offerta didattica e le modalità relazionali sulla specificità e univocità a livello personale dei bisogni educativi considerando le differenze individuali sotto il profilo qualitativo, accrescendo i punti di forza di ciascun allievo. Gli individui apprendono in maniera diversa l'uno dall'altro secondo le modalità e le strategie con cui ciascuno elabora le informazioni e quindi la didattica inclusiva deve tener conto degli stili di apprendimento che differiscono da studente a studente. Quando si usano mappe concettuali, organizzatori anticipati, mediatori iconici calibrati sul singolo studente e adeguati al suo particolare stile di apprendimento, si usa la didattica personalizzata. La sinergia tra didattica individualizzata e personalizzata crea le condizioni più favorevoli per l'apprendimento.

Non si tratta più dunque di far fare a ciascuno la stessa cosa nello stesso modo, ma di adattare a necessità e stili diversi attività che rimangano simili negli obiettivi ma diverse nella modalità di somministrazione, gestione e valutazione.

1. Cfr. AA. VV., *Dislessia e altri DSA a scuola. Strategie efficaci per insegnanti*, Erickson, Trento 2013, p. 79.

Il primo passo per diventare un docente inclusivo è l'analisi dei prerequisiti degli studenti. Dando per scontato che il docente debba credere egli stesso nell'inclusione perché possa riuscire a realizzarla, per quanto riguarda i discenti occorre conoscere il retroterra scolastico di ogni alunno dislessico per capire se vi sia stata una presa in carico tempestiva o meno e capire le specifiche difficoltà di ciascuno. Le differenze soggettive, come già chiarito, sono infatti essenziali per la scelta adeguata degli strumenti compensativi da adottare.

Alcuni studenti incontrano difficoltà nella comprensione del testo e quindi la sintesi vocale o l'uso di programmi di video-scrittura con correttore ortografico bastano da un punto di vista legale, ma potrebbero non essere sufficienti da un punto di vista didattico. Il computer funziona solo se l'alunno lo sa usare bene, sapendolo adattare alle proprie esigenze di studio, tuttavia difficilmente gli studenti dislessici sono dattilografi provetti che conoscono perfettamente i programmi di video-scrittura, pur essendo molto veloci nello scaricare film e musica o interagire sui social network. Inoltre, raramente gli studenti sanno filtrare le fonti, se non glielo si insegna a scuola, per cui le teorie sconclusionate di un blogger qualsiasi spesso sono considerate alla pari di quelle di accademici di fama. Occorre dunque insegnare loro la differenza, così come è necessario spiegare il divario culturale e di affidabilità che corre tra l'enciclopedia Treccani online, ad esempio, e Wikipedia, nonché informarli sull'esistenza di Google Scholar e scoraggiarli, invece, dall'utilizzare Google traduttore, dato che traduce "tu sei" con "you six"[2]!

Più che affidarsi unicamente a strumenti digitali, è invece essenziale potenziare le capacità di ascolto degli alunni dislessici e rafforzare le loro relazioni sociali, così come la competenza sociale di saper chiedere aiuto è una competenza che molti studenti devono ancora apprendere: un progetto di autonomia non significa infatti imparare a fare a meno degli altri, ma significa imparare a chiedere aiuto e a ringraziare per averlo ricevuto[3].

Il PC non basta se il modello di lezione è quello trasmissivo in cui il docente parla e scrive date e nomi alla lavagna in corsivo! Forse adottare strategie è più opportuno che adottare tecnologie, come suggerito dalla seguente tabella[4]:

2. Un sistema infallibile è, per esempio, quello di prendere un testo autentico, letterario o giornalistico, che loro conoscono e farlo tradurre da Google traduttore, mettendo a fronte la traduzione di un anglista.
3. Cfr. F. Fogarolo, "Tecnologie per compensare la dislessia: che cosa fare perché siano efficaci" e E. Ghidoni, D. Angelini, "La dislessia negli adolescenti e negli adulti", in *La Dislessia e i Disturbi specifici dell'Apprendimento*, in *Annali della Pubblica istruzione* 2/2010.
4. Vedi F. Fogarolo, *op. cit.*, p. 111.

STRATEGIE COMPENSATIVE	TECNOLOGIE COMPENSATIVE
Vengono spesso acquisite, e anche individuate, autonomamente dagli alunni.	Almeno all'inizio, l'intervento degli adulti è indispensabile.
Raramente hanno controindicazioni. Possono essere più o meno efficaci ma è molto raro che possano essere considerate dannose.	Le tecnologie mal somministrate possono essere seriamente controproducenti: calo di motivazione e autostima, netta diversificazione dalla classe, complicazione operativa, allungamento dei tempi…
Spesso le strategie sono utili a tutti i ragazzi e quindi possono essere proposte a tutta la classe. Non hanno alcuna caratteristica stigmatizzante e vengono accettate molto più facilmente dagli alunni con problemi di vario tipo.	L'uso delle tecnologie usate in funzione compensativa è davvero conveniente solo in presenza di un serio disturbo; per gli altri alunni sarebbero un'inutile complicazione in più. Problemi di rifiuto e/o accettazione sono molto frequenti.
Le strategie, almeno quelle di base, non hanno costi e possono essere usate con tutti gli alunni senza problemi. Questo facilita l'accettazione e la condivisione.	Molte tecnologie richiedono prodotti software distribuiti con licenza unica e che non possono pertanto essere usati da tutti i compagni.
Possono essere introdotte o suggerite anche in modo strutturato o informale, in base ai più svariati stimoli o suggerimenti educativi.	È necessario un percorso di formazione e addestramento, almeno in certi momenti più significativi, per acquisire alcune abilità per una efficace competenza.

Diventare un insegnante inclusivo è molto difficile perché richiede molto tempo e la messa in discussione della propria routine didattica, ma è anche una sfida emozionante che si può vincere se si riesce a sviluppare resilienza e ad accettare che è un percorso ad ostacoli con poche gratificazioni a breve termine. Non bisogna stancarsi di provare e cambiare strategia quando questa non funziona, evitando sia i conflitti che a volte si creano, ma anche il pietismo, per cui "la sufficienza è scontata dato che l'alunno è dislessico". Cerchiamo di ricordarci ogni giorno le parole di Thomas Jefferson: "There is nothing more unequal than the equal treatment of unequal people".

3.2 Come sviluppare la resilienza e l'autoefficacia nell'ora di inglese

La resilienza è definita come un processo di adattamento funzionale per affrontare le avversità, le situazioni stressanti e traumatiche della vita (Masten, 1994), o come la capacità di "rimbalzare" (*rebound*) o far fronte con successo alle avversità, o, secondo la definizione di Froma Walsh (2003), come l'abilità di resistere e affrontare senza soccombere alle sfide che la vita impone, come un processo che coinvolge aspetti dinamici che sostengono, incoraggiano e promuovono l'abilità di contrastare e opporsi. Essere resilienti implica lo sviluppo di quelle competenze emotive, sociali, e cognitive necessarie al superamento delle difficoltà nonostante l'individuo sia esposto a notevole fonte di stress[5]. Tuttavia, le definizioni proposte dagli esperti sono ben più numerose di quelle sopra citate.

5. Cfr. V. Cavioni, M. Lupica Spagnolo, G. Beddia, M. A. Zanetti, "Promuovere la resilienza a scuola. Un curricolo europeo per docenti e studenti", in *Psicologia e Scuola*, maggio-giugno 2015.

In ambito anglofono, associato alla resilienza si trova il concetto di *empowerment*, termine di difficile traduzione perché sintetizza in una parola la capacità di padroneggiare una situazione e la consapevolezza di avere il potere di influire sull'ambiente grazie alle proprie competenze in quel determinato ambito. Secondo questo approccio, gli indicatori dell'*empowerment* personale sono principalmente fondati sulla capacità di controllo personale e di autonomia e rimandano ai concetti di auto-apprezzamento/valutazione delle competenze e alla stima di sé. Per questo concetto, i ricercatori canadesi francofoni usano il termine *habilitation* (accrescimento dell'abilità)[6]. Al di là della questione terminologica, a scuola interessano gli aspetti operativi delle componenti dell'*empowerment*, identificate dagli studiosi Zimmerman, Bandura e Mechanic[7]:

1. attribuzione di causalità interna
2. percezione di auto-efficacia
3. speranza appresa (traduzione di *learned hopefulness*)
4. pensiero positivo operativo.

Si potrebbe obiettare, ironicamente, "Vasto programma!". In classe, però, gli studenti trascorrono parecchie ore e quindi ci sarebbe il tempo per tentare di far sviluppare tali atteggiamenti nei confronti delle difficoltà scolastiche.

Nel caso del fattore uno – ossia l'attribuzione di causalità interna –, è tipico di alcuni adolescenti attribuire i risultati delle proprie azioni e dei propri risultati scolastici negativi all'insegnante del momento, al sistema scolastico, al libro di testo, agli insegnanti degli ordini di scuola precedenti, ossia a forze esterne e indipendenti dai propri comportamenti. Nei confronti dell'inglese, l'atteggiamento di alcuni studenti dislessici è rinunciatario perché esso è da sempre fonte di frustrazione e diminuzione del livello di auto-stima. Altri adolescenti, invece, come meccanismo di difesa, per non riconoscere che c'è qualcosa che non va, si attribuiscono tutte le responsabilità: "non lo imparo perché non ho voglia di studiarlo", "mi annoia", "non mi va". Anche questo è un modo per reagire allo stress causato dall'insuccesso scolastico, è una strategia di *coping*, ossia un processo di adattamento, uno sforzo cognitivo e comportamentale per far fronte a una difficoltà, al fine di ridurre la minaccia che stressa l'individuo. Meglio dire di non aver voglia di studiare, meglio convincersi che il problema è la mancanza di volontà, piuttosto che chiedere aiuto e riconoscere che c'è un problema. Questo atteggiamento è anche influenzato dall'egocentrismo dell'adolescente oppure dal meccanismo psicologico della profezia che si auto-avvera (*self-fulfilling prophecy*) per cui l'individuo mette in atto comportamenti atti a provocare ciò che egli teme.

Per rispondere a ciò in modo positivo, si può cominciare con il chiedere agli studenti dislessici due parole che associano all'inglese: purtroppo, si sentiranno risposte molto negative, sempre collegate alla materia scolastica e mai alla lingua in cui sono cantate la maggior parte delle canzoni che ascoltano o in cui sono scritte quasi tutte le frasi delle magliette che indossano. Partire da questa considerazione e insegnare loro ad associare

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6. Cfr. E. Malaguti, "Articolazioni teoriche della resilienza", in B. Cyrulnik, E. Malaguti, *Costruire la resilienza*, Erickson, Trento 2015.
7. *Ibidem*.

immagini positive all'inglese può essere un modo per farli riflettere sul fatto che l'atteggiamento negativo condiziona i risultati.

Per quanto riguarda il punto due, ossia la percezione di auto-efficacia, occorre far riflettere questi studenti su che cosa intendano per imparare l'inglese e far loro capire che sanno già fare molte cose con questa lingua, ma che le sottovalutano, perché hanno deciso di concentrarsi su altre materie, dato che l'inglese "tanto è troppo difficile", "si scrive in un modo e si legge in un altro", "non ci sono regole fisse", ecc. Una strategia vincente per l'auto-efficacia è spiegare perché l'inglese è così, fare esercizi di consapevolezza fonologia e scoprire che una logica c'è, suddividendo ad esempio le parole in gruppi fonologici, evidenziandoli con colori diversi per ricordarsi che tutte corrispondono a un suono preciso:

- *cat, sat, bat…*
- *but, duck, mug…*
- *see, bee, teen…*
- *food, soon, moon…*

Il concetto di "speranza attesa" e di "pensiero positivo operativo" sono collegati. Il primo è definibile come la tendenza a ritenere che determinati eventi siano gestibili e controllabili, anche la grammatica inglese con le sue deviazioni dalla norma così ampie rispetto alle lingue romanze! Vi sono insegnanti di inglese italiani dislessici, si tratta quindi di sviluppare abilità e conoscenze per influire sul proprio apprendimento perché nulla può avvenire di default. A volte gli studenti hanno dei falsi miti sull'apprendimento della lingua inglese: "l'inglese si impara solo andando sul posto, non sui libri, non a scuola", "così non serve a niente", ma tale mito si sfata facilmente anche semplicemente citando i tanti immigrati italiani del passato che non lo parlavano neanche dopo molti anni di permanenza, perché non l'avevano studiato e frequentavano solo italiani in quartieri abitati da italiani, mentre i figli che lo hanno studiato a scuola l'hanno imparato molto bene. Un altro esempio sono gli studenti dei paesi ex-membri del Patto di Varsavia che, pur non potendo soggiornare in Paesi anglofoni, conoscevano ugualmente la lingua molto bene. È necessario affaticarsi per imparare l'inglese, così come per qualsiasi altra materia, e l'impegno dura tutta la vita. Gli alunni dislessici si stancano prima degli altri ed è per questo che hanno diritto a più tempo.

Un modo efficace per creare un pensiero operativo positivo collegato alla materia è, per esempio, usare attività inconsuete o che scatenino ilarità e collaborazione, come per esempio insegnare l'aspetto continuo del verbo chiedendo agli studenti di disegnare delle vignette illustrando frasi assurde o comiche per presentare, sdrammatizzare e interiorizzare la spesso ostica *duration form*. Un altro esempio potrebbe essere cercare di coinvolgerli maggiormente attraverso le canzoni, ottimo spunto con cui affrontare i tempi verbali[8]. Anche YouTube può essere fonte di ispirazione, ma se non si dispone di LIM o di PC collegato a un proiettore, si può usare comunque il metodo BYOD. Perché non chiedere poi agli studenti di preparare una verifica sul tempo verbale affrontato utilizzando le canzoni e

8. Al link http://www.tefltunes.com/grammarsongs.aspx si può trovare una tabella indicante, per ogni testo verbale, quale canzone potrebbe essere utile e il link relativo al testo.

inventando esercizi collegati ad esse? Qualsiasi occasione di protagonismo (spesso anche proposta dagli stessi studenti) non può che motivare e lavorare nella giusta direzione.

Per concludere: l'alunno dislessico non può diventare resiliente da solo, la comunità educante tutta, le associazioni, le istituzioni sul territorio devono interagire per aiutarlo, ma anche la didattica spicciola e il singolo docente possono fare molto e ciò migliorerà l'ambiente di apprendimento e avrà risultati positivi su tutti gli studenti. Val la pena quindi di pensare a una rilettura in chiave di *empowerment* delle misure compensative e dispensative per un Piano Glottodidattico Resiliente:

1. Sviluppare il pensiero positivo per incoraggiare l'ottimismo e l'umorismo nell'affrontare la dislessia
2. Potenziare i punti di forza degli studenti deboli, diagnosticati e non, per aiutarli nell'utilizzo delle proprie abilità e potenzialità per il successo scolastico e sociale aumentandone l'autoefficacia e l'autostima
3. Sviluppare l'autodeterminazione per stimolare l'impegno, l'autonomia e la tenacia degli studenti dislessici mediante attività di *problem solving* e *decision making*
4. Potenziare le capacità di *listening* e *speaking* che non sono condizionate dalla dislessia
5. Potenziare l'assertività e la capacità di chiedere aiuto
6. Incoraggiare la costruzione di relazioni amicali sviluppando le capacità di cooperazione, di imparare a studiare insieme ai compagni e l'empatia. Le schede, le mappe e le sintesi servono a tutti e trasformare la propria difficoltà nell'opportunità di aiutare gli altri, insegnando loro un metodo di studio efficace, è una arma potentissima
7. Promuovere processi metacognitivi fa riflettere sulle proprie difficoltà e trovare il modo di aggirarle
8. Evitare verifiche a sorpresa per tutti, non solo per gli studenti con DSA. Anche all'università gli studenti sanno con largo anticipo quando vi sarà l'esame e su cosa verterà. Inoltre, far sempre fare a tutta la classe una simulazione di verifica è utile a tutti
9. Consentire l'uso del dizionario a tutti, ma non prima di aver insegnato come utilizzarlo. La traduzione è un esercizio di *problem solving* di elevata difficoltà, dunque esercitarla è un ottimo sistema per stimolare i giusti processi di apprendimento
10. Usare gradualità nell'affidarsi agli strumenti compensativi e adattarli in base a ciò che si deve valutare di volta in volta, personalizzandoli
11. Stare attenti ai prerequisiti: se l'alunno dislessico non ha mai usato programmi di videoscrittura con correttore ortografico e non vuole cominciare a 16 anni, non si deve insistere, ci si limiterà a non tener conto dei tipici errori di *spelling* che vengono compiuti. Anche per quanto riguarda il tempo a disposizione, che può essere più ampio, è meglio lasciare allo studente la facoltà di scegliere questo tipo di misura oppure di avvalersi della possibilità di svolgere un esercizio in meno

12. Insegnare a tutti a tenere un diario di bordo è fondamentale. Lo studente migliore non è mai il più intelligente o il più creativo, bensì il meglio organizzato. Alcuni, anche se non sono dislessici, non riescono a scrivere i compiti e le date delle verifiche sul diario perché i docenti le dettano troppo velocemente. Scrivere sempre sulla lavagna la data e l'argomento della lezione, suddividendola nelle varie sezioni è, per esempio, uno dei modi per aiutare a compilare un diario di bordo

13. Suddividere spiegazioni e verifiche in porzioni idonee. Non serve rispettare sempre e comunque la scansione del libro di testo, è più efficace adattare il testo alle esigenze della propria classe. Un'unità di apprendimento si suddivide in unità didattiche, ma non è detto che le varie sezioni strutturate per uno studente immaginario funzionino a livello pratico. In fondo, il programma non esiste più: esistono gli studenti e le loro esigenze formative che non sono mai omogenee

14. Coinvolgere lo studente dislessico nella redazione del PDP, di cui è il protagonista, in questo modo diventerà sempre più consapevole delle proprie modalità di "funzionamento" e si sentirà parte attiva del processo.

4. ALTRI TIPI DI BISOGNI EDUCATIVI

4.1 Quando il Bisogno Educativo è raro e superspeciale

All'interno degli alunni con Bisogni Educativi Speciali devono anche essere inclusi i cosiddetti "gifted", ossia gli studenti plusdotati definiti anche "ad altissimo potenziale intellettivo". Si tratta di studenti con un QI più alto di 25/30 punti rispetto al 100, che è il punteggio standard per un'intelligenza media. A causa della rapidità di pensiero[1], questi studenti svolgono le attività assegnate prima degli altri e si annoiano nell'attesa che gli altri terminino. Nel 2014 l'Organizzazione Mondiale della Sanità ha segnalato che questi alunni sono a rischio di insuccesso formativo se non riescono a realizzare i propri talenti cognitivi.

Tuttavia, non solo coloro che hanno un QI al di sopra della media possono essere considerati superdotati. Infatti, una seconda linea teorica sostiene che si debbano tenere in considerazione anche altri indici. Non si tratta quindi di alunni geniali, non ci si riferisce agli *enfants prodiges*, a novelli Mozart, ma ad alunni che hanno qualcosa in più da un punto di vista qualitativo, più che un QI superiore alla media, anche perché nella maggior parte dei casi gli insegnanti ignorano il QI dei loro studenti. La Regione Veneto, all'avanguardia su questo aspetto, ha pubblicato un documento con le linee guida sui "gifted", al quale si rimanda[2], in cui vengono prese in considerazione caratteristiche quali creatività, pensiero divergente, autoregolazione e intelligenza emotiva.

Pertanto non si tratta neanche delle "eccellenze", non sono gli alunni con tutti 9 e 10 in pagella, anche perché come è noto, spesso gli studenti che ottengono voti migliori a scuola coincidono con gli studenti meglio organizzati e con un migliore metodo di studio, ma non sempre questi ultimi sono anche i più intelligenti o i più creativi. Infatti, fattori come l'istruzione ricevuta nel ciclo precedente, la famiglia di origine e la motivazione contribuiscono notevolmente ad avere una media di voti molto alta.

Si tratta quindi, nel complesso, qualsiasi sia il loro talento in più, di studenti che occorre non demotivare e, soprattutto, scoprire. A volte, infatti, soprattutto nella secondaria di secondo grado, essi tendono a nascondersi, perché gli adolescenti sono molto conformisti, non vogliono differenziarsi dal gruppo dei pari ed essere considerati "secchioni". Una volta "scoperti" tali alunni, gli errori da non compiere sono i seguenti: non considerarli assistenti dei docenti, non chiedere loro di spiegare qualcosa che gli altri non hanno capito, non considerarli adulti da un punto di visto emotivo e affettivo – le loro intelligenze infatti si sono sviluppate in modo asincrono e potrebbero avere dei problemi relazionali, non assegnare loro un numero di esercizi superiore a quello assegnato ai compagni o approfondimenti personali non supervisionati dal docente. Anche aspettarsi che siano eccellenti in tutte le materie è sbagliato.

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1. Cfr. http://gcq.sagepub.com/content/51/4/342.refs VanTassel-Baska& Brown, "Toward Best Practice: An Analysis of the Efficacy of Curriculum Models in Gifted Education", in *Gifted Child Quarterly,* Fall 2007 51: 342-358, 2007.
2. http://www.istruzioneveneto.it/wpusr/wp-content/uploads/2015/05.

Come fare dunque a identificarli? In genere tali alunni condividono alcune o tutte le seguenti caratteristiche:

- sono lettori avidi
- hanno senso dell'umorismo
- dimostrano curiosità intellettuale prolungata nel tempo su alcuni argomenti
- si esprimono con notevole proprietà di linguaggio
- operano collegamenti originali
- amano le attività di *problem solving* e i giochi enigmistici
- hanno un'immaginazione particolarmente vivida
- sono interessati all'equità e alla giustizia
- si annoiano facilmente
- preferiscono la compagnia di persone adulte
- tendono a mettere in discussione l'autorità
- sono abili con i numeri
- sono molto creativi
- sono molto sensibili e dimostrano empatia per chi ha subito un torto o è in difficoltà
- sono particolarmente vulnerabili a livello emotivo
- hanno acquisito le abilità di letto-scrittura precocemente.

Che cosa fare quindi, quando si ha la fortuna di avere alunni con queste caratteristiche intellettive? Coltivare il talento di ciascuno. Sembra uno slogan, difficilmente applicabile nella prassi, ma, soprattutto nell'insegnamento della lingua straniera, sperimentare e individualizzare è facile e possibile.

Supponiamo di dover affrontare un'unità didattica su *Il mercante di Venezia* nell'ambito di un'unità di apprendimento su Shakespeare. Si potrebbe ipotizzare di partire dal monologo di Shylock e chiedere agli studenti di cercare su YouTube i vari contributi presenti. A ciascuno poi si potrebbero assegnare compiti differenziati: distinguere tra le rappresentazioni degli attori professionisti e quelle dei dilettanti, classificare le sequenze tratte dalle riduzioni cinematografiche, chiedersi come mai tale monologo è così famoso e così rappresentato anche a livello di recite scolastiche e provare a dare più risposte. Agli alunni "gifted" si potrebbe chiedere, invece, di capire come mai il monologo di Shylock è allo stesso tempo sublime e pericoloso, qual è il rapporto con il denaro dei veneziani così ben rappresentato da Shakespeare, di spiegare perché i critici hanno accostato quest'opera a *Il Timone d'Atene* e sostenuto che Shakespeare ha anticipato Marx, in che modo nella Germania nazista è stato rappresentato *Il Mercante di Venezia*, oppure di individuare gli errori di traduzione nel doppiaggio e nei sottotitoli in italiano nella riduzione cinematografica più famosa, quella del 2004 in cui Shylock è interpretato da Al Pacino diretto da Michael Radford. Gli studenti in cui il pensiero divergente è meno sviluppato, ma che possiedono buona memoria, potrebbero imparare a memoria il monologo e recitarlo.

In generale, quando si assegnano attività di *problem solving*, vi è una fase che riguarda la produzione delle idee che si chiama "fase divergente", in cui alcuni allievi sono più versati, e una "fase convergente", in cui si selezionano le idee. Gli alunni "gifted" hanno bisogno di compiti sfidanti, che stimolino la loro curiosità intellettuale e mettano in gioco il

pensiero divergente. Si può chiedere loro di confrontare due traduzioni di due brani di narrativa tratti da un classico della letteratura o due poesie, oppure di rispondere a domande aperte che richiedano capacità argomentative e di ricerca delle informazioni particolarmente impegnative.

Ad esempio, se si propone l'analisi di una recensione cinematografica oltre alle solite domande di comprensione del testo e a quelle sulle caratteristiche testuali della recensione, sul contenuto, sull'opinione del critico, e su quale tipo di film preferiscano gli studenti, si può chiedere, a livello facoltativo, di scoprire se vi siano tycoon donne, in quale romanzo Fitzgerald tratta dei magnati hollywoodiani, di approfondire la storia della censura a Hollywood. A questo punto si potrebbero ulteriormente differenziare i compiti: ad alcuni si chiede di scoprire perché nei film degli anni Cinquanta anche le coppie sposate venivano rappresentate sempre in stanze con letti gemelli, ai "gifted" di scrivere una relazione sulla censura a Hollywood durante il Maccartismo; ad altri di scoprire esempi di *product placement* (pubblicità indiretta) nei film di James Bond; ai "gifted" di studiare la questione dal punto di vista giuridico. Esistono contratti in cui una casa di produzione "vende" un certo numero di inquadrature dell'acqua minerale San Pellegrino? Quali termini del linguaggio settoriale giuridico vengono usati in questi contesti?

Se si affronta una lettura tratta da un qualsiasi *quality paper* britannico, si potrebbe assegnare loro il compito di esaminare molto attentamente il paratesto e poi di confrontarlo con un'altra testata britannica e, successivamente, con una testata statunitense e italiana, oltre alle usuali domande di comprensione del testo.

Per quanto riguarda l'aspetto grammaticale, quando si spiega *used to*, per esempio, si può chiedere loro di scoprire che cos'è il *would* iterativo e di scrivere degli esempi. Oppure quando si trattano i verbi fraseologici chiedere di analizzare e tradurre in italiano frasi come *He drank himself into the hospital*, *In 1931 England was forced off the gold standard*, o *The rain washed out the match*.

In conclusione, la creatività, il senso critico e l'empatia sono doti con cui si nasce, sta all'insegnante cercare di farle venire fuori e, ciò che più conta, è che spesso esse non sono così limitate. Compito dei docenti è quindi insegnare a chi le possiede a mettersi in relazione in modo positivo con gli altri, a conoscere i propri punti di forza ma anche quelli deboli, a gestire lo stress e le emozioni, creando un ambiente di apprendimento in cui tutti si impegnano per risolvere un problema contribuendo con le proprie capacità e collaborando. L'importante è far capire che tutti contano e sono utili: chi riesce a trovare soluzioni originali ma magari è disordinato sarà aiutato da chi è meno creativo ma più sistematico. Poiché ormai è scientificamente accertato che le intelligenze sono multiple e gli stili di apprendimento sono diversi, un insegnante inclusivo dovrebbe cercare di far star bene in classe sia il timido insicuro di sé, sia l'estroverso creativo che si spazientisce se ci sono esercizi ripetitivi.

5. SUGGERIMENTI E MODELLI PER LA VALUTAZIONE

5.1 Suggerimenti di formattazione per documenti *dyslexic-friendly*

Le tipologie di esercizi da utilizzarsi nelle verifiche qui di seguito proposti si basano sui seguenti criteri di accessibilità suggeriti dagli esperti:

- usare font 'bastoni' come Arial o Verdana a grandezza 14, con interlinea almeno 1,5 (i font graziati, infatti, ossia quelli con allungamenti ortogonali alle estremità delle lettere detti appunto 'grazie', sono di più difficile leggibilità) oppure usare font creati ad hoc e scaricabili gratuitamente: 1. *Open Dyslexic*, le cui lettere hanno una forma particolare; 2. *TestM*e, i cui caratteri sono senza grazie, con spaziatura abbondante e lettere ascendenti e discendenti lunghe; 3. *Bianconero* che rende molto più leggibili le lettere che più spesso vengono confuse: p-b, p-q, a-e
- usare carta opaca, color bianco avorio: lo sfondo non bianco stanca meno la vista
- non spezzare la parola per andare a capo
- utilizzo del colore quando possibile
- giustificazione a sinistra
- sottolineamento delle frasi per evitare errori dovuti alla confusione tra la riga di sopra e quella di sotto
- adoperare molte tabelle e numerare gli elenchi
- non usare più di 60-70 caratteri per rigo
- aumentare i margini della pagina
- consentire la verticalizzazione del testo con un leggio
- predisporre due cartoncini colorati tagliati a L per inquadrare il paragrafo da leggere
- evitare testi fotocopiati.

5.2 Suggerimenti per la predisposizione di verifiche

Di seguito, un insieme di buone pratiche per impostare nella maniera corretta i testi necessari a valutare gli studenti:

- ridotta quantità di produzione scritta con esercizi non strutturati
- esercizi strutturati costituiti per lo più da attività di abbinamento e T/F o scelta multipla limitate a 2 o 3 sole opzioni
- assenza di esercizi che richiedono una riflessione astratta sulla lingua
- assenza di esercizi che si focalizzano sullo spelling
- evitare esercizi del tutto decontestualizzati tipo riordinamento di frasi, esercizi con verbi all'infinito tra parentesi da coniugare nella forma corretta
- fornire un glossario riferito alla tematica da trattare e un elenco di *linking signals* con a fronte la traduzione in italiano. Infatti, anche se viene concesso l'uso del bilingue

cartaceo nella ricerca del lemma e del traducente corretto, lo studente può perdere tempo sia per problemi nell'individuare il corretto ordine alfabetico sia nell'individuare il contesto corretto al quale si riferisce il traducente, anche a causa dei caratteri molto ridotti dei traducenti e delle glosse esplicative dei dizionari in commercio. Qualora, invece, sia possibile far utilizzare un dizionario on line, il problema non si pone e si può fornire solo un elenco di *linking signals*, tipo quello suggerito.

ADDITION	SIMILARITY	LIMITATION	CONTRADICTION	RESULT	CONDITION
not only… but also non solo… ma anche	**as well as** così come	**although** sebbene	**however** tuttavia	**accordingly** in base a	**as long as** purché
as well as oltre a	**likewise** allo stesso modo	**despite** (+ nome) malgrado	**instead** invece	**hence** quindi	**provided that** a patto che
moreover/furthermore inoltre	**together with** insieme con/a	**even though** anche se	**conversely** viceversa	**therefore** perciò	**unless** a meno che non
in addition to this inoltre		**in spite of** (+ verbo) nonostante	**nevertheless** ciò nonostante	**thus** dunque	**due to** a causa di
			on the one hand, ... on the other hand da un lato... dall'altro		
			while/whereas mentre		

5.3 Modelli di verifica per studenti dislessici

Nelle domande aperte, gli esercizi non possono differire per contenuto da quelli del resto degli studenti. Sono possibili solo accorgimenti grafici, l'uso del dizionario bilingue, nonché la possibilità di rispondere a un quesito in meno, oppure più tempo a disposizione. Il tutto, ovviamente, deve essere specificato nel PDP ed essere stato applicato nelle simulazioni.

Al fondo della sezione, dopo alcuni modelli di verifica che hanno il semplice scopo di mostrare alcune tipologie di esercizi impostati nella maniera corretta e formattati secondo i suggerimenti consigliati, sarà possibile anche trovare un paio di esempi di griglie valutative che valorizzano la comprensione globale del testo o la capacità di esprimere la propria opinione in modo efficace, non penalizzando gli errori che non inficiano la comunicazione, in particolare gli errori ortografici, la punteggiatura, la non differenziazione tra minuscole e maiuscole, gli errori dovuti a distrazione o stanchezza. Per gli esercizi puramente grammaticali si consiglia di trascurare gli errori ortografici, valutando quindi maggiormente il contenuto rispetto alla forma.

Prima di valutare, comunque, ricordiamo sempre che la legge 170 (art. 5, c. 4) parla di "adeguate forme di verifica e di valutazione", e pertanto i ragazzi con DSA devono essere valutati in rapporto alle loro capacità e alle loro difficoltà, senza paura di discostarsi da come in genere si valuta in classe, ma secondo il principio della personalizzazione. Si deve tenere conto delle caratteristiche personali del disturbo dell'allievo, del punto di partenza e dei risultati conseguiti, premiando i progressi e gli sforzi: è importante che l'insegnante ricordi che la valutazione è un processo di natura psicologica, perché tocca il giudizio che ciascuno ha di sé, pertanto dovrebbe essere pensata e progettata come un processo per migliorare i risultati degli studenti e non solo per verificarli.

Ricapitolando, un docente, per una attenta e accurata valutazione, deve:

- valutare più il contenuto e meno la forma
- considerare le conoscenze e non le carenze
- applicare una valutazione formativa e non sommativa dei processi di apprendimento
- fornire copia delle verifiche per una riflessione consapevole
- dimostrarsi ottimista sulle capacità di recupero.

Livello A2 – Reading comprehension

1. Read the information about a school theatre trip.
Complete Andrea's notes.
LEGGI LE INFORMAZIONI SU UN'USCITA DIDATTICA A TEATRO.
COMPLETA GLI APPUNTI DI ANDREA.

Join us in a school trip to Stratford-on-Avon on Saturday 3rd July!
You can spend the morning shopping.
For lunch we will have a picnic near the river.
In the afternoon we will see William Shakespeare's play *Romeo and Juliet*.
Price: £15
Meet at River Road car park: 8.30 a.m.
Return: 6.30 p.m.

Dear Students,

Our Stratford-on-Avon trip is very popular. Unfortunately we cannot get enough tickets to see *Romeo and Juliet*.
So we have tickets for *A Midsummer Night's Dream* instead.

The tickets are a little more expensive, so the trip will now cost £18 per person.

Arrival and departure times are the same.

Mrs Pendleton
English Teacher

Andrea's notes: School Trip

Name of town: _____

Name of play: _____

Cost: _____

Meeting place: _____

Return time: _____

2. Which notice (A-D) says this?
QUALE CARTELLO DICE QUESTO?

1. **You don't have to pay to get the bus from here.**

A

Please give this seat to an old, sick or pregnant person if they need it.

B

There are no bus services from this stop on Sundays and public holidays.

C

The bus service is changing, please take a timetable.

D

We offer a free bus service from this car park to the airport.

Livello A2 - Culture

1. Read the web page on the screen and find out information about Nelson Mandela on the web and complete the fact-file.
LEGGI LA PAGINA WEB SULLO SCHERMO, SCOPRI LE INFORMAZIONI SU NELSON MANDELA E COMPLETA LA SCHEDA[1].

Name: _____
Born: _____
Died: _____
Famous Saying: "The struggle is _____"
Family background: Mandela is one of ____ (how many?) children. His _____ was a Thembu king and his father was a _____ .
Ethnic Group: The _____, his tribal clan, is part of the _____ people.
Education: BA, University of South Africa, 1942: Student, University of the Witwatersrand. Mandela has honorary degrees from more than 50 international universities and is chancellor of the University of the North in South Africa.
Occupation: _____
Historical Notes:

- In 1964
  _____
- In 1990
  _____
- In 1993
  _____
- In 1994
  _____
- From 1994 to 1999 he was
  _____

[1] Nel caso non si disponga di schermo o LIM si fornirà testo autentico.

Livello A2 – Grammar and Vocabulary

1. Circle the right answer.
CERCHIA LA RISPOSTA CORRETTA.

1. **Which word is a correct past simple verb?**
   a. made
   b. taked
   c. stooded

2. **What is the comparative form of *great*?**
   a. more great
   b. very great
   c. greater

3. **What is the past participle of *to be*?**
   a. was
   b. been
   c. were

4. **Which preposition can be used before *home*?**
   a. to
   b. at
   c. in

2. Find the odd one out.
TROVA L'INTRUSO.

1. sauce, orange juice, water, bread: _____
2. steak, egg, cheese, wine: _____
3. glasses, dress, skirt, blouse: _____
4. eye, heart, mouth, beach, ear: _____
5. flowers, forests, rivers, horses: _____
6. hockey, soccer, ballet, waterpolo: _____

3. Tick (✔) if these sentences are correct. Put a cross (✗) if they're wrong.
METTI UN TICK (✔) SE LE FRASI SONO CORRETTE. UNA CROCETTA (✗) SE SONO SBAGLIATE.

1. You do like ham sandwiches. _____
2. Do they play tennis on Sunday afternoons? _____
3. He is got two dogs. _____
4. She isn't a nice girl. _____
5. Does he work in a factory? _____

4. Subject personal pronoun or possessive adjective?
INSERISCI IL GIUSTO PRONOME PERSONALE SOGGETTO O AGGETTIVO POSSESSIVO.

I – YOU – HE – SHE – IT – WE – YOU – THEY
MY – YOUR – HIS – HER – ITS – OUR – YOUR – THEIR

1. Jack and Linda are with _____ parents today. _____ are very nice people.
2. Katie is only 12, but _____ often goes out with _____ friends in the evening.
3. Lucas is going out with _____ friends tonight. Are _____ going out too?

5. Tick (✔) if these sentences with the Saxon Genitive are correct. Put a cross (✗) if they're wrong.
METTI UN ✔ SE LA FRASE RISCRITTA CON IL GENITIVO SASSONE È CORRETTA, O UNA ✗ SE È SBAGLIATA.

1. The windows of the house are green. → The house's windows are green. ____
2. The car of Luke and Michelle is a Fiat. → Luke's and Michelle's car is a Fiat. _____
3. The bicycles of those men are very expensive. → Those men's bicycles are very expensive. _____

6. Choose the correct question for the underlined part of the answer.
SCEGLI LA DOMANDA GIUSTA PER LA PARTE SOTTOLINEATA DELLA RISPOSTA.

1. Who is Mary's teacher? – Whose is Mary's teacher? – Who is Mary's teacher's name?
   Mary's teacher is Mr Reds.

2. With who is Margaret? – Who is Margaret with? – Who with is Margaret's father?
   Margaret is with her father in this moment.

3. When is your school? – Where is her school? – Where is your school?
   My school is in the city centre, opposite the church.

7. Choose the correct option.
SCEGLI L'ALTERNATIVA CORRETTA.

Greg and Sarah are married and have got two ***daughters / childrens / son***. They live in a big house ***next to / under / between*** a supermarket. Upstairs (*al piano di sopra*) there ***are / is / have got*** the bathroom, two bedrooms, and ***an / – / a*** store room, downstairs (*al piano di sotto*) there is the kitchen, the toilet and the living room.
Greg and Sarah's / Greg's and Sarah / Greg's and Sarah's favourite room is their living room. It is quite big and ***his / its / it's*** walls are orange. ***From / In / On*** the middle of the room ***their / they're / there*** is a big circular table with six chairs. Opposite the fireplace (*caminetto*) there is a grey sofa with ***a / any / some*** white cushions (*cuscini*). Their cat usually sleeps there. Would you like to meet ***they / their / them***?

1. Complete the chart with the right words.

Will, Could, Perfect (3), Past continuous, Past simple

DIRECT SPEECH	REPORTED SPEECH
Present simple	…
Present continuous	…
Past simple	Past…
Present …	Past…
Can	…
…	Would

2. Tick (✔) the right option.

1. If you … practise, you won't pass.
   a. don't b. won't c. will

2. They will be scolded if they… arrive late.
   a. will b. / c. do

3. Paula's daughters … fail their exams if they don't study harder.
   a. will b. won't c. don't

4. If she doesn't apologise, I … talk to her again.
   a. don't b. won't c. will

5. My phone plays a Leonard Cohen song when someone … me.
   a. will call b. calls c. won't call

3. Complete with the participle adjectives of these verbs.

ADJECTIVE + -ED / -ING

0. **INTEREST:** She's INTERESTED in old books, she's just bought one.
1. **TIRE:** The journey was _____, it lasted nearly ten hours.
2. **EXCITE:** I like windsurfing, it's so _____.
3. **FRIGHTEN:** He was so _____ he couldn't speak.
4. **AMUSE:** He's an _____ person. He always tells jokes and stories.

4. Match the two parts of the sentences and add the correct relative pronoun to complete them.

THAT – WHAT – WHICH – WHO – WHOSE

1. The film _____ .....
2. I'd never met a person _____ .....
3. My country house, _____ .....
4. Carl, _____ .....
5. This is _____ .....

a. I would like to receive for my anniversary.
b. speaks so badly before.
c. we saw yesterday won two Oscars.
d. wife you met last Christmas, has just left for India for two months.
e. is in Lake District, is very old but I've renovated it.

1. Read the text.

THE DISTANCES TOURISTS TRAVEL AND THE SEASONABILITY[1] OF THEIR TRIPS

Efficient and cheaper travel allows people to travel all over the world as tourists. The numbers travelling tend to decrease with distance. In the UK, Europe remains the most popular destination, while in the USA, California and Florida are popular. Some people enjoy returning to familiar places and following the same routine year after year. Others search for new experiences in unfamiliar locations. These people travel increasing distances. The mountains of South America, the foothills[2] of the Himalayas and Antarctica have become tourists goals. Tourism can be a very seasonal activity with people looking for sunshine and coasts in the summer. In winter a significant number of tourists seek out snow for winter sports. This seasonability can cause problems for destination areas. People managing resorts attempt to extend their season, for example:

- seaside resorts use elaborate illuminations and put on carnival events to attract visitors out of the season
- ski resorts have summer walking routes
- Mediterranean resorts offer long breaks for the over-60s during cooler autumn and spring periods
- extensive indoor facilities provide resorts that are not dependent on the weather.

Adapted from J. Hancock and Alan Bilham-Boult, *Revise GCSE,* Letts 2009, p. 176

Glossary
1. SEASONABILITY = stagionalità
2. FOOTHILLS = colline pedemontane

2. Now, say whether these statements are true (T) or false (F).

1. Both busy and quiet seasons pose problems for holiday resorts. _____
2. Tourism develops everywhere. _____
3. Most people like unfamiliar locations. _____
4. Italy, France and Spain are popular destinations in Britain. _____
5. The numbers travelling tend to increase with distance. _____
6. People managing resorts try to attract tourists out of season. _____
7. Few people like returning to familiar places. _____
8. In winter tourists stay at home. _____
9. People over 50 do not travel abroad. _____
10. Very few people enjoy skiing. _____

3. Match the first part of the sentence to the final one.

1. This e-mail message is intended…	a. that any use of this message is unauthorized and may be unlawful.
2. If you are not the intended recipient, …	b. delete this message from your system.
3. … by replying to this message and then…	c. please, notify us immediately…
4. You are hereby notified…	d. only for the use of the individual or entity to which it is addressed.

1. _____; 2. _____; 3. _____; 4. _____

Livello B1/2 – Writing

1. Prepare the pre-call checklist to call a supplier for your firm.
Here are some prompts:
PREPARA UNA LISTA DI CONTROLLO PRE-TELEFONATA PER CHIAMARE UN FORNITORE PER LA TUA DITTA.
ECCO ALCUNI SPUNTI:

a. Who do I need to speak to?
b. What time zone is the receiver in?
c. _____
d. _____
e. _____
f. _____

2. Now try to write the phone call. Complete the dialogue.
ADESSO PROVA A SCRIVERE LA TELEFONATA, COMPLETANDO IL DIALOGO.

The supplier's secretary: ABC Ltd., how can I help you?
You: I'd like to _____
The supplier's secretary: Who's calling, please?
You: This is _____ . It's about _____
The supplier's secretary: Hold the line. I _____ put you _____ .
You: _____
The supplier: _____
You: _____

1. Match the sentences to the tenses.

1. This issue is dealt with in the second chapter.	*c*	a. Past simple active
2. Our hamster is being examined by the vet.		b. Past perfect passive
3. Paul looked into Miriam's eyes.		c. Present simple passive
4. My car was being fixed by the mechanic.		d. Present continuous passive
5. She's been given a telling off.		e. Past continuous passive
6. Their flat had been broken into.		f. Present perfect passive

2. Tick (✔) the right option.

1. He… stealing my silver fountain pen.
   a. denied b. refused c. said he didn't
2. The twins… why they couldn't come.
   a. warned b. explained c. told
3. Susan's niece… cheating at the maths test.
   a. admitted b. agreed c. disagreed
4. I… my parents not to ground me.
   a. promised b. begged c. prayed
5. The teacher… his students not to cram before the exam.
   a. promised b. advised c. suggested

HEALTH AND SAFETY CONCERNS ARE RESTRICTING CHILDREN'S SCHOOL PLAYTIME

Survey shows children brought up 'in cotton wool' when they need boisterous play, say experts

A generation of "cotton wool" children are growing up without being exposed to risky play, experts have warned, as new research finds that parents are increasingly concerned about the health and safety culture in schools.

In a survey of more than 2,000 parents of primary school children commissioned by Play England and the British Toy and Hobby Association, almost three-quarters said they felt schools were too concerned with health and safety during playtime. The survey found the average child got just 37 minutes of time to play in the school day.

Two-thirds of parents told researchers they felt this was not enough. Dr Amanda Gummer, a psychologist who advises the association, said: "'Cotton wool' children are growing up without having been given the opportunity to learn how to assess risks. Children have to have bumps and scrapes to teach them what's safe and what's not; children who have all elements of danger removed from their lives grow up to think they are invincible. This doesn't just affect the accidents they might have when riding a bike or exploring a river, but it has a knock-on effect in terms of drug culture and gang violence."

Taken from https://www.theguardian.com/education/2010/sep/07/health-and-safety-children-school-play

1. After reading this article, circle the best answer for each item.

1. "Cotton wool" children could be translated in Italian as: … .
   a. bambini di bambagia
   b. bambini di cotone
   c. bambini fragili

2. Experts think… .
   a. children should never be exposed to risky play
   b. risky play is an opportunity to take risk and make mistakes
   c. rough play should be forbidden

3. According to Dr Gummer… .
   a. children shouldn't get hurt while playing
   b. children should not engage in any play involving physical contact
   c. children should be allowed to fall and get bruises

4. Children grow up to think they are invincible if… .
   a. they never play outdoors
   b. both parents and teachers protect them from any possible accident
   c. they are allowed to engage in physical play

2. Complete the following dialogue between a very anxious mother complaining about her very lively little girl with her pediatrician, using the information in the article.

Mother: Susan is my second eldest, so I only had her older sister to compare with her. Since she was a toddler, she liked running and fighting with boys.
Doctor: Why don't you let her free to play and fight, children have to _____
Mother: But she _____ be able to sit still at least at dinner, I always have to scold her.
Doctor: How long does the school break last?
Mother: It _____
Doctor: It's not _____ . You should take her to a playground after school.
Mother: But what if she _____ hurt?
Doctor: Children should be allowed to _____
_____
Mother: But she could end up all black and blue!
Doctor: _____

PROGRAMMAZIONE DIDATTICA

The following didactic planning aims to work as a guide and support to teachers in the writing of their ‘piani di lavoro’ and the ‘programmazioni di dipartimento’. It can easily be adapted and modified from the editable file published on the publishing house website: www.edisco.it.

UNIT 1.1 – TRENDS IN AGRICULTURE

Teoria	Lessico
• Agenda 2030 e sviluppo sostenibile • Agricoltura convenzionale • Agricoltura biologica e sostenibile • Ibridazione e ingegneria genetica • Coltivazione idroponica e aeroponica • Coltivazione acquaponica e biodinamica	• Obiettivi per uno sviluppo sostenibile • Metodologie di coltivazione

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Scelta multipla • Completare tabelle • Categorizzare terminologia	• Completare un testo con parole/frasi mancanti • Risposte aperte • Completare tabelle		• Esercizi di traduzione • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Conoscere gli scopi dell'Agenda 2030 e gli obiettivi attraverso cui si sviluppa • Utilizzare terminologia specifica • Identificare le diverse metodologie di coltivazione • Confrontare e identificare vantaggi e svantaggi nell'ottica della sostenibilità

RISORSE EXTRA	VALUTAZIONE
• La perfetta sintonia in agricoltura • Il sistema delle ''enclosure'' • Nuovi dubbi sulla sicurezza degli OGM • Agricoltura verticale • Cos'è la biodinamica: agricoltura o filosofia • Mappa di unità 1.1	• Test formativi Unità 1.1 • Test sommativo Modulo 1

UNIT 1.2 – TECHNOLOGY, AUTOMATION AND ROBOTICS

Teoria	Lessico
• Attrezzi agricoli • Macchinari e tecnologia • Automazione e robotica • GPS e droni • Tecnologie integrate nell'agricoltura	• Attrezzi agricoli • Macchinari • Nuove tecnologie

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Etichettare immagini • Abbinare parti di frasi	• Completare un testo con parole/frasi mancanti • Risposte vero/falso • Completare tabelle e testi	• Role play • Costruire un dialogo utilizzando espressioni date	• Descrivere grafici • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Gestire una conversazione telefonica per richiedere informazioni • Conoscere le principali applicazioni tecnologiche

RISORSE EXTRA	VALUTAZIONE
• Fino alla Rivoluzione Industriale • Meno è meglio: tecnologie agricole di precisione • Mappa di unità 1.2	• Test formativi Unità 1.2 • Test sommativo Modulo 1

UNIT 1.3 – NOT ONLY AGRICULTURE

Teoria	Lessico
• Agricoltura ed economia • Politiche agricole comunitarie • Gestione e amministrazione dell'azienda agricola • Rischi e incertezze in agricoltura • Diversificazione delle attività	• Gestione aziende agricole • Legislazione europea • Economia e finanza

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Abbinare termini e traduzioni • Riordinare un testo	• Completare un testo con parole/frasi mancanti • Risposte vero/falso • Completare tabelle e testi	• Role play • Costruire un dialogo utilizzando espressioni date • Discutere • Fornire informazioni	• Esercizi di traduzione • Formulare domande da risposte date • Completare delle informazioni • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Comprendere le dinamiche di mercato • Conoscere la legislazione comunitaria • Imparare a pianificare le spese e a diversificare l'impresa • Saper riconoscere e gestire i rischi naturali, economici e finanziari

RISORSE EXTRA	VALUTAZIONE
• Il mercato dei contratti a termine (futures) • Pratiche commerciali scorrette nella catena alimentare • Attività agroalimentari sostenibili • Agriturismo • Mappa di unità 1.3	• Test formativi Unità 1.3 • Test sommativo Modulo 1

UNIT 2.1 – ECOLOGY, CLIMATE AND POLLUTION

Teoria	Lessico
• Ecologia ed ecosistemi • Caratteristiche delle zone climatiche • Effetti del riscaldamento globale e del cambiamento climatico sull'agricoltura • Vari tipi di inquinamento	• Ecologia • Clima • Inquinamento

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Scelta multipla • Completare mappe • Abbinare parti di frasi	• Completare un testo con parole/frasi mancanti • Risposte vero/falso • Scelta multipla	• Role play • Costruire un'intervista guidata • Discutere • Fornire informazioni	• Esercizi di traduzione • Utilizzare vocabolario specifico • Completare delle informazioni • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Conoscere le diverse aree climatiche e i fenomeni metereologici estremi • Acquisire consapevolezza delle ripercussioni ambientali del riscaldamento globale • Identificare le varie tipologie di inquinamento

RISORSE EXTRA	VALUTAZIONE
• Lessico di meteorologia • Come il riscaldamento globale condiziona piante e animali • Andare in bicicletta fa male all'ambiente • Contribuisci a risolvere il problema dell'inquinamento • Mappa di unità 2.1	• Test formativi Unità 2.1 • Test sommativo Modulo 2

UNIT 2.2 – ENERGY SOURCES

Teoria	Lessico
• Fonti energetiche rinnovabili e non-rinnovabili • Politica ambientale globale • Economia verde e circolare	• Fonti energetiche • Politica ambientale • Politica economica

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Abbinare termini e definizioni • Scelta multipla • Completare tabelle • Abbinare parti di frasi	• Completare un testo con parole/frasi mancanti • Completare tabelle e testi		• Esercizi di traduzione • Descrivere grafici • Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Identificare le caratteristiche delle energie rinnovabili e non rinnovabili • Saper parlare dei vantaggi e svantaggi delle risorse energetiche • Conoscere l'evoluzione delle politiche ambientali • Riconoscere pratiche di green economy e sviluppo sostenibile

RISORSE EXTRA	VALUTAZIONE
• Energia rinnovabile e agricoltura: una combinazione vincente • Problematiche ambientali e 'greenwashing' • Mappa di unità 2.2	• Test formativi Unità 2.2 • Test sommativo Modulo 2

UNIT 2.3 – FORESTRY

Teoria	Lessico
• Silvicoltura • Sistemi di raccolta legname • Gestione parchi/aree protette	• Gestione forestale • Gestione parchi/aree protette

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Completare testi con parole/frasi mancanti • Completare tabelle	• Risposte vero/falso		• Utilizzare vocabolario specifico • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande • Trovare informazioni e completare tabelle

COMPETENZE
• Utilizzare terminologia specifica • Saper trovare informazioni specifiche relative a diverse tipologie di foreste • Descrivere le fasi del processo di raccolta legname • Conoscere le direttive nazionali ed europee in materia di tutela ambientale

RISORSE EXTRA	VALUTAZIONE
• Il sorprendente mondo dei licheni • Rete Natura 2000 • Aree boreali protette in Canada • Mappa di unità 2.3	• Test formativi Unità 2.3 • Test sommativo Modulo 2

UNIT 2.4 – FOREST BIODIVERSITY

Teoria	Lessico
• Conservazione della biodiversità • Importanza del legno morto nell'ecosistema forestale • Patogeni forestali • Come l'impatto umano può danneggiare la foresta	• Biodiversità • Rischi biologici • Rischi umani

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Completare tabelle	• Completare un testo con parole/frasi mancanti • Risposte vero/falso • Scelta multipla	• Role play • Costruire un'intervista guidata	• Esercizi di traduzione • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Acquisire consapevolezza del ruolo della biodiversità • Riconoscere i pericoli biologici e umani

RISORSE EXTRA	VALUTAZIONE
• Biodiversità e acqua • Avifauna nel Canada boreale • Mappa di unità 2.4	• Test formativi Unità 2.4 • Test sommativo Modulo 2

UNIT 3.1 – SOIL

Teoria	Lessico
• Caratteristiche del terreno • Profilo • Lavorazione • Degrado	• Tipologie di terreno • Pratiche di lavorazione del terreno • Impatto ambientale

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Completare tabelle	• Risposte vero/falso • Completare tabelle e testi		• Utilizzare vocabolario specifico • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Conoscere le stratificazioni del suolo • Comprendere i vantaggi e svantaggi delle diverse pratiche di lavorazione • Identificare le forme e le cause del degrado del terreno

RISORSE EXTRA	VALUTAZIONE
• Gas di scisto • Mappa di unità 3.1	• Test formativi Unità 3.1 • Test sommativo Modulo 3

UNIT 3.2 – WATER

Teoria	Lessico
• Risorse idriche rinnovabili e non rinnovabili • Fattori che influenzano la disponibilità e qualità dell'acqua • Metodi di irrigazione • Sistemi di drenaggio del terreno	• Risorse idriche • Metodi di irrigazione

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare tabelle	• Completare un testo con parole/frasi mancanti • Risposte vero/falso	• Role play • Costruire un dialogo utilizzando espressioni date	• Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Individuare le principali fonti idriche • Descrivere le fasi del ciclo dell'acqua • Identificare i fattori che influenzano la disponibilità e qualità dell'acqua • Saper gestire una conversazione e compilare una tabella relativa ai diversi metodi di irrigazione • Riconoscere i vantaggi e svantaggi dei diversi sistemi di drenaggio

RISORSE EXTRA	VALUTAZIONE
• La giornata mondiale dell'acqua • Mappa di unità 3.2	• Test formativi Unità 3.2 • Test sommativo Modulo 3

UNIT 3.3 – PLANTS

Teoria	Lessico
• Classificazione e ciclo vitale delle piante • Struttura vegetativa e riproduttiva • I processi di fotosintesi e respirazione • Avversità delle piante • Prevenzione e trattamento	• Classificazione delle piante • Caratteristiche • Malattie

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti	• Completare un testo con parole/frasi mancanti • Completare tabelle e testi		• Esercizi di traduzione • Etichettare immagini • Utilizzare vocabolario specifico • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande • Riordinare frasi

COMPETENZE
• Utilizzare terminologia specifica • Individuare le caratteristiche delle piante • Riconoscere le componenti e funzioni della struttura vegetativa e riproduttiva • Saper distinguere le peculiarità dei processi di fotosintesi e respirazione • Saper classificare le avversità delle piante • Identificare le misure di prevenzione e i trattamenti specifici

RISORSE EXTRA	VALUTAZIONE
• Zafferano: l'oro rosso dell'Abruzzo • Mappa di unità 3.3	• Test formativi Unità 3.3 • Test sommativo Modulo 3

UNIT 3.4 – SEEDS AND FERTILISERS

Teoria	Lessico
• Sistemi monocolturali e di rotazione • Sistemi di coltivazione multipli, sequenziali e paralleli • Fertilizzanti chimici e biologici • Qualità delle sementi • Banche del germoplasma • Semi aziendali vs semi certificati	• Sistemi di coltivazione • Fertilizzanti • Sementi

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Scelta multipla • Etichettare paragrafi • Abbinare parti di frasi	• Completare un testo con parole/frasi mancanti • Risposte vero/falso		• Utilizzare vocabolario specifico • Completare tabelle e testi • Formulare domande da risposte date • Fornire termini e sinonimi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Definire le caratteristiche, i vantaggi e gli svantaggi dei vari sistemi di coltivazione • Identificare i fertilizzanti adatti a sopperire ad eventuali carenze del terreno • Acquisire consapevolezza della necessità di buone pratiche agricole rispettose dell'ambiente • Comprendere l'importanza di salvaguardare la diversità colturale • Individuare benefici e rischi delle diverse modalità di selezione delle sementi

RISORSE EXTRA	VALUTAZIONE
• Ammoniaca: fertilizzanti da maneggiare con cura • La Banca dei semi nell'Arcipelago delle Svalbard • Storia dello sviluppo e dei regimi brevettuali dei semi statunitensi • Mappa di unità 3.4	• Test formativi Unità 3.4 • Test sommativo Modulo 3

UNIT 4.1 – CROPS

Teoria	Lessico
• Classificazione delle colture agronomiche e orticole • Varietà cerealicole • Classificazione, coltivazione, raccolta e stoccaggio degli ortaggi • Patate: valori nutrizionali, benefici e controindicazioni • Funghi e tartufi • Classificazione e struttura dei frutti • Legumi da granella, leguminose foraggere e di copertura	• Classificazione delle colture • Caratteristiche

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Completare tabelle	• Completare un testo con parole/frasi mancanti • Risposte vero/falso	• Role play • Costruire un'intervista guidata • Descrivere grafici	• Esercizi di traduzione • Esercizi di Use of English • Utilizzare vocabolario specifico • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Conoscere i vari tipi di colture secondo la classificazione FAO (ICC) • Saper associare requisiti di coltivazione e aree di produzione a diversi cereali • Riconoscere le caratteristiche peculiari dei diversi ortaggi • Comprendere l'importanza delle patate come alimento base • Individuare le caratteristiche di funghi e tartufi • Saper gestire un'intervista sulla produzione dei tartufi • Riconoscere la classificazione e struttura dei frutti • Saper descrivere un grafico

RISORSE EXTRA	VALUTAZIONE
• Erbe medicinali • Tea, caffè e cacao • Riso dorato • Quinoa • La carestia delle patate in Irlanda • Le lenticchie: la storia attraverso una lente • Mappa di unità 4.1	• Test formativi Unità 4.1 • Test sommativo Modulo 4

UNIT 4.2 – OIL PLANTS

Teoria	Lessico
• Colture oleaginose temporanee • Colture oleaginose permanenti • Gestione sostenibile dell'uliveto • Fattori che incidono sulla crescita degli alberi di ulivo • Avversità delle piante • Prevenzione e trattamento	• Tipi di colture oleaginose • Gestione dell'uliveto • Malattie dell'ulivo

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Scelta multipla • Riordinare paragrafi	• Completare un testo con parole/frasi mancanti		• Descrivere grafici • Scrivere brevi testi • Utilizzare vocabolario specifico • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Individuare le caratteristiche delle colture oleaginose temporanee e permanenti • Saper classificare le avversità degli ulivi • Identificare le misure di prevenzione e i trattamenti specifici • Saper descrivere un grafico • Saper cercare le informazioni relative ad una tematica specifica e scrivere una breve relazione

RISORSE EXTRA	VALUTAZIONE
• Le colture di copertura contribuiscono alla sostenibilità ambientale • Mappa di unità 4.2	• Test formativi Unità 4.2 • Test sommativo Modulo 4

UNIT 4.3 – VINEYARDS

Teoria	Lessico
• Vigneti e varietà di vitigni • Fattori che incidono sulla crescita delle viti • Lavorazioni nel vigneto • Sistemi di allevamento e relativi metodi di potatura • Avversità delle piante • Prevenzione e trattamento	• Varietà di vitigni • Gestione del vigneto • Sistemi di allevamento • Malattie

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Trovare informazioni chiave	• Completare un testo con parole/frasi mancanti • Risposte vero/falso		• Esercizi di traduzione • Etichettare immagini • Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Identificare le principali varietà di vitigno • Conoscere le pratiche basilari per la manutenzione del vigneto • Distinguere i diversi tipi di allevamento • Saper classificare le avversità della vite • Identificare le misure di prevenzione e i trattamenti specifici

RISORSE EXTRA	VALUTAZIONE
• Le basi della potatura: potatura a cordone speronato • Mappa di unità 4.3	• Test formativi Unità 4.3 • Test sommativo Modulo 4

UNIT 4.4 – GARDENING AND LANDSCAPING

Teoria	Lessico
• Paesaggio naturale e culturale • Politica paesaggistica • Dal giardino formale al giardino informale • Orticoltura e floricoltura • Classificazione di piante ornamentali • Giardinaggio urbano sostenibile	• Paesaggistica • Storia • Gestione giardinaggio • Sostenibilità

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni	• Completare un testo con parole/frasi mancanti • Risposte vero/falso • Risposte aperte • Completare tabelle e testi		• Esercizi di Use of English • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Saper distinguere le caratteristiche naturali e antropiche dei vari paesaggi • Definire gli elementi caratterizzanti del giardino all'italiana e del giardino all'inglese • Conoscere le coltivazioni orticole e floricole • Distinguere piante annuali, biennali e perenni • Conoscere le soluzioni di giardinaggio urbano sostenibile • Vantaggi e svantaggi del verde urbano

RISORSE EXTRA	VALUTAZIONE
• Una svolta nella progettazione del giardino all'inglese • Agricoltura urbana a NYC • Mappa di unità 4.4	• Test formativi Unità 4.4 • Test sommativo Modulo 4

UNIT 5.1 – FOOD PRODUCTION

Teoria	Lessico
• Produzione industriale vs artigianale • Metodi di conservazione antichi e moderni	• Metodi di produzione • Metodi di conservazione

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti	• Completare un testo con parole/frasi mancanti • Risposte vero/falso		• Esercizi di Use of English • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Individuare le caratteristiche della produzione artigianale e industriale • Conoscere le tecniche di conservazione usate nel passato • Principali metodi fisici e chimici di conservazione • Metodi di conservazione emergenti

RISORSE EXTRA	VALUTAZIONE
• Oscuri segreti • Cos'è la sicurezza alimentare? • Mappa di unità 5.1	• Test formativi Unità 5.1 • Test sommativo Modulo 5

UNIT 5.2 – DAIRY PRODUCTS

Teoria	Lessico
• Caratteristiche nutrizionali del latte • Differenti tipi di latte e relativi trattamenti • Processi di trasformazione del latte	• Prodotti caseari • Trattamenti

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Completare testi con parole/frasi mancanti • Abbinare termini e definizioni • Completare tabelle • Riordinare sequenze	• Completare un testo con parole/frasi mancanti • Risposte vero/falso	• Descrizione immagini	• Esercizi di traduzione • Esercizi di Use of English • Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Identificare le principali caratteristiche del latte • Saper completare una tabella relativa ai diversi trattamenti del latte • Descrivere le fasi del processo di produzione dei prodotti caseari

RISORSE EXTRA	VALUTAZIONE
• Il latte di soia è realmente latte? • Il valore della standardizzazione del latte • Formaggi inglesi • Plaisentif: il formaggio delle viole • Mappa di unità 5.2	• Test formativi Unità 5.2 • Test sommativo Modulo 5

UNIT 5.3 – THE EDIBLE OIL INDUSTRY

Teoria	Lessico
• Raccolta e trasformazione delle olive • Classificazione degli oli d'oliva • Oli di semi raffinati e non raffinati	• Produzione olio d'oliva • Classificazione • Altri oli

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Completare tabelle	• Completare un testo con parole/frasi mancanti • Risposte vero/falso • Risposte aperte • Scelta multipla	• Role play • Costruire un dialogo utilizzando espressioni date • Costruire un dialogo	• Esercizi di traduzione • Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Descrivere le fasi del processo di produzione dell'olio d'oliva • Saper gestire un dialogo utilizzando espressioni date • Completare una tabella relativa a proprietà organolettiche e uso degli oli d'oliva • Conoscere i processi di produzione degli oli di semi e loro caratteristiche

RISORSE EXTRA	VALUTAZIONE
• Olio di canola: ideale per qualsiasi uso culinario • Mappa di unità 5.3	• Test formativi Unità 5.3 • Test sommativo Modulo 5

UNIT 5.4 – ALCOHOLIC BEVERAGES

Teoria	Lessico
• Metodi di produzione delle bevande alcooliche • Classificazione dei vini • Azienda vinicola, attrezzatura e strumenti per la produzione del vino • Botti per invecchiamento e maturazione • Produzione della birra • Classificazione delle birre	• Produzione bevande alcooliche • Tipi di vino • Attrezzatura e strumenti per l'enologia • Tipi di birra

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Trovare informazioni chiave • Etichettare immagini	• Risposte aperte • Risposte vero/falso • Completare un testo con parole/frasi mancanti	• Role play • Costruire un dialogo guidato • Descrizione immagini	• Utilizzare vocabolario specifico • Risposte vero/falso • Rispondere a domande • Completare tabelle e testi • Esercizi di Use of English

COMPETENZE
• Utilizzare terminologia specifica • Descrivere le fasi del processo di produzione delle bevande alcoliche • Saper classificare le bevande alcoliche • Identificare le diverse attrezzature • Conoscere le tecniche di invecchiamento e maturazione • Costruire un dialogo guidato

RISORSE EXTRA	VALUTAZIONE
• Passito di Pantelleria • Birra Lambic • Mappa di unità 5.4	• Test formativi Unità 5.4 • Test sommativo Modulo 5

UNIT 5.5 – ITALIAN EXCELLENCE

Teoria	Lessico
• Produzione del Parmigiano Reggiano • Produzione dell'aceto balsamico e varietà • Caratteristiche e valori nutritivi della pasta di grano duro • Imitazione delle eccellenze enogastronomiche italiane	• Prodotti italiani di eccellenza • Contraffazioni

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Scelta multipla • Riordinare sequenze • Abbinare parti di frasi	• Completare un testo con parole/frasi mancanti • Risposte vero/falso	• Role play • Costruire un dialogo utilizzando espressioni date	• Esercizi di traduzione • Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande • Etichettare immagini

COMPETENZE
• Utilizzare terminologia specifica • Conoscere il processo di produzione del Parmigiano Reggiano • Riconoscere i vari tipi di aceto balsamico e le relative fasi di produzione e invecchiamento • Costruire un dialogo utilizzando espressioni date • Individuare le caratteristiche e i valori nutritivi della pasta di grano duro • Acquisire consapevolezza del fenomeno della contraffazione delle eccellenze enogastronomiche italiane • Conoscere le possibili contromisure da adottare per arginare il fenomeno

RISORSE EXTRA	VALUTAZIONE
• Aceto balsamico: quali sono le differenze? • Mappa di unità 5.5	• Test formativi Unità 5.5 • Test sommativo Modulo 5

UNIT 6.1 – RUMINANT LIVESTOCK

Teoria	Lessico
• Zootecnica • Classificazione e caratteristiche dei ruminanti • Bovini • Pecore • Capre	• Allevamento dei ruminanti

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Scelta multipla	• Completare un testo con parole/frasi mancanti • Risposte aperte • Scelta multipla • Completare tabelle e testi		• Esercizi di traduzione • Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Comprendere le differenze dei sistemi digestivi degli animali d'allevamento • Riconoscere le diverse razze di bovini, ovini e caprini

RISORSE EXTRA	VALUTAZIONE
• Sopravvivenza di razze rare • Mappa di unità 6.1	• Test formativi Unità 6.1 • Test sommativo Modulo 6

UNIT 6.2 – NON-RUMINANT LIVESTOCK

Teoria	Lessico
• Metodi di allevamento del pollame • Metodi di allevamento dei suini • Caratteristiche dell'allevamento degli equini e loro impiego	• Allevamento dei non ruminanti

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte vero/falso • Completare testi con parole/frasi mancanti • Completare tabelle • Etichettare immagini	• Scelta multipla		• Esercizi di Use of English • Utilizzare vocabolario specifico • Risposte vero/falso

COMPETENZE
• Utilizzare terminologia specifica • Acquisire consapevolezza dei vantaggi e svantaggi dei diversi metodi di allevamento • Identificare le caratteristiche delle diverse razze • Conoscere i campi di applicazione degli equini in agricoltura

RISORSE EXTRA	VALUTAZIONE
• Peste suina africana • I cavalli sono gli animali più nobili • Mappa di unità 6.2	• Test formativi Unità 6.2 • Test sommativo Modulo 6

UNIT 6.3 – ALTERNATIVE FORMS OF BREEDING

Teoria	Lessico
• Caratteristiche delle colonie di api • Apicoltura: requisiti di base, raccolta, trasformazione e qualità del miele • Sistemi di acquacoltura, caratteristiche e gestione • Insetticoltura e ripercussioni sull'ambiente	• Apicoltura • Acquacoltura • Insetticoltura

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Scelta multipla • Completare tabelle • Abbinare parti di frasi	• Risposte vero/falso • Risposte aperte • Scelta multipla	• Role play • Costruire un'intervista guidata	• Utilizzare vocabolario specifico • Completare tabelle e testi • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Comprendere l'importanza delle api nell'ecosistema • Descrivere le fasi del processo di raccolta e lavorazione del miele • Individuare i vantaggi e svantaggi delle diverse forme di acquacoltura • Acquisire consapevolezza delle opportunità offerte dalla nuova zootecnia dell'insetticoltura

RISORSE EXTRA	VALUTAZIONE
• La danza delle api • Le api e la successione di Fibonacci • Le api e la verità matematica • Allevamenti marini del futuro • Mappa di unità 6.3	• Test formativi Unità 6.3 • Test sommativo Modulo 6

UNIT 6.4 – LIVESTOCK MANAGEMENT

Teoria	Lessico
• Condizioni di allevamento che impattano sul benessere degli animali • Edilizia rurale / Alloggiamenti per il bestiame • Alimentazione del bestiame • Malattie comuni ed epidemiche del bestiame • Metodi di macellazione	• Diverse tipologie di allevamenti • Problematiche attinenti a gestione e tutela degli animali

ABILITÀ LINGUISTICHE			
Reading	**Listening**	**Speaking**	**Writing**
• Risposte aperte • Risposte vero/falso • Completare testi con parole/frasi mancanti • Completare tabelle • Abbinare parti di frasi • Riordinare paragrafi	• Completare un testo con parole/frasi mancanti • Risposte aperte • Scelta multipla • Completare tabelle e testi		• Completare tabelle e testi • Formulare domande da risposte date • Risposte vero/falso • Rispondere a domande

COMPETENZE
• Utilizzare terminologia specifica • Saper identificare gli indicatori del benessere animale • Conoscere i principi legislativi a tutela degli animali • Completare una tabella individuando i vantaggi e svantaggi di allevamento convenzionale e biologico • Riconoscere i rischi sanitari del bestiame • Identificare le fasi della macellazione convenzionale e non convenzionale

RISORSE EXTRA	VALUTAZIONE
• I dilemmi del benessere animale • Il trasporto del bestiame • Macellazione Halal • Mappa di unità 6.4	• Test formativi Unità 6.4 • Test sommativo Modulo 6

ESAME DI STATO

The following materials aim to support teachers in the preparation of the oral discussion of the “Esame di Stato”, providing suggestions that prompt and facilitate cross-curricular analyses. Visit the publishing house website: www.edisco.it.

IL COLLOQUIO ORALE

Il colloquio si svolgerà in chiave multi- e inter-disciplinare al fine di valutare la capacità dello studente di cogliere i nessi tra i diversi saperi collegandoli opportunamente tra loro e sarà finalizzato ad accertare il conseguimento del profilo culturale, educativo e professionale, secondo quanto richiamato dal D. Lgs. 62/2017.

"*Il colloquio ha la finalità di accertare il conseguimento del profilo culturale, educativo e professionale della studentessa o dello studente. A tal fine la commissione, tenendo conto anche di quanto previsto dall'articolo 1, comma 30, della legge 13 luglio 2015, n. 107, propone al candidato di* ***analizzare testi, documenti, esperienze, progetti, problemi per verificare l'acquisizione dei contenuti e dei metodi propri delle singole discipline, la capacità di utilizzare le conoscenze acquisite e di collegarle per argomentare in maniera critica e personale anche utilizzando la lingua straniera****. Nell'ambito del colloquio il candidato espone, mediante una breve relazione e/o un elaborato multimediale, l'esperienza di alternanza scuola lavoro* [leggasi PCTO] *svolta nel percorso di studi".*

Si tratterà in sostanza di verificare la capacità del candidato di collegare le conoscenze acquisite in una prospettiva pluridisciplinare.
Pertanto, in questa sezione verrà fornita una serie di documenti, organizzati per moduli, da sottoporre ai candidati per l'analisi pluridisciplinare.
Tali documenti potranno riguardare immagini, specifiche o evocative, con didascalia o senza, citazioni di personaggi famosi e/o brevi testi.

Module 1 • AGRICULTURE

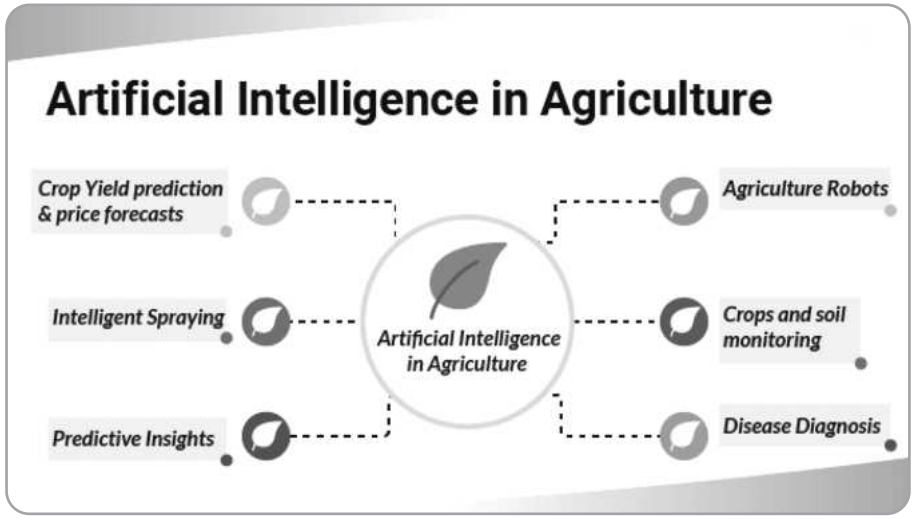
Il candidato analizzi il documento proposto in chiave pluridisciplinare.

1.

2. "The health of our planet depends on the health of its ecosystems, and sustainable agriculture is key to maintaining that health."

Jules Pretty, British scholar

3.



4. On 2 December, 2021, the agreement on reform of the common agricultural policy (CAP) was formally adopted. The new legislation, which entered into force on 1 January 2023, paves the way for a fairer, greener, and more performance-based CAP.

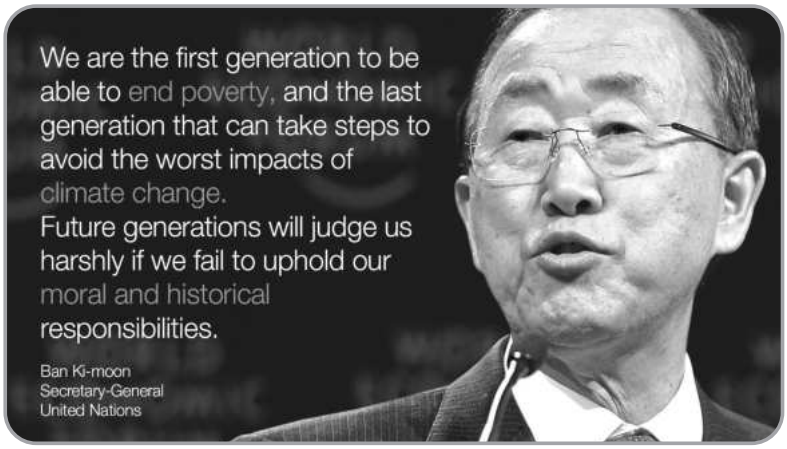
5. It seeks to ensure a sustainable future for European farmers, provide more targeted support to smaller farms, and allow greater flexibility for EU countries to adapt measures to local conditions.

Abstract from https://*agriculture.ec.europa.eu/*

6. 

Il candidato analizzi il documento proposto in chiave pluridisciplinare.

1.



2.

3. The UN Environment Programme defines "Green Economy" as one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In practical terms, a Green Economy is an economy that includes recycling, renewable energy and the generation of green jobs, and where growth in income and employment is driven by public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

4. Wherever wolves reappear, they give rise to social tensions. Most nature conservationists celebrate the return of the wolf as a success of European nature policies; they argue that predators such as the wolf are a welcome addition to the ecosystem and will have a positive effect on biodiversity. Many urbanites are fascinated by the idea that the wolf again lives in this densely populated part of the world. People in rural areas, on the other hand, are more worried that wolves will pose a danger to humans and livestock. However, many people appear to take a rather moderate and pragmatic approach towards the return of the wolf.

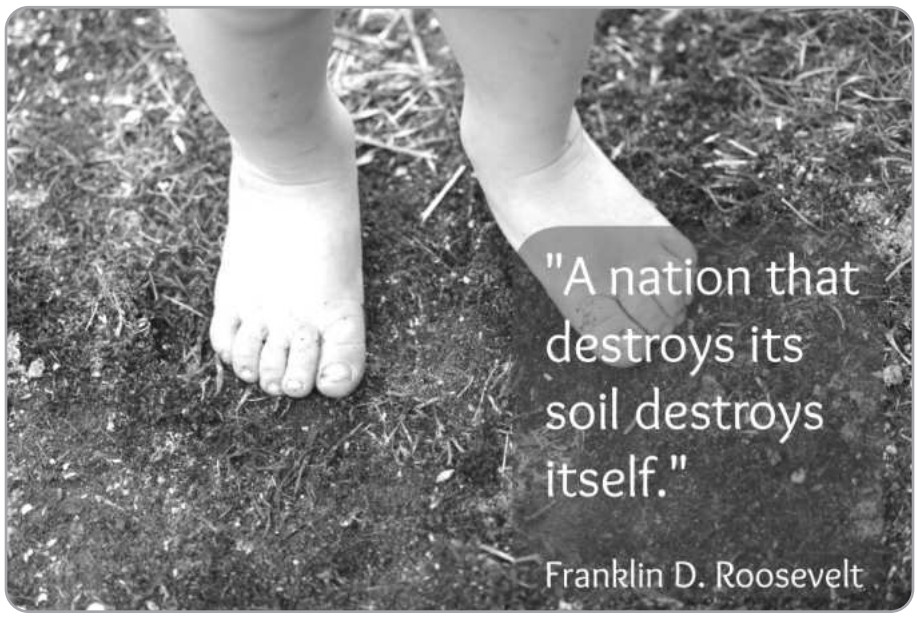
Abstract from https*://link.springer.com/*

5.

Module 3 • SOIL, WATER AND PLANTS

Il candidato analizzi il documento proposto in chiave pluridisciplinare.

1.

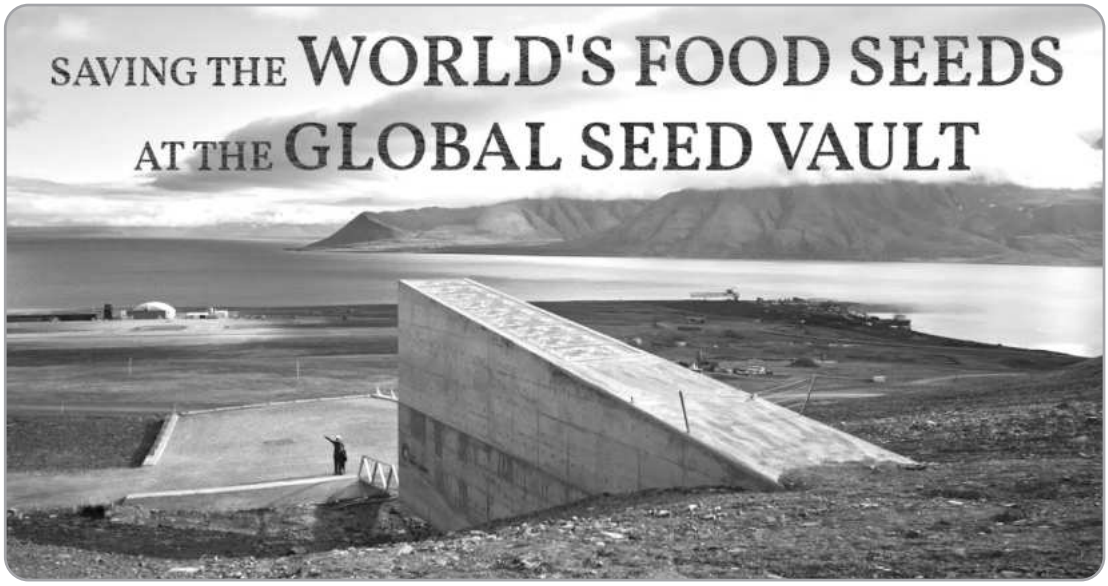


2. "The threat of nuclear weapons and man's ability to destroy the environment are really alarming. And yet there are other almost imperceptible changes. I am thinking of the exhaustion of our natural resources, and especially of soil erosion – and these are perhaps more dangerous still, because once we begin to feel their repercussions it will be too late."

The Dalai Lama's Little Book of Inner Peace, Element Books, London, 2002

3.

4.

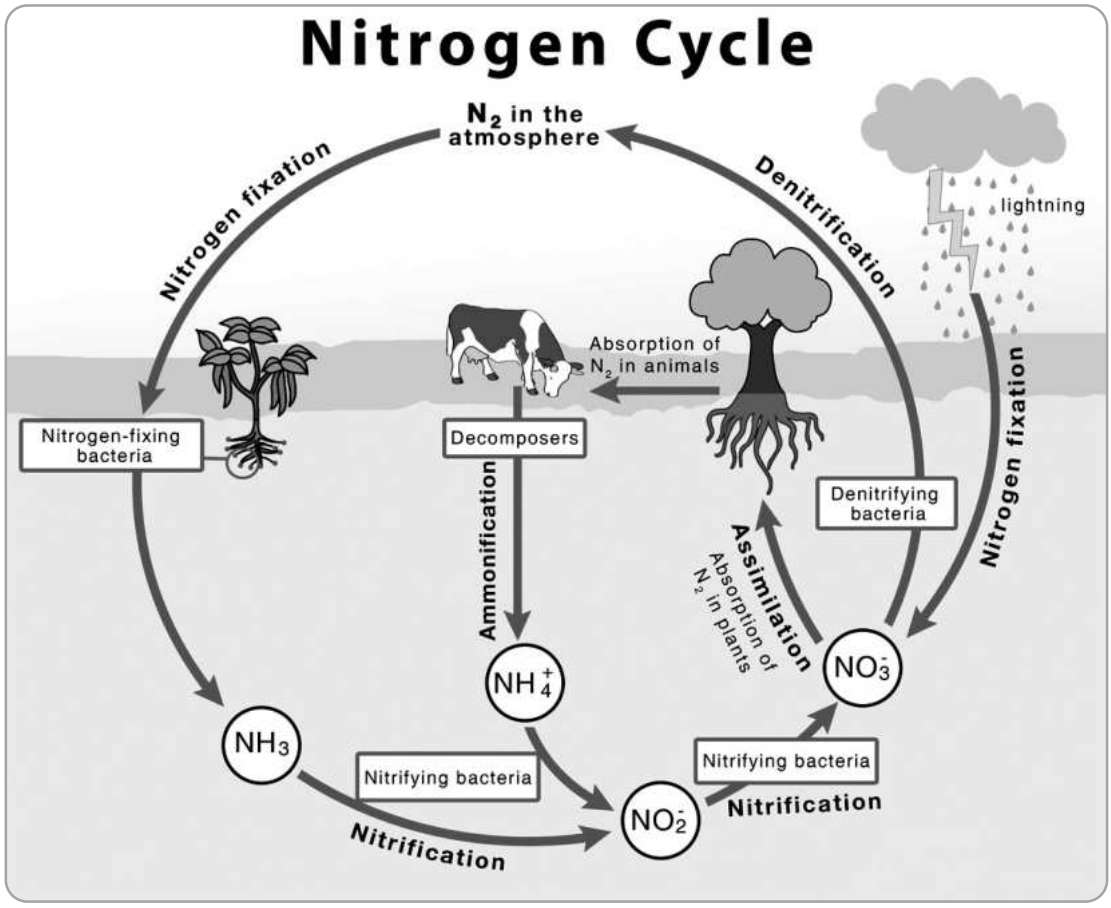


5.

Il candidato analizzi il documento proposto in chiave pluridisciplinare.

1. The history of legumes is tied in closely with that of human civilisation, appearing early in Asia, the Americas and Europe, where they became a staple food, essential for supplementing protein when meat was less available. Today, although legumes are an important part of traditional diets around the world, they are often neglected in typical Western diets.

2.



3. In 2013, while investigating the aetiology of a previously unknown olive disease, a bacterial plant pathogen was detected for the first time in Europe and in the Mediterranean Basin, representing a serious threat to the local agriculture economy and the biodiversity of this region. Bacterial infections were consistently detected in olive trees severely affected by a novel disease, termed olive quick decline syndrome (OQDS), characterised by severe branch desiccation and rapid death of olive trees.

4.

5.

Module 5 • FOOD PROCESSING

Il candidato analizzi il documento proposto in chiave pluridisciplinare.

1. Official sources, such as the *Dietary Guidelines for Americans 2015-2020*, recommend that adults eat about 3 cup-equivalent of low fat or fat-free dairy each day as part of a healthful diet. This amount can include milk, yogurt, cheese, and fortified soy beverages.

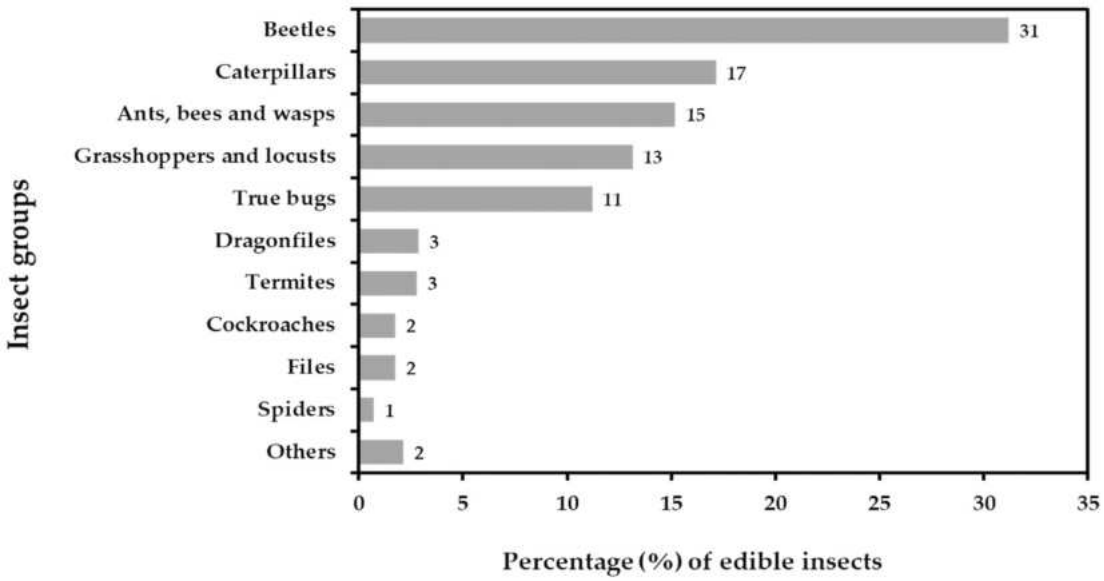
   Abstract from: *https://*www.medicalnewstoday.com/articles/273451

2. Starting in 2024, the European Union will enforce a novel, comprehensive regulation focused on Protected Designation of Origin (PDO) and Protected Geographical Indication (PGI) products. This initiative represents a significant stride in safeguarding and promoting traditional and regional products. Under the new EU unified legislation, the registration of "Italian Sounding" products, which refers to food and beverages with names resembling those of traditional Italian products, causing consumer confusion, will be prohibited. This encompasses items like Slovenian and Cypriot balsamic vinegar, Croatian Prosek, "Parmesan" and "Gorgonzillo".

   Abstract from: *https://*www.italianfoodnews.com/

3. 

4.


Insect groups
Beetles
Caterpillars
Ants, bees and wasps
Grasshoppers and locusts
True bugs
Dragonfiles
Termites
Cockroaches
Files
Spiders
Others
31
17
15
13
11
3
3
2
2
1
2
0
5
10
15
20
25
30
35
Percentage (%) of edible insects

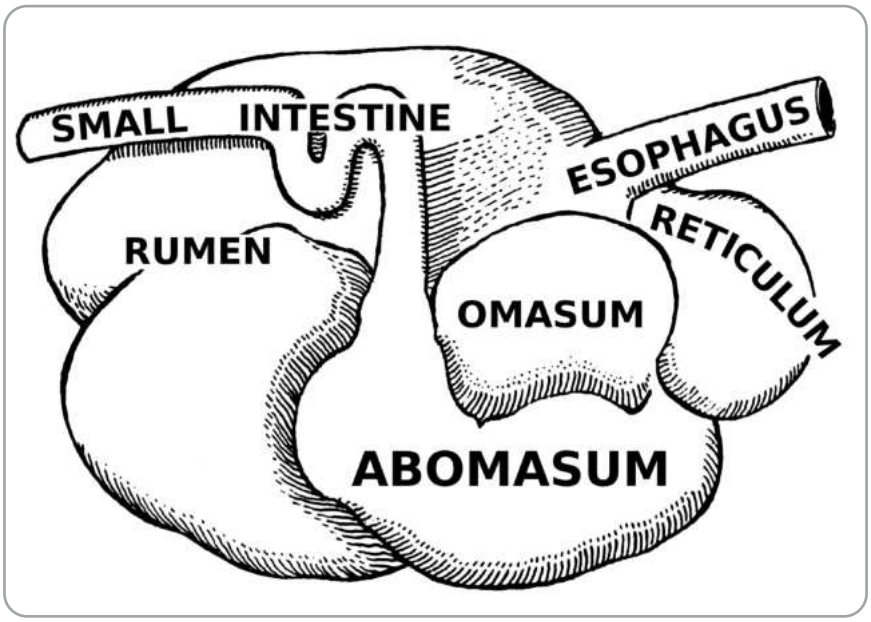
5.

Il candidato analizzi il documento proposto in chiave pluridisciplinare.

1. "The greatness of a nation and its moral progress can be judged by the way its animals are treated."

Mahatma Ghandi

2.



3.

4.

5. One of the major advantages of intensive farming is that it provides a high yield. This means that key food items such as eggs and chicken can be offered at competitive prices which are affordable to all. But despite its clear advantages in terms of profitability and affordability, the batter cage system and similar intensive farming techniques also come with disadvantages.

Abstract from: *https://greentumble.com/*

UNIT TESTS

The following tests aim at verifying the knowledge, abilities, and competences of students for each unit of the text. Each test is available in two versions and is about 50 minutes long. The material is editable so that each teacher can adapt it easily to each of their classes and also each of their SEN students. Visit the publishing house website: www.edisco.it.

U 1.1 Trends in agriculture

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and then decide if the statements are true or false. Correct the false statements.

Changes in Modern Farming

Agriculture is the science and industry of managing the growth of plants and animals for human use. It is the world's largest economic sector, and it involves more people than any other activity.

While many of the basic stages in agriculture have remained the same – ploughing, planting, harvesting, raising livestock and marketing – farming techniques have changed dramatically over the years. The modern farmer has become more and more conscious of costs and profits and is paying much greater attention to efficiency and business management.

Nowadays, agriculture relies mainly on technology and biological and physical sciences. The increase in mechanisation implies a decline in the labour force that is engaged in agriculture.

Another key factor in the development of modern agriculture has been agricultural chemistry, which deals with the use of selective breeding techniques, fertilisers, herbicides, pesticides and fungicides, thanks to which the efficiency of food production has dramatically increased.

Plant breeding and genetics also contribute to farm productivity. The packing, processing, and marketing of agricultural products are closely related activities also influenced by science. Methods of quick-freezing and dehydration have increased the market for farm products.

Since nations depend on agriculture not only for food but also for national income and raw materials for industry, trade in agriculture is a constant international concern and is regulated by international agreements. The Food and Agricultural Organisation of the United Nations directs a lot of attention to agricultural trade and policies.

Glossary:
chemistry: *chimica*
to harvest: *mietere*
to plough: *arare*

	T	F
1. There are a lot of people working in agriculture worldwide.	☐	☐
2. Farming techniques have basically remained the same over the years.	☐	☐
3. The role of the farmer has changed over the years.	☐	☐
4. The management of agribusinesses has become increasingly important today.	☐	☐
5. The labour force in agriculture has increased.	☐	☐
6. Farm productivity does not necessarily depend on breeding techniques.	☐	☐
7. The use of fertilisers, herbicides, pesticides and fungicides has been negative for production.	☐	☐
8. Producing plants or animals that have particular qualities is a key factor in productivity.	☐	☐

 Name ..... Class ..... Date .....

9. Trade is important for agriculture because it influences the national income. ☐ ☐

10. Agricultural trade and policies are of trivial importance for the FAO. ☐ ☐

.....

.....

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.....

.....

...../10

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Organic farming techniques prohibit…	☐	**a.** vegetables in small spaces.
2. Environmental health, economic profitability, and social/economic equity…	☐	**b.** are the three main goals of sustainable agriculture.
3. Sprayers, a high-pressure pump and a timer…	☐	**c.** are the main features of an aeroponic system.
4. Aeroponics is particularly useful when growing…	☐	**d.** is genetic variation in the desired characteristic.
5. The most important factor for plant breeding…	☐	**e.** farmers from using synthetic pesticides.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. Who was the scientist who studied the laws of inheritance?
2. What is the basic difference between organic and sustainable farming?
3. What are the basic types of hydroponic system?
4. What are the advantages of an aquaponic farming system?
5. What does biodynamic farming involve?

.....

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.....

.....

.....

...../10

 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

air · climate · filter · fish · powered · problems · recycling · shortens · sound · sprayed

Growing Food without Soil

Growing food without soil may **1.** ..... odd, but there are three techniques which do not use soil: hydroponics, aeroponics and aquaponics.

The first uses water and nutrients dissolved in liquid instead of soil: it **2.** ..... the plant growing cycle using less water and fertiliser. In aeroponics the growing medium is **3.** .....: the roots of plants are held above a reservoir and constantly **4.** ..... with nutrient-rich solution so less water is necessary. Aquaponics is the combination of aquaculture and hydroponics that grows **5.** ..... and plants together in one integrated system: the fish waste provides food for the plants, and the plants **6.** ..... the water for the fish. However, these techniques are not without **7.** ..... One of the main drawbacks is the energy usage which is often higher than in soil farming operations. Water **8.** ....., heating, supplemental lighting and nutrient cycling all need to be **9.** ..... by electricity. Anyway, farms using these techniques can help reduce food miles, deliver fresh food year-round and regardless of **10.** ..... and do so using a fraction of the land and water needed for soil farming.

...../10

MULTIPLE CHOICE

5. Choose the correct option.

1. Conventional farmers…
- **a.** add antibiotics to animal feed.
- **b.** think antibiotics are harmful to their animals.
- **c.** do not use antibiotics in livestock husbandry.
- **d.** think antibiotics can cause new strains of bacteria to develop.

2. Organic farming…
- **a.** cannot exclude GMOs.
- **b.** cannot produce high quality food.
- **c.** appeals to most farmers.
- **d.** must not use manufactured fertilisers or pesticides.

3. SARD…
- **a.** is a compromise between profits and a holistic scientific approach.
- **b.** is a concept created by the IFOAM.
- **c.** means Sustainable Agriculture and Rural Development.
- **d.** means Sustain Agrarian Research District.

4. Hydroponics allows…
- **a.** plants to grow slower than they would in soil.
- **b.** plants to grow quicker than they would in soil.
- **c.** better herbicides to be used.
- **d.** fish waste to be used.

5. Biodynamic agriculture…
- **a.** emphasises the use of herbicides.
- **b.** uses extracts from animal, plant and mineral manure.
- **c.** avoids mixing crops.
- **d.** uses a great quantity of water.

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Total score ...../50

U 1.1 Trends in agriculture

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and then decide if the statements are true or false. Correct the false statements.

The Next Generation of Food Supply

As the Eastern US was dealing with sub-freezing temperatures and lots of snow in 2010, two young entrepreneurs, J. Friedman and B. McNamara, started *Freight Farms* to help farmers to produce food locally even in the middle of winter. Growing food might be the world's oldest profession, but Friedman and McNamara are bringing food production into the 21st century. Their converted shipping containers, nicknamed *Leafy Green Machines*, are outfitted with vertical hydroponics, high efficiency LED lights and an automated climate control system which allow users to easily produce thousands of varieties of leafy greens, including lettuce, herbs and brassicas. Sean and Connie Cooney are two happy *Freight Farms* customers. With their *Leafy Green Machine*, they can monitor temperature, nutrient and pH levels, and even watch live video of their plants from anywhere with the company's mobile app. They chose to buy this equipment in order to grow food where they live, instead of buying acres of land further away from their city. They sell most of their greens to restaurants. The plants grow more quickly and can grow all year long, and they taste as good or better than what you would buy from a traditional farm. Friedman and McNamara estimate the annual operating costs at $13,000 a year – for electricity, water, packaging and growing supplies – but, with plans to incorporate renewable energy sources such as solar panels, that cost could drop significantly.

Adapted from: *https://www.ecowatch.com/two-young-entrepreneurs-offer-way-to-grow-food-even-in-the-dead-of-win-1882012623.html*

Glossary:
to drop: *abbassarsi* **leafy:** *frondoso* **outfitted:** *equipaggiato*

	T	F
1. J. Friedman and B. McNamara started their business when it was snowing.	☐	☐
2. Their converted shipping containers are called *Leafy Green Machines*.	☐	☐
3. This machine allows food to be produced all through the year.	☐	☐
4. Users can produce salad.	☐	☐
5. The Cooneys are disappointed with the performance of their machine.	☐	☐
6. Thanks to their *Leafy Green Machine* the Cooneys did not have to buy farmland.	☐	☐
7. Food produced by a traditional farm is better.	☐	☐
8. The operating costs are expected to be $13,000 a year.	☐	☐
9. Friedman and McNamara think they will be able to reduce the operating costs of the machine.	☐	☐
10. This machine is already equipped with solar panels.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Humans can change plant features through breeding techniques… ☐
2. Synthetic pesticides are… ☐
3. Hydroponics allows plant roots to come into direct contact… ☐
4. In aeroponics, the plants' roots dry out… ☐
5. Aquaponics is advantageous because… ☐

a. banned by organic farming.
b. it re-uses nutrients, preserves water and shares infrastructural/operational costs.
c. rapidly unless they are periodically sprayed with a nutrient-rich solution.
d. with the nutrient solution, while having access to oxygen
e. in order to have better crops and more nourishing food.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why was G. Mendel essential for genetics?
2. What basic principles does biodynamic farming rely on?
3. What is responsible for polluted groundwater?
4. How can you justify the use of antibiotics in livestock husbandry?
5. How can soil fertility be protected?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

cancer · code · crossbreeding · environment · features · genes · ingredients · people · risks · valid

From Crossbreeding to Genetic Modification

Breeding started thousands of years ago, when farmers realised that crops of the same species could have different **1.** .....

The turning point was the discovery of genes and the genetic **2.** ..... by G. Mendel. However, selecting plants both through the removal of those with undesired traits and through **3.** ..... has not always proved effective. Despite this, the modern genetic engineering, capable of cloning specific **4.** ..... from one species and inserting them into others to produce GMOs, may be considered a **5.** ..... improvement. However, there may be side effects on the **6.** ..... and human health.

The main concerns about GMOs involve allergies, **7.** ..... and environmental issues, all of which may affect the consumer. While current research suggests few **8.** ....., more long-term research is needed. Although GMO foods appear safe for consumption, some **9.** ..... wish to avoid them. Still, in some countries this is difficult since most foods in supermarkets are made with **10.** ..... from GMO crops, without being labelled.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Organic farmers…
- **a.** use antibiotics.
- **b.** avoid crop rotation.
- **c.** do not add antibiotics to the animals' feed.
- **d.** do not use green manure.

2. Manufactured fertilisers and pesticides…
- **a.** are harmful for GMOs.
- **b.** are chosen by conventional farmers.
- **c.** are commonly used in organic farming.
- **d.** are not adopted by most conventional farmers.

3. Fish waste…
- **a.** is mixed to manures and organic waste to create humus.
- **b.** compromises plants' growth.
- **c.** replaces herbicides.
- **d.** produces nutrients for plants in aquaponics.

4. Aeroponics is particularly convenient…
- **a.** to grow crops outdoors.
- **b.** as it avoids any bacterial proliferation.
- **c.** to reduce operating costs.
- **d.** to grow plants in small indoor spaces.

5. Manure and organic waste…
- **a.** act as a biofilter.
- **b.** should be avoided in winter.
- **c.** are preferred to chemicals in biodynamics.
- **d.** need a great quantity of water.

...../10

Total score ...../50

U 1.2 Technology, automation and robotics

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and then decide if the statements are true or false. Correct the false statements.

Farming 4.0: the Future of Agriculture?

In Europe, Precision Agriculture (PA) and the integration of digital technology are going to become the most influential trends in the sector as a growing number of farmers start to adopt digital technologies to run their businesses.

According to the machinery industry in Europe, 70 to 80% of new farm equipment sold has some form of PA component technology inside. There are 4,500 manufacturers, producing 450 different machine types with an annual turnover of €26 billion. The sector also employs 135,000 people.

Precision Farming can potentially help farmers produce higher yields, less crop damage and use fewer inputs such as water, fuel and fertiliser. The European Joint Research Center estimates that PA can make a huge CO_2 saving contribution in European agriculture.

These technologies are still expensive for most farmers, especially for the smaller ones, and Europe is also facing an ageing workforce on farms, so that the introduction of new technologies could result in a "two-speed" EU agriculture. In many EU rural areas, Internet access is limited and this holds back the use of big data, therefore the EU is pushing for a digital revolution within the agricultural sector by supporting specific schemes and offering financial incentives to farms.

Adapted from: *https://www.euractiv.com/section/agriculture-food/infographic/farming-4-0-the-future-of-agriculture/*

Glossary:

ageing: *che sta invecchiando* **to hold back:** *ostacolare*

	T	F
1. Smart farming may increase productivity.	☐	☐
2. Fewer and fewer farmers use digital technologies on their farms.	☐	☐
3. The European machinery industry manufactures little farm equipment with PA components.	☐	☐
4. Precision Agriculture can reduce impact on the environment.	☐	☐
5. There will be a huge increase in CO_2 emission thanks to PA.	☐	☐
6. Most farmers can afford to adopt new technologies.	☐	☐
7. The average age of farmers is getting higher and higher.	☐	☐
8. Many farmers do not use big data provided by the Internet.	☐	☐
9. New technologies are bringing about a uniform progress in agriculture.	☐	☐
10. Farmers may be financed by the EU if they use new digital technologies.	☐	☐

...../10

 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. A rake can be used for collecting… ☐
2. Robots can enhance farm productivity… ☐
3. Drones allow farmers to constantly… ☐
4. Satellite-guided farming allows more precise… ☐
5. The invention of the reaper… ☐

a. monitor crop and livestock conditions.
b. application of fertilisers, pesticides and herbicides.
c. mechanised harvesting.
d. and reduce dependence on human labour.
e. cut grass or dead leaves on the ground.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions briefly.

1. What hand tools have been used in farming since ancient times?
2. What pieces of machinery are the milestones in farming evolution?
3. How are robots changing the future of farming?
4. Why do robots have different forms?
5. Why does precision agriculture have less impact on the environment than conventional agriculture?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

high-tech · organic · precision · project · reliable · robots · seed · sustainable · water · world

Farming with Robots

Farmers are increasingly under pressure to feed more people. The UN predicts that the **1.** ..... population will rise from 7.3 billion today to 9.7 billion in 2050. This growing population has become more selective about the food they eat. In the EU alone, the **2.** ..... market grew by 7.4% in 2014 with sales valued at 24 euro billion. Beyond organic food, there is an overall push to make farming greener by using less **3.** ..... and fewer pesticides.

Thus, farmers need to produce more, at a higher quality, and in a **4.** ..... manner. With youth turning away from the profession, there is also less labour available to start future planning.

"Few people want to get up at 5 am. Farming is a heavy and dirty job," says Eldert van Henten, head of the Farm Technology Group at Wageningen University in the Netherlands. He adds that, "the **5.** ..... nature of future farming might attract new people into the profession, but also bring back those who left."

Robots are just part of an overall push towards **6.** ..... agriculture.

For crop farming, robots need to autonomously navigate their environment and perform actions such as picking fruit, spraying pesticide, planting **7.** ..... or taking measurements.

And the farms of tomorrow will include many **8.** ..... working together.

The MARS **9.** ....., which stands for Mobile Agricultural Robot Swarms, demonstrated a cloud-based approach to farming at Hannover Messe last week. By making use of many simpler and smaller robots, they hope to make their farm-solutions safer, more **10.** ....., and productive.

Adapted from: *https://precisionagricultu.re/farming-with-robots/*

Glossary:
swarm: *sciame*
to turn away: *far allontanare*

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 Name ..... Class ..... Date .....

MULTIPLE CHOICE

5. Choose the correct option.

1. A combine is a machine which is used to…
- **a.** uproot and separate weeds.
- **b.** plant seeds.
- **c.** break up and smooth the surface of the soil.
- **d.** reap, thresh and winnow crops.

2. RMS is a system used for..
- **a.** mowing grass and spraying pesticides.
- **b.** feeding and cleaning livestock.
- **c.** handling the whole milking process.
- **d.** harvesting crops.

3. Driverless tractors are equipped with…
- **a.** a skilled operator on board.
- **b.** a driving robot which replaces the operator.
- **c.** global positioning system technology.
- **d.** a sophisticated mechanism called the steel plough.

4. A spade…
- **a.** is a tool used for moving soil.
- **b.** is a tool used for digging in the snow.
- **c.** has a handle and a curved metal part.
- **d.** has a flat metal part that you push into the earth with your foot.

5. A UAV…
- **a.** is a drone.
- **b.** is a system of crop spraying.
- **c.** means Uniform Application Vehicle.
- **d.** is a kind of reaper.

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Total score ...../50

U 1.2 Technology, automation and robotics

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and then decide if the statements are true or false. Correct the false statements.

Farming 4.0 at the Farm Gates

In the search for bigger yields and greater environmental protection in agriculture, the most important transformation these days is the increasing use of digital technologies in what has been called smart farming or Farming 4.0.

After mechanisation, the introduction of mineral fertiliser and the industrialisation of production processes, connectivity and data management are going to start the next – fourth – revolution in the history of farming. While precision agriculture – the use of satellite navigation, remote sensing and other tools to farm each square metre as efficiently and sustainably as possible – has been an evolving reality for some time, IT has now reached a point where it is not only possible to collect vast quantities of data, but also to use quite inexpensive, small processors to make use of this information to control different pieces of equipment or monitor individual animals.

A growing number of farmers are starting to adopt digital technology and data-driven innovations. Thanks to digital connectivity, intelligent agricultural machines can connect the different data in a working process and put them into a smart and optimised order by consulting, for instance, weather data, ordering spare parts, or accessing field-specific information from a central, cloud-based farm management software. Farms in Germany using advanced digital technology have reported higher yields per hectare while reducing nitrogen levels significantly, as well as cutting herbicide and diesel use by 10% and 20% respectively. With Farming 4.0, farmers may be able to run their farms on entirely new levels of automation, sustainability and productivity, while retaining full control.

Adapted from: *https://www.euractiv.com/section/agriculture-food/opinion/farming-4-0-digital-technology-at-the-farm-gates/*

Glossary:
data-driven: *basato su dati*
to retain: *mantenere*
spare part: *parte di ricambio*

	T	F
1. Nowadays farmers are looking for greater productivity.	☐	☐
2. The use of digital technology is one of the least important factors in smart farming.	☐	☐
3. The fourth farming revolution is going to start thanks to the introduction of fertilisers.	☐	☐
4. IT gives the opportunity to obtain a huge amount of data.	☐	☐
5. IT can use cheap processors for the elaboration of information.	☐	☐
6. Fewer and fewer farmers use digital technologies on their farms.	☐	☐
7. Spare parts can easily be ordered thanks to a smart farm management software.	☐	☐

8. German farms have reduced their yields and increased nitrogen levels considerably. ☐ ☐
9. Diesel use was reduced by 10%. ☐ ☐
10. It will be ineffective to run farms using the new technologies. ☐ ☐

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. GPS technology is used… ☐
2. The invention of the thresher made… ☐
3. The combine is a piece of machinery… ☐
4. A shovel is a farming tool used… ☐
5. Driverless tractors can work… ☐

a. which is able to both reap and thresh.
b. the process of grain separation less labour-intensive.
c. during low visibility field conditions.
d. to guide vehicles, robots and drones.
e. for moving soil, sand, snow or other materials.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What is a driverless tractor?
2. What activities can be performed by robots in livestock farming?
3. How can we reduce the need for agricultural labour force?
4. What are the advantages of agricultural robots?
5. What are the main applications of drones?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

efficient · health · livestock · pests · problems · producer · reduce · robots · technologies · vegetable

Technology: the Future of Agriculture

Over the centuries, as farmers have adopted technology in their search for greater yields, the belief that 'bigger is better' has come to dominate farming, rendering small-scale operations impractical. But advances in robotics and sensing **1.** ..... are threatening to disrupt today's agribusiness model.

"There is the potential for intelligent **2.** ..... to change the economic model of farming so that it becomes possible to be a small **3.** ..... again," says robotics engineer George Kantor at Carnegie Mellon University in Pittsburgh, Pennsylvania.

Twenty-first century robotics and sensing technologies have the potential to solve **4.** ..... as old as farming itself. "I believe, by moving to a robotic agricultural system, that we can make crop production significantly more **5.** ..... and sustainable," says Simon Blackmore, an engineer at Harper Adams University in Newport, UK. In greenhouses devoted to fruit and **6.** ..... production, engineers are exploring automation as a way to **7.** ..... costs and boost quality. Devices to monitor vegetable growth, as well as robotic pickers, are currently being tested. For **8.** ..... farmers, sensing technologies can help to manage the **9.** ..... and welfare of their animals. And work is going to improve monitoring and maintenance of soil quality, and eliminate **10.** ..... and disease without resorting to indiscriminate use of agrichemicals.

Adapted from: *https://www.nature.com/articles/544S21a*

Glossary:
to boost: *accrescere*
to disrupt: *arrestare, interrompere*
to resort: *far ricorso a*

...../10

 Name ..... Class ..... Date .....

MULTIPLE CHOICE

5. Choose the correct option.

1. A reaper is a machinery which is used to…
- **a.** uproot and separate weeds.
- **b.** plant seeds.
- **c.** harvests crops.
- **d.** reap, thresh and winnow crops.

2. Infrared sensors…
- **a.** are used to monitor crops.
- **b.** can be used to check the milk flow.
- **c.** monitor livestock feeding.
- **d.** are useless when spraying pesticides.

3. A rake is a tool used for…
- **a.** moving soil.
- **b.** digging into the snow.
- **c.** mowing grass.
- **d.** collecting leaves.

4. LIDAR stands for…
- **a.** Laser Imaging Direction And Ranging.
- **b.** Laser Interaction Detection And Ranging.
- **c.** Laser Imaging Detection And Ranging.
- **d.** Light Detection Advanced Ranging.

5. McCormick was the first to manufacture…
- **a.** gasoline tractors.
- **b.** mechanised reapers.
- **c.** combine harvesters.
- **d.** steel ploughs.

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Total score ...../50

U 1.3 Not only agriculture

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and answer the questions.

Evolution in Agricultural Policy

When the CAP began, many small farmers of the post-war generation still milked cows by hand and mowed hay with scythes. For them, as for the rest of society, memories of shortages and food queues were still fresh. Subsidies from the CAP helped them to buy equipment, renovate farm buildings and obtain better seeds and fertilisers. With higher earnings they could borrow from banks to develop their businesses. Food production rose, but country life was still hard. Farmers grew older and their children were not too keen to follow in their footsteps.

Farmers of the second CAP generation became more aware of other responsibilities like protecting the environment and using natural resources prudently and sustainably. Even today, the generational turnover needs to be organised, otherwise the alternative is harsh: rural exodus, a rapidly ageing population and not enough young people entering the sector. Conscious of the importance of continuity, the CAP still provides training and funding to encourage young people to get involved in farming activities.

The reform specifically encourages farmers to become entrepreneurs, selling their goods directly to the market and responding to market signals of supply and demand. They are free to decide what to produce on the basis of their own business plan and what they think consumers will buy. They can start new activities, with support from the CAP, such as farm shops, crafts and cultural activities or projects to renovate villages and rural infrastructure, thus creating local jobs. In addition, the diversity and beauty of European landscapes make our countryside a favourite place for recreation and leisure. Rural holidays allow city folk to reconnect with lost rural traditions, including a clean environment and fresh food straight from the farm. Many farms offer comfortable family accommodation in renovated barns and a range of activities linked to the farm.

Adapted from: *http://ec.europa.eu/agriculture/50-years-of-cap/files/history/history_book_lr_en.pdf*

Glossary:
barn: *fienile*
to borrow: *chiedere un prestito*
entrepreneur: *imprenditore*
to follow in somebody's footsteps: *seguire le orme di qualcuno*

1. How did post-war generation farmers use to milk cows?
2. How did farmers invest the first subsidies from the CAP?
3. How did they manage to develop their businesses?
4. Why did the young want to leave their parents' businesses?
5. What were the second CAP generation farmers aware of?
6. What may happen if a generational turnover is not organised?
7. How can young people be encouraged to get involved in farming activities?
8. How can farmers become entrepreneurs?
9. What new activities can farmers start?
10. As regards recreation and leisure, what can some farmers offer?

 Name .... Class .... Date ....

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SENTENCE COMPLETION

2. Complete the sentences.

1. A competitive market is characterised by ....

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2. Modern agriculture includes various activities, such as ....

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3. In order to receive financial support, farmers must meet standards ....

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4. The new CAP is based on ....

....

5. There are specific areas inside woodlands aiming to ....

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TRUE/FALSE

3. Decide if the statements are true or false. Correct the false statements.

	T	F
1. Natural resources have never been taken into consideration by the CAP.	☐	☐
2. Price volatility indicates how the value of a product changes over time.	☐	☐
3. According to the CAP reform of 2014 -2020 farmers were rewarded through a system of direct payments.	☐	☐
4. Farm diversification is counter-productive for the income of the rural community.	☐	☐
5. The CAP has remained practically the same over the years.	☐	☐

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

conventional · diseases · diversification · farming · food · goats · ice-cream · milk · seed · worries

Radical Rethinking to Survive

With increasing energy costs, lower **1.** ..... prices and the real impact of Brexit, many of Britain's farmers are having to find new ways to make money. According to government figures, 62% of UK farmers are having to diversify alongside running a traditional working farm. Livestock farmers, for instance, have seen their animals struck down with **2.** ..... such as bluetongue, foot-and-mouth and bovine TB over the years. Many also suffer from loneliness and isolation, as well as money **3.** ..... Additionally, the UK's dairy farmers are in crisis, with the falling price of **4.** ....., which has forced half of dairy farmers out of business in the last 10 years. Farm **5.** ..... has become increasingly commonplace with the majority of English farmers, who turn to other forms of income outside the sphere of traditional **6.** ..... practices. Farmers are now branching out from traditional crops into wildflower **7.** ..... production and essential oil crops. And how about knitwear thanks to Cashmere **8.** ....., alpacas, llamas and ostriches? These are new livestock for lots of farmers, while those who still keep **9.** ..... farm animals, such as dairy farmers, can add value with products such as **10.** ..... and cheese.

Adapted from: *http://www.countryfile.com/news/farming-diversification*

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MULTIPLE CHOICE

5. Choose the correct option.

1. The milk quota…
- **a.** is a recent limit to milk production.
- **b.** is aimed at reducing surplus in milk production.
- **c.** was a limit imposed in the late 1950s.
- **d.** is a reward for increased milk production.

2. The first CAP…
- **a.** discouraged farmers from cattle rearing.
- **b.** fostered price fluctuations.
- **c.** raised customs duties on the circulation of goods.
- **d.** was aimed at improving agricultural productivity.

3. Bioeconomy…
- **a.** encourages dependency on fossil fuel resources.
- **b.** discourages the use of renewable resources.
- **c.** promotes new markets in food and bio-based products.
- **d.** contributes to enhancing price volatility.

4. The European Green Deal…
- **a.** was issued by the European Commission.
- **b.** was issued by the European Parliament.
- **c.** does not care about global warming.
- **d.** is responsible for market stability.

5. Which statement is false?
- **a.** Conventional livestock enterprises are not involved in farming diversification.
- **b.** Farm diversification must not imply agricultural activities.
- **c.** Farm diversification improves the profits of the farmer.
- **d.** Starting a tourism business can be an option for diversification.

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Total score ...../50

U 1.3 Not only agriculture

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and answer the questions.

The New Common Agricultural Policy

To consolidate the role of European agriculture for the future, the CAP has evolved over the years to meet changing economic circumstances and citizens' requirements and needs. On 1st June 2018, the European Commission presented legislative proposals on the future of the CAP for the period after 2020. These proposals aimed at making the CAP more responsive to current and future challenges, such as climate change or empowering a new generation of highly qualified young farmers, while continuing to support European farmers for a sustainable and competitive agricultural sector.

Nowadays, the new CAP 2023-2027 is based on ten objectives and keeps on ensuring access to high-quality food and strong support for the unique European farming model. The ten objectives deal with ensuring a fair income to farmers, increasing competitiveness, rebalancing the power in the food chain, taking care of the environment, preserving landscapes and biodiversity, supporting generational renewal, upgrading rural areas and protecting food and health quality. To ensure stability and predictability, income support remains an essential part of the CAP: basic payments continue to be based on the farm size in hectares; however, the new CAP wants to prioritise small and medium-sized farms and encourage young farmers to join the profession. This is why the Commission proposed the following:

- grant a higher level of support per hectare for small and medium-sized farms;
- limit payments to €100,000 per farm, with a view to ensure a fairer distribution of payments;
- set aside for young farmers a minimum of 2% of direct support payments allocated to each EU country;
- ensure that only genuine farmers receive support.

In addition, as farmers can play a key role in tackling climate change, protecting the environment and preserving landscapes and biodiversity, the European Commission set high ambitions on these issues, imposing farmers to fulfil specific requirements, such as:

- carbon-rich soils preservation through protection of wetlands and peatlands;
- use of nutrient management tool to improve water quality, reduce ammonia and nitrous oxide levels;
- adoption of crop rotation instead of crop diversification.

Adapted from*: https://ec.europa.eu/info/food-farming-fisheries/key-policies/common-agricultural-policy/future-cap_en*

Glossary:

to deal with: *trattare di*
to empower: *incoraggiare*
to fulfil: *soddisfare*
to grant: *concedere, assegnare*
peatland: *terreno torboso*
to set aside: *mettere da parte*
to upgrade: *promuovere*

1. Why has the CAP changed over the years?
2. How many objectives does the new CAP focus on?

 Name ..... Class ..... Date .....

3. How does the future CAP take care of young farmers?
4. Does the new CAP take care of the environment?
5. What are basic payments based on?
6. Are small and medium-sized farms penalised?
7. How much is set aside for young farmers?
8. What must be ensured?
9. Why are wetlands and peatlands protected?
10. What agronomic practice is encouraged by the new CAP?

...../10

SENTENCE COMPLETION

2. Complete the sentences.

1. Agricultural trade contributes to .....
2. A prospective analysis of agricultural markets should take into account .....
3. Price volatility on international markets affects .....
4. The goal of the first CAP was .....
5. The CAP 2014-2020 rewards afforestation because .....

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TRUE/FALSE

3. Decide if the statements are true or false. Correct the false statements.

	T	F
1. Before diversifying, a farmer needs to be aware of legal requirements.	☐	☐
2. In the 1980s, the CAP imposed production limits to reduce food surpluses.	☐	☐
3. The European Green Deal is responsible for price volatility.	☐	☐
4. Natural resources are currently used in a sustainable way.	☐	☐
5. The science dealing with the sustainable production, use and conservation of biological resources is bioeconomy.	☐	☐

 Name ..... Class ..... Date .....

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CLOZE TEST

4. Complete the text with the words given below.

birds · dairy · division · environmentally · farm · measures · pesticides · rural · subsides · world

Green Fears

If there's one area that's really causing anger and **1.** ..... among those involved in CAP reform, it's the environment. Green campaigners have long appealed to Brussels to use its huge influence over farmers to push them toward better environmental practices. Yet, farmers complain they're being put under increasing pressure to be more **2.** ..... friendly in return for less money, while Europe is flooded with imports from parts of the **3.** ..... where environmental regulation is less strict. Still, there is wide agreement that Brussels' previous attempt to turn farmers green was a failure. At present, around one-third of farm **4.** ..... depends on compliance with the "greening" rules: measures such as planting several crops simultaneously to promote soil health, and regulations on leaving strips of land fallow or hedges intact for the benefit of **5.** ..... and insects. Farmers hate the greening measures, saying they don't make sense, do nothing for the environment and can result in them being fined for making a little mistake. Environmentalists say the **6.** ..... are useless.

As a result, the EU countries will be asked to devise their own agri-environmental schemes. Brussels has also proposed that environmental considerations are applied to every cent that goes to farmers in direct payments, which are based largely on farm size. Those conditions will include rules on the sustainable use of **7.** ....., water management and reducing the use of fertilisers. But green groups are not happy about the proposals. The risk is that governments will use their newfound freedom to fund important but polluting sectors such as **8.** ..... or pork. In addition, the section of the CAP that deals with **9.** ..... development is facing a much deeper budget cut than the section of the CAP that deals with direct **10.** ..... subsidies.

Adapted from: *https://www.politico.eu/article/eu-europe-farm-reform-common-agricultural-policy-farmers/*

Glossary:

compliance with: *conformità con*
to fine: *multare*
to flood: *inondare*
to devise: *ideare*
land fallow: *terreno a riposo, a maggese*

...../10

 Name ..... Class ..... Date .....

MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement is false?
- **a.** There is a very slight demographical increment.
- **b.** Today, natural resources are used in a non-sustainable manner.
- **c.** Bioeconomy aims to reduce dependency on fossil fuel resources.
- **d.** Agriculture represents the main source of food, income and employment for developing countries.

2. Price volatility…
- **a.** is independent from political factors.
- **b.** indicates product shortage.
- **c.** does not compromise the agricultural market.
- **d.** describes price fluctuations of a product.

3. The new CAP…
- **a.** focuses on agriculture and forestry.
- **b.** does not share the same objectives of the European Green Deal.
- **c.** neglects social goals.
- **d.** discourages European farmers.

4. Farm diversification…
- **a.** can be adopted by any farm.
- **b.** can be a response to adverse socio-economic conditions.
- **c.** cannot imply the production of non-food crops.
- **d.** can be limited to few sectors.

5. To receive financial support, farmers…
- **a.** should pay fees.
- **b.** do not have to meet specific requirements.
- **c.** should be environmentally friendly.
- **d.** can bypass the UE authority.

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Total score ...../50

U 2.1 Ecology, climate and pollution

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false statements.

Bad Weather Favours GM Use

The extreme weather of this year has pushed British farmers to turn to genetically modified crops instead of relying on technology as a way to help combat the effects of climate change. The country's wettest year, which had begun with one of the worst droughts for decades, has persuaded an increasing number of farmers that the development of crop varieties with engineered resistance to extreme weather conditions is now a priority.

GM supporters pointed to the severe problems that potato and tomato growers have had with fungal disease as the wet weather encouraged the spread of the disease. They argued it would be more environmentally friendly to use GM crops and thus avoid the problem of losing large quantities of food.

According to most farmers, extremely cold, wet or dry summers seem to be the norm, and these require different varieties to cope with the adverse growing conditions – varieties that could take many years to be created by conventional means but could be produced more quickly using GM technology.

However, many environmental groups oppose the use of GM technology. They affirm: "Our weather is becoming more unpredictable and more extreme, so farming needs crops with general resilience such as organic and agroecological crops. We should make food production more sustainable, switching to more sustainable diets globally, which implies reducing meat consumption in wealthy nations and stopping the exploitation of food crops as biofuels."

Adapted from: *https://www.theguardian.com/environment*

	T	F
1. British farmers refuse to cultivate GM crops.	☐	☐
2. Technology could be useful to contrast the effects of climate change.	☐	☐
3. The drought the text talks about was not particularly relevant.	☐	☐
4. Few farmers are going to use GM varieties as soon as possible.	☐	☐
5. Wet weather has compromised the cultivation of potatoes and tomatoes.	☐	☐
6. Wet weather is responsible for the spread of fungal disease.	☐	☐
7. Everybody thinks that using GM crops is more eco-friendly than losing large quantities of food.	☐	☐
8. GM technology could help reduce the time required to create resistant varieties.	☐	☐
9. Environmentalists oppose the use of organic and agroecological crops.	☐	☐
10. Wealthy nations should increase sustainability of food production by reducing meat consumption.	☐	☐

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 Name ..... Class ..... Date .....

TRANSLATION

2. Translate into English.

Il rapporto tra cambiamenti climatici e agricoltura implica una responsabilità reciproca. Il cambiamento climatico influisce sull'agricoltura attraverso le variazioni delle temperature medie, delle precipitazioni e dei fenomeni climatici estremi (alluvioni, siccità, uragani); le variazioni dei modelli di parassiti e malattie; le variazioni dell'anidride carbonica atmosferica; le variazioni della qualità nutrizionale di alcuni alimenti; le variazioni della stagione di crescita. D'altra parte, l'agricoltura influisce sul clima attraverso le emissioni di gas a effetto serra (GHG), come anidride carbonica, metano e protossido di azoto. Queste emissioni derivano direttamente dai combustibili fossili utilizzati per le attrezzature agricole, dalla fermentazione enterica del bestiame, dalla gestione errata del letame e dall'uso eccessivo di fertilizzanti azotati.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What categories can ecosystems be divided into?
2. What characterises a biome?
3. How do greenhouse gases act in the atmosphere?
4. What is radioactive pollution caused by?
5. What forms of pollution are responsible for sleep disorders?

...../10

 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

apple · equipment · excess · frost · malformation · meteorological · spring · sprinklers · water · wind

Spring Frost Protection

The apple orchards of South Tirol cover a total area of 18,000 hectares. Sprinkle irrigation against **1.** ..... damage has been used for several years to protect these orchards. This system is spread above all in the valley floor areas, where the frequency of **2.** ..... frosts is higher. Water is supplied by wells that exploit ground **3.** ....., and only in small flat areas over the hills water basins are used. In recent years two hard frosts occurred, in 1997 and 2003, damaging **4.** ..... production. Besides the crop loss, frost threatens fruit quality by **5.** ..... and rust of variable extent. The success of frost protection depends on irrigation **6.** ....., which must be reliable and properly used. It is very important to operate sprinklers at the right temperature, and estimate **7.** ..... speed to prevent frost damage; stopping water supply at the right moment is equally important to avoid loss and water **8.** ..... in soil. Territory surveillance makes use of a **9.** ..... network to survey data, allowing an optimal timeliness in starting and stopping **10.** ..... when the critical temperature values are attained.

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MULTIPLE CHOICE

5. Choose the correct option.

1. The word "ecology" comes from…
- **a.** two Latin words.
- **b.** two Italian words.
- **c.** two German words.
- **d.** two Greek words.

2. Which is not a countermeasure to wildfires?
- **a.** A firebreak.
- **b.** A water supply area.
- **c.** A windbreak.
- **d.** A livestock evacuation plan.

3. Abnormal cell growth and cancer are…
- **a.** responsible for the greenhouse effect.
- **b.** produced by improper management of radioactive material.
- **c.** frequent in hot temperatures.
- **d.** due to climate changes.

4. Which is not responsible for the greenhouse effect?
- **a.** Carbon dioxide.
- **b.** Enteric fermentation.
- **c.** Ultraviolet rays.
- **d.** Nitrogen oxides.

5. Climate-smart agriculture promotes…
- **a.** agricultural expansion into natural habitats.
- **b.** afforestation.
- **c.** deforestation.
- **d.** monocultural farming.

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Total score ...../50

U 2.1 **Ecology, climate and pollution**

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false statements.

Blue Carbon Sink

Since the Industrial Revolution, the amount of carbon dioxide in our atmosphere has increased by over 35%, primarily from the burning of fossil fuels. Ocean waters, ocean animals, and ocean habitats all help the ocean absorb a significant portion of the carbon dioxide emissions from human activities. Since the carbon sink capacity of the ocean has been exceeded, we are also seeing the ocean's chemistry change because of our carbon emissions.

As the ocean absorbs more carbon dioxide, the pH of the water decreases, making it more acidic, thus affecting marine wildlife. Ocean acidification thereby threatens the base of the food web, critical fish habitats, commercial fisheries and the coastal ecosystems that protect our shorelines. To protect our valuable marine ecosystems, we must act.

The overall solution for the ocean and climate change is to significantly reduce the emission of greenhouse gases. Additionally, blue carbon may provide a method for the long-term sequestration and storage of carbon. "Blue Carbon" is the carbon dioxide captured by the world's ocean and coastal ecosystems. This carbon is stored in the form of biomass and sediments from mangroves, tidal marshes, and seagrass meadows, like Posidonia meadows. Even if Blue Carbon ecosystems cover only 2% of the ocean floor, they store about 50% of the carbon buried in marine sediments, whose storage capacity is considerably higher than that of both temperate and tropical forests. Therefore, a responsible management of our marine ecosystems avoiding additional threats to the environment is essential to guarantee the health of the ocean. Restoring the abundance of ocean species will help the ocean continue to provide the services on which all life depends.

Adapted from: *https://oceanfdn.org/ocean-and-climate-change/*

Glossary:
mangrove: *mangrovia*
seagrass meadow: *prateria di fanerogame marine*
tidal marsh: *palude marina*

		T	F
1.	Burning of fossil fuels is not responsible for the carbon dioxide increase.	☐	☐
2.	The increment of carbon dioxide in our atmosphere started during the Industrial Revolution.	☐	☐
3.	Oceans become more acidic when the pH of the water increases.	☐	☐
4.	The more carbon dioxide is absorbed by the ocean, the more acidic the marine water is.		
5.	The emission of greenhouse gases should be significantly reduced to combat climate change.	☐	☐
6.	Coastal ecosystems can trap and store Blue Carbon.	☐	☐
7.	Carbon storage capacity of tropical forests is higher than that of oceans.	☐	☐
8.	Posidonia meadows play a significant role in carbon sequestration.	☐	☐
9.	2% of the planet is covered by Blue Carbon ecosystems.	☐	☐
10.	To preserve the health of oceans, marine ecosystems need to be responsibly managed.	☐	☐

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 Name ..... Class ..... Date .....

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TRANSLATION

2. Translate into English.

L'Organizzazione delle Nazioni Unite per l'alimentazione e l'agricoltura ha definito un nuovo approccio all'agricoltura chiamato agricoltura intelligente dal punto di vista climatico (CSA). Adotta pratiche volte a trasformare l'agricoltura: minore espansione agricola negli habitat naturali; afforestazione, riforestazione, maggiori sforzi per evitare la deforestazione e ripristino dei terreni sottoutilizzati o degradati; riduzione e uso più efficiente degli input azotati; gestione efficace del letame e uso di mangimi che aumentano l'efficienza digestiva del bestiame. In questo modo la CSA può ridurre le emissioni di gas serra, immagazzinare nel suolo carbonio aggiuntivo dall'atmosfera e ridurre la vulnerabilità agli effetti del cambiamento climatico.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. How can water, air, soil, temperature, and light be defined inside an ecosystem?
2. What is global warming due to?
3. What is meant by climate and weather?
4. What are the main causes of soil depletion?
5. How does agriculture affect climate change?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

altitude · beneficiaries · big · clouds · forecaster · hail · message · risk · sky · storms

Hi-tech 'Hail Shield' to Kill Storm Clouds

The vineyards of Burgundy are about to become the first in France to be totally covered by a "hailstone shield" to kill destructive **1.** ..... that have hit the region lately. A network of 125 ground generators will cause tiny particles of silver iodide to rise to the **2.** ..... in order to stop the formation of hail stones, thus reducing the **3.** ..... of damage.

The idea is to kill the storm before it arrives and avoid **4.** ..... forming. The generator has a combustion chamber which superheats the particles and shoots them to an **5.** ..... of up to a kilometre, forming a shielding cloud.

A weather **6.** ..... sends alerts four hours ahead of a predicted storm and the generators are switched on as soon as the risk surpasses 40 per cent. A **7.** ..... is sent to every wine grower with a generator, thus sending enough molecules into the **8.** ..... to form a shield to stop the hail.

Wine growers are not the only **9.** .....: this system also serves farmers and citizens who have a verandah or vegetable garden. When hailstones as **10.** ..... as golf balls fall from the sky, it's not just the vines that are hit.

Adapted from: *http://www.telegraph.co.uk/news*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which is not true? The term ecosystem…
- **a.** includes abiotic and biotic factors.
- **b.** is wrongly considered a synonym of environment.
- **c.** is a young scientific discipline.
- **d.** is important in everyday life.

2. Biomes are…
- **a.** small communities of plants and animals.
- **b.** defined by the kind of animals that live there.
- **c.** not influenced by climate.
- **d.** large areas of ecologically similar conditions.

3. Genetic mutations may be due to…
- **a.** sleep disruption.
- **b.** radioactive pollution.
- **c.** EMF pollution.
- **d.** high blood pressure.

4. Which of these is a biodegradable pollutant?
- **a.** Mercury.
- **b.** Lead.
- **c.** Sewage.
- **d.** Aluminium.

5. Successful but expensive countermeasures to hailstorms are…
- **a.** anti-hail nets.
- **b.** windbreaks.
- **c.** rockets.
- **d.** farm ponds.

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Total score ...../50

U 2.2 Energy sources

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Biofuels Offer Plant-based Solutions to the Earth's Growing Energy Problems

Biofuels have been around as long as cars have. At the start of the 20th century, Henry Ford planned to fuel his Model T with ethanol, and early diesel engines were shown to run on peanut oil. But discoveries of huge petroleum deposits kept petrol and diesel cheap for decades, and biofuels were largely forgotten. However, with the recent rise in oil prices, along with growing concern about global warming caused by carbon dioxide emissions, biofuels have been regaining popularity.

Petrol and diesel are actually ancient biofuels. But they are known as fossil fuels because they are made from decomposed plants and animals that have been buried in the ground for millions of years. Biofuels are similar, except that they are made from plants grown today. Much of the petrol in the United States is blended with a biofuel, ethanol. This is the same substance present in alcoholic drinks, except that it's made from corn that has been heavily processed. There are various ways of making biofuels, but they generally use chemical reactions, fermentation, and heat to break down the starches, sugars, and other molecules in plants; the leftover products are then refined to produce a fuel that cars can use.

Countries around the world are using various kinds of biofuels. For example, for decades, Brazil has turned sugarcane into ethanol, and some cars there can run on pure ethanol.

Adapted from: *https://www.nationalgeographic.com/environment/global-warming/biofuel/*

Glossary:
to blend: *mescolare*
leftover: *residuo*
starch: *amido*

	T	F
1. Biofuel has been discovered recently.	☐	☐
2. Henry Ford refused to use ethanol in his Model T.	☐	☐
3. Peanut oil was used to supply diesel engines.	☐	☐
4. Gasoline and diesel prices have been low for many years.	☐	☐
5. Biofuels were neglected because gasoline and diesel were cheap.	☐	☐
6. Gasoline and diesel are fossils.	☐	☐
7. The ethanol contained in alcoholic beverages is made from corn.	☐	☐
8. Chemical reactions, fermentation, and heat allow fats to be broken down.	☐	☐
9. Different kinds of biofuel are used all over the world.	☐	☐
10. Sugarcane has been transformed into ethanol for the past ten years.	☐	☐

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 Name ..... Class ..... Date .....

SHORT OPEN QUESTIONS

2. Answer the questions.

1. Why is it advantageous to irrigate using hot geothermal water on cold ground?
2. How do wind farms impact on the environment?
3. When were the dangerous effects of greenhouse gases pointed out?
4. What is the UNEP?
5. What is green economy?

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CLOZE TEST

3. Complete the text with the words given below.

change · damage · dark · disasters · economy · environmental · exploitation · investment · sector · timber

The Dark Side of Green Economy

Economic activities in the environmental **1.** ..... are vital for the safety and protection of the ecosystem. Green **2.** ..... is also an important segment for investors. From 2015 to the present, environmentally inspired assets managed by **3.** ..... funds have increased globally by more than 170 percent, with the trend set to continue. Even for this sector, however, there is a **4.** ..... side: legitimate activities can, in fact, be used as a screen to hide serious environmental crimes. **5.** ..... crimes, as a whole, generate a global turnover of between $110 billion and $281 billion. The most significant volumes originate from illegal **6.** ..... trade, illegal logging, unauthorised mining, and waste trade. These are particularly serious crimes, not only because they cause **7.** ..... to the environment, whose fragile balance is destabilised by recent climate **8.** ....., accompanied by increasingly frequent natural **9.** ....., but also because illegal environmental activities are the vector for other activities, themselves criminal, which result in child **10.** ....., slavery, arms and human trafficking, corruption, smuggling, tax evasion, and so on.

Adapted from: *https://www.we-wealth.com/news/sri-impact-investing*

Glossary:

asset: *attività economica* **logging:** *taglio del legname* **smuggling:** *contrabbando*

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

4. Match the beginnings and endings.

1. Fossil fuels are particularly dangerous as…
2. Energy resources are defined as non-renewable because…
3. The Earth Summit in 1992 emphasised the risks…
4. Biomass is the name given to the source of energy…
5. A lot of laws about waste disposal, air and water pollution…

- ☐ **a.** associated with reductions in biodiversity.
- ☐ **b.** they release large quantities of greenhouse gases.
- ☐ **c.** were passed in the 1960s thanks to environmentalist movements.
- ☐ **d.** they will be exhausted one day.
- ☐ **e.** created by the burning of decaying plant or animal waste.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement is correct?
   - **a.** Circular economy contributes to environmental pollution.
   - **b.** Circular economy involves sharing, reusing, repairing, and recycling existing materials.
   - **c.** Circular economy depends on coal, petroleum, and natural gas.
   - **d.** Circular economy compromises local food economy.
2. If you install a photovoltaic system, you generate power from…
   - **a.** sunlight.
   - **b.** wind.
   - **c.** wood.
   - **d.** water.
3. Which energy source is derived from the movement of sea water in and out of turbines to generate electricity?
   - **a.** Wind.
   - **b.** Hydroelectric power.
   - **c.** Tidal.
   - **d.** Geothermal.
4. What is the name of the renewable energy source generated by using volcanic heat?
   - **a.** Hydroelectric power.
   - **b.** Tidal.
   - **c.** Solar.
   - **d.** Geothermal.
5. Green hydrogen…
   - **a.** is extracted by mining.
   - **b.** does not need any source of water.
   - **c.** is obtained through the electrolysis of water.
   - **d.** is obtained by adding chlorophyll.

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Total score ...../50

U 2.2 Energy sources

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Environmental Impacts of Wind Power

Exploiting power from the wind is one of the cleanest and most sustainable ways to generate electricity since it produces no toxic pollution or global warming emissions. Wind is also abundant, inexhaustible, and affordable, which makes it a valid alternative to fossil fuels. However, despite its vast potential, there are a variety of environmental impacts associated with wind power generation that should be recognised and mitigated.

In particular, the impact of wind turbines on wildlife has been widely documented and studied. There is evidence of bird and bat deaths from collisions with wind turbines or from changes in air pressure caused by the spinning turbines, as well as from habitat disruption. However, by keeping wind turbines motionless during times of low wind speeds, when bats are more active, bat deaths could be reduced by more than half without significantly affecting power production. Other wildlife impact can be mitigated through better siting of wind turbines.

Offshore wind turbines can have a similar impact on marine birds. On the other hand, some studies suggest that turbines may actually increase fish populations by acting as artificial reefs. The impact will vary from site to site, and therefore proper research and monitoring systems are needed for each offshore wind facility. Anyway, the US National Wind Coordinating Committee declares that the impact is relatively low and does not pose a threat to species populations.

Adapted from: *http://www.ucsusa.org*

	T	F
1. Wind power is largely exploited even if it is responsible for toxic emissions.	☐	☐
2. It can replace fossil fuels.	☐	☐
3. Birds and bats may crash against turbines.	☐	☐
4. Wind farms may be responsible for habitat loss.	☐	☐
5. The impact of wind farms on wildlife has always been disregarded.	☐	☐
6. Changes in air pressure are responsible for bird and bat deaths.	☐	☐
7. Bats are more active when wind speeds are high.	☐	☐
8. Bat deaths could be dramatically reduced without compromising power production.	☐	☐
9. Fish populations are threatened by artificial reefs.	☐	☐
10. According to the National Wind Coordinating Committee, wildlife is seriously endangered and threatened by wind farms.	☐	☐

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 Name ..... Class ..... Date .....

SHORT OPEN QUESTIONS

2. Answer the questions.

1. Why are fossil fuels dangerous?
2. What was the main purpose of the 2019 Climate Action Summit held in New York?
3. What is biomass?
4. What is meant by 'green hydrogen'?
5. What is circular economy?

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CLOZE TEST

3. Complete the text with the words given below.

burial · dangerous · ecologically · fuel · low-carbon · low-level · radioactive · store · technical · waste

Nuclear Waste: a Worldwide Concern

The problem of nuclear waste, along with accidents, has created concern and public opposition for decades, even if nuclear power is a **1.** ..... source of energy. In 80 years of nuclear power, great stockpiles of different levels of waste have accumulated. It can be high-level waste derived from civil reactor **2.** ....., which is extremely hazardous because it remains **3.** ..... for tens of thousands of years, but this is the smallest part of the entire amount. Then, there is also highly **4.** ..... intermediate waste which can be stored in special containers; the rest is **5.** ..... waste. Billions have already been spent trying to identify how best to reduce the amount produced and then **6.** ..... it for what may be eternity. In the past, visionary hypotheses have been investigated from shooting it into space to dumping it on the world's most isolated islands, but most have been rejected as impractical, too expensive or **7.** ..... unacceptable. No options have been able to demonstrate that **8.** ..... will remain isolated from the environment over the tens to hundreds of thousand years; so, for the moment, the best solution can be deep **9.** ..... No local communities or authorities can be persuaded to host permanent deep stores, so the **10.** ..... problem is turning into a social one.

Adapted from: *https://ensia.com/features/radioactive-nuclear-waste-disposal*

Glossary:
to dump: *buttare* **stockpile:** *scorta*

...../10

 Name ..... Class ..... Date .....

MULTIPLE MATCHING

4. Match the beginnings and endings.

1. The goal of the Kyoto Protocol was...	☐	**a.** in panels that convert it into electricity.
2. Geothermal energy is related to...	☐	**b.** the heat of the earth's interior.
3. Tidal energy is powered by the...	☐	**c.** natural rise and fall of ocean tides.
4. Solar energy is generated by capturing sunlight...	☐	**d.** a process called fission.
5. Nuclear energy originates from...	☐	**e.** the reduction of greenhouse gas emissions.

...../10

MULTIPLE CHOICE

5. Choose the correct option.

1. COP2026 deals with the reduction of…
- **a.** CO_2 emissions by 30% by 2020.
- **b.** water waste by 2022.
- **c.** fuel waste by 2040.
- **d.** CO_2 emissions by 45% by 2030.

2. Energy sources that cannot be used again and again are called…
- **a.** renewable.
- **b.** potential.
- **c.** non-renewable.
- **d.** infinite.

3. Which of the energy sources listed is not a renewable source of energy?
- **a.** Oil.
- **b.** Sun.
- **c.** Wind.
- **d.** Geothermal.

4. What natural resource is exploited to generate hydro-electric power?
- **a.** Wind.
- **b.** Water.
- **c.** Light.
- **d.** Heat.

5. The concept of biodiversity was highly developed during…
- **a.** the Earth Summit in Brazil.
- **b.** the Kyoto Conference.
- **c.** the Paris Conference.
- **d.** the Conference on the Human Environment in Stockholm.

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Total score ...../50

U 2.3 Forestry

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Clear-cutting is a Disputable Forestry Technique

Clear-cutting means cutting all trees almost uniformly at the same time. It is often regarded as a synonym for deforestation, yet it means deforestation only when forests are logged for agricultural use, with possible desertification as the most serious land degradation outcome. Usually, it is beneficial for forest regeneration as it aims to harvest mature trees and let young seedlings grow with enough sunlight and space. On the contrary, deforestation is a practice to permanently log forests for other land use without further reforestation.

This forestry technique is done for several purposes, which include timber harvesting or forest regeneration as part of a thoughtful reforestation plan.

Clear-cutting stimulates offspring formation and is beneficial for forest health, as stronger young trees eventually replace weaker ones. In addition, removal of old trees is beneficial for forest health because they are less immune to pathogens and diseases.

Forest regeneration takes around thirty years on average. New young trees typically appear after five years after clear-cuts and grow about ten feet tall by the age of fifteen. After clear-cutting, the number of trees increases: nearly a hundred mature trees are replaced with 300-500 offspring.

However, the practice has its pros and cons, therefore, negative effects of clear-cutting should not be underestimated. It may destroy forest ecosystems, depriving wildlife of natural habitats and decreasing biodiversity, increase the risks of soil erosion, interfere with the water cycle and worsen the air quality as trees help enrich the atmosphere with oxygen and take carbon dioxide.

Adapted from: *https://eos.com/blog/clear-cutting/*

	T	F
1. Trees are all logged by the clear-cutting technique.	☐	☐
2. This technique aims to log full-grown plants.	☐	☐
3. Deforestation is always followed by reforestation.	☐	☐
4. Clear-cutting prevents offspring formation.	☐	☐
5. Old trees are more easily attacked by pathogens.	☐	☐
6. Old trees are stronger than young ones.	☐	☐
7. Forests are regenerated in about three decades.	☐	☐
8. Mature trees are usually replaced by three-times more of offspring.	☐	☐
9. Negative consequences of clear-cutting are not significant.	☐	☐
10. Clear-cutting may affect natural habitats of wildlife.	☐	☐

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 Name ..... Class ..... Date .....

SENTENCE COMPLETION

2. Complete the sentences.

1. Silvicultural systems are mainly classified into .....
2. Forests are classified according to .....
3. Harvesting includes four steps, i.e. .....
4. After being transported to the factory, logs are .....
5. Gran Paradiso and Abruzzo National Park were established to .....

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What are the main wood harvesting systems?
2. Why are high forests important for biodiversity?
3. Why did Yellowstone National Park represent a useful example of management?
4. What does Natura 2000 deal with?
5. What is softwood used for?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

degradation · equator · farming · rainfall · rainforests · species · surface · temperatures · timber · variety

Tropical Rainforests

Tropical forests are some of the richest, most exciting areas on earth. They are home to gigantic trees, colourful birds and a huge **1.** ..... of fascinating mammals. About 80% of the world's documented **2.** ..... can be found in tropical rainforests, even though they cover only about 6% of the Earth's land **3.** ..... – less than half the area they covered not so very long ago. Tropical forests are closed canopy forests growing within 28 degrees north or south of the **4.** ...... They are very wet places, receiving more than 200 cm **5.** ..... per year, either seasonally or throughout the year. **6.** ..... are uniformly high – between 20°C and 35°C. Such forests are found in Asia, Australia, Africa, South America, Central America, Mexico, and on many of the Pacific Islands.

Forest **7.** ..... and deforestation in tropical countries is a major environmental, social and economic problem. Each year, some 140,000 sq km of **8.** ..... are destroyed. Rainforests are being felled for **9.** ..... by logging companies and cleared by people for **10.** ..... The most endangered rainforests are those in West Africa, where human populations are doubling every 20 years, and in Central America and South-East Asia.

Adapted from*: https://wwf.panda.org/discover/our_focus/forests_practice/importance_forests/tropical_rainforest/*

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MULTIPLE CHOICE

5. Choose the correct option.

1. The term pulpwood refers to…
- **a.** soft wood used to make paper.
- **b.** hard wood used to make furniture.
- **c.** soft wood used for construction work.
- **d.** hard wood used for decorative woodwork.

2. What type of vegetation is found in coniferous forests?
- **a.** Spruce, pine and fir.
- **b.** Oak and elm.
- **c.** Mahogany and eucalyptus.
- **d.** Rhododendron and lichens.

3. What does SPAs mean?
- **a.** Service Planning Areas.
- **b.** Special Protection Areas.
- **c.** Special Protection for Animals.
- **d.** Safeguard and Protect Agriculture.

4. A traditional management technique of woodland is called…
- **a.** branching.
- **b.** cutting.
- **c.** coppicing.
- **d.** seedling.

5. Which of the following describes trees in deciduous woodlands?
- **a.** They never lose their leaves.
- **b.** They lose their leaves in summer.
- **c.** They lose their leaves in spring.
- **d.** They lose their leaves in winter.

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Total score ...../50

U 2.3 Forestry

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Human Use of Temperate Deciduous Woodlands: Epping Forest

Humans use woodlands in a variety of ways: for conservation, for recreation (for example for deer hunting or walks) and as a resource, utilising wood for firewood or as timber for buildings. Epping Forest is an example of a deciduous forest. It is located in north-east London. This forest is utilised by visitors and looked after to help maintain the wildlife and its historic landscape. A lot of recreational activities take place here, including walking, horse-riding, cycling, and fishing in the larger ponds and lakes. There are also 60 football pitches and an 18-hole golf course in Epping Forest.

The City of London Corporation has overall responsibility to manage the forest, which is a site of special scientific interest and whose trees are protected by law. The management has to balance conserving the land with keeping it open to the public. This is difficult to do. Traditional management techniques include pollarding, which consists in cutting off the top and branches of a tree, so as to produce a dense mass of branches. This technique encourages new growth and maintains the trees for future generations. It is a form of sustainable management on the woodland, and also encourages birds to nest.

Dead wood is left to rot. Rotten wood is food for fungi and encourages wildlife. Some grassy areas are left uncut to encourage wildlife, such as butterflies. The recreational areas for biking and horse-riding are marked out. This reduces damage to other areas of the forest.

Adapted from: *http://geographyrevisionaqa.weebly.com/epping-forest-case-study.html*

	T	F
1. People use woodlands only for firewood.	☐	☐
2. Epping Forest contains trees which do not lose their leaves in autumn.	☐	☐
3. When managing Epping Forest, there has to be a balance between keeping the land open to the public and conserving the environment.	☐	☐
4. You cannot fish in the Epping Forest lakes.	☐	☐
5. The forest is managed by the Municipality of Epping.	☐	☐
6. Pollarding consists in cutting off the top and branches of a tree to encourage new growth.	☐	☐
7. Pollarding is favourable to wild birds.	☐	☐
8. The aim of sustainable management in the woodland is to minimise damage to the environment.	☐	☐
9. Leaving dead wood to rot helps to kill off the fungi.	☐	☐
10. Marking out the areas for horse-riding helps reduce its environmental impact.	☐	☐

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 Name ..... Class ..... Date .....

SENTENCE COMPLETION

2. Complete the sentences.

1. In special protected areas human activities are managed in .....
2. National Parks are protected areas containing .....
3. Woodlands are renewed from the germination of .....
4. In coppice systems the regeneration of broadleaved species consists mainly of .....
5. The frequency of wood harvesting depends on .....

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What does silviculture study?
2. What is hardwood used for?
3. What type of exploitation of natural resources is allowed in protected areas?
4. What type of tourism is allowed in protected areas?
5. What is particularly critical in successful park management?

...../10

 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

companies · cost-effective · cutting · damage · decreases · grow · selective · soil · species · threat

A Threat to the Boreal Forest

The biggest threat to Sweden's boreal forest is clear-cutting. Clear-cutting is the **1.** ..... down and removing of every tree from an area. This is a cheap way for big **2.** ..... to get lumber, but it is very destructive to the ecosystem. The alternative to clear cutting is **3.** ..... cutting, which is choosing specific trees to cut down. This is less **4.** ....., but it is much healthier for the forest and keeps most of the trees up. Clear-cutting has become a bigger **5.** ..... in modern times, and it is our duty to stop clear-cutting and the destruction of the forests.

Clear-cutting involves taking all of the trees in an area for lumber. This causes lasting **6.** ..... to the forest because most of the trees in a boreal forest take a very long time to **7.** ....., usually more than 50 years. Cutting all of the trees not only causes major **8.** ..... erosion, but it also leaves birds and other animals without a home. As the population of the animals that live in the trees **9.** ....., so does the population of the predators who eat these tree-dwelling animals. Clear-cutting puts many **10.** ..... of animals in danger and causes long-term damage to forests all around the world.

Adapted from: *http://swedenborealforest.weebly.com/forest-threats.html*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Woodland which contains only trees which lose their leaves in autumn is called…
- **a.** a deciduous woodland.
- **b.** a coniferous woodland.
- **c.** an ancient woodland.
- **d.** a deforested woodland.

2. Which of these is not a use of woodland?
- **a.** For firewood.
- **b.** For recreation.
- **c.** For petrol.
- **d.** For conservation.

3. What type of vegetation is found in deciduous woodlands?
- **a.** Spruce, pine and fir.
- **b.** Oak and elm.
- **c.** Eucalyptus and cactuses.
- **d.** Rhododendron and lichens.

4. Natura 2000…
- **a.** is a synonym of Habitat Directive.
- **b.** is a network of nature protection areas.
- **c.** concerns bird protection only.
- **d.** is a National Park.

5. What does SACs mean?
- **a.** Safeguard Areas of Conservation.
- **b.** Special Agricultural Conservation.
- **c.** Special Areas for Coppicing.
- **d.** Special Areas of Conservation.

...../10

Total score ...../50

U 2.4 Forest biodiversity

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false statements.

What is Forest Fragmentation and Why is it a Problem?

Forest fragmentation is the breaking of large, contiguous, forested areas into smaller patches of forest. Typically, these patches are separated by roads, agriculture, utility corridors, subdivisions, or other human development. It usually begins with cleared patches here and there, within an unbroken expanse of tree cover. Over time, those non-forest patches tend to multiply and expand, until eventually the forest is reduced to scattered, disconnected forest islands. The effects of fragmentation are well documented in all forested regions of the planet. In general, by reducing forest health and degrading habitat, fragmentation leads to loss of biodiversity, increases in invasive plants, pests, and pathogens, and reduction in water quality. These wide-ranging effects all stem from two basic problems: fragmentation increases isolation between forest communities, and it increases so-called edge effects. When a forest becomes isolated, the movement of plants and animals is inhibited. This restricts breeding and gene flow and results in long-term population decline. Edge effects are even more complicated. They alter growing conditions within the interior of forests through drastic changes in temperature, moisture, light, and wind. Put simply, the environment of the adjacent non-forest land determines the environment of the forest fragment, particularly on its edges. This triggers a cascade of ill effects on the health, growth, and survivability of trees, flowers, ferns, and lichens and an array of secondary effects on the animals that depend on them.

Adapted from*: https://northernwoodlands.org/articles/article/forest-fragmentation*

	T	F
1. Human intervention can fragment the forest.	☐	☐
2. Forest fragmentation usually starts with a massive subdivision of forested areas.	☐	☐
3. It is difficult to find evidence of the consequences of fragmented forests.	☐	☐
4. Loss of biodiversity is a consequence of fragmentation.	☐	☐
5. Habitat degradation means the spread of invasive plants and deterioration of water quality.	☐	☐
6. There is no connection between fragmentation and isolation between forest communities.	☐	☐
7. Fragmentation does not hinder the movement of plants and animals.	☐	☐
8. Edge effects may lead to severe changes in temperature, moisture, light, and wind.	☐	☐
9. Forest fragments are not affected by the environment of the adjacent non-forest land.	☐	☐
10. Negative effects on nature may affect the animals which depend on it.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Damaging floods are a…	☐	**a.** will increase biodiversity.
2. Dead wood provides a resource of…	☐	**b.** may be responsible for the spread of the *Thaumetopoea pityocampa*.
3. Pine for planting or gardening…	☐	**c.** dead organic matter as well as special microhabitats.
4. Creating a great range of vegetation…	☐	**d.** by selecting seeds with the best characteristics.
5. People can improve the quality of forests…	☐	**e.** frequent consequence of deforestation.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why is it necessary to preserve dead wood?
2. What strategies can be adopted to contrast the outbreak of the chestnut gall wasp?
3. What is the consequence of soil acidification?
4. What is the damage caused by uncontrolled exploitation of forests?
5. How many hectares of forests are destroyed in the world each year?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

biodiversity · climate · country · diversity · Earth · fauna · marine · rainforests · species · zones

The Amazing Biodiversity of Costa Rica

Costa Rica's territory is merely 0.03% of the earth's surface, but it is considered to be a **1.** ..... with more biodiversity than many other areas in the world. This country is home to about 4% of the **2.** ..... on Earth.
Environmental factors are responsible for this great **3.** .....
The geographic positioning of the country, situated between two large continental masses and two vast oceans, in addition to the combination of unique geology and **4.** ....., is highly favourable to the diverse biological and plant life. Costa Rica has twelve climate **5.** ..... that differ due to factors such as elevation and precipitation. Accordingly, one can find mangrove forests, **6.** ....., and deciduous forests; it also has coral reefs and wetlands.
Costa Rica is one of the countries with the greatest diversity of **7.** ..... in the world: from mammals, lizards and amphibians, insects and reptiles to the richest **8.** ..... life in its Caribbean and Pacific Oceans, and many streams, rivers and lakes. Costa Rica is also one of the best places on **9.** ..... to explore and experience wildlife in its most concentrated form in terms of **10.** ..... within a relatively tiny space.

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MULTIPLE CHOICE

5. Choose the correct option.

1. The European spruce bark beetle…
- **a.** defoliates conifer trees.
- **b.** produces galls on buds.
- **c.** digs tunnels under the bark of trees in the Alpine forests.
- **d.** spreads mainly in orchards.

2. Which of the following is not an example of a human hazard?
- **a.** Acid rain.
- **b.** Pests.
- **c.** Oil spill.
- **d.** Forest fragmentation.

3. Which of the following is not a reason for rainforest clearing?
- **a.** Too many trees.
- **b.** Land for agriculture.
- **c.** Land for houses and roads.
- **d.** Creating jobs for local workers in road building, agriculture and construction.

4. The chestnut gall wasp…
- **a.** is a staple food.
- **b.** bites and stings humans.
- **c.** has been imported to Italy recently.
- **d.** is a native species of North America.

5. Which of the following is not true about dead wood?
- **a.** It is home to saproxylic species.
- **b.** It improves microhabitats.
- **c.** It prevents the extinction of species.
- **d.** It covered the Veneto plain in pre-Roman times.

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Total score ...../50

U 2.4 Forest biodiversity

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Biosecurity Advice for Forest Visitors

Tree health can have a dramatic impact on our landscapes. However, there are simple steps you can take to help limit the spread of plant diseases when you visit woodlands, parks and gardens.

Tree and plant diseases can live in mud and water and be spread over longer distances by vertebrate movement. People and animals frequently walk through contaminated areas and may pick up infested soil or litter on their feet and transfer it to new sites.

If you brush the mud and leaves from your boots between visits to different parks, gardens and woodlands, you can limit the spread of plant diseases between different places.

Great concern was caused in 2003 by the spread of two new *Phytophthora* pathogens, mainly in the south-west of England, where they caused intense episodes of foliar blight and dieback on rhododendrons as well as lethal stem cankers on a range of broadleaved trees.

A study to assess dissemination of *Phytophthora* pathogens by people started in July 2004 and ran over 3 years, with about 400 samples collected from the boots of walkers who had visited sites infected with this pathogen. The results of the survey found that 30% of the samples from walker's boots were contaminated. The source of the contamination was fragments of infected leaves, which had broken down and incorporated into the litter layer of the soil. This is of greater concern, as these pathogens can survive in both air-exposed and litter-embedded infected leaves for more than a year.

Adapted from*: https://www.forestryengland.uk*

	T	F
1. Vertebrates contribute to the spreading of diseases all through nature.	☐	☐
2. Mud and water inhibit disease growth.	☐	☐
3. Walkers on contaminated sites may be responsible for bringing infested soil and transferring it to new sites.	☐	☐
4. Cleaning your walking boots after visiting green areas is completely useless.	☐	☐
5. Two new *Phytophthora* pathogens spread in the south-west of England in 2003.	☐	☐
6. Conifers developed stem canker.	☐	☐
7. Researchers studied the dissemination of *Phytophthora* pathogens for 3 years.	☐	☐
8. One fourth of the samples from walker's boots were contaminated.	☐	☐
9. Fragments of infected leaves were responsible for the contamination.	☐	☐
10. *Phytophthora* pathogens hardly survive if exposed to air.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Saproxylic organisms…	☐ **a.** for their development in dead wood microhabitats.
2. An old-growth forest containing decomposing deadwood…	☐ **b.** increase in the future, due to extreme weather conditions.
3. Many invertebrates find ideal conditions…	☐ **c.** is richer in biodiversity than an artificial tree plantation.
4. Damage caused by forest fires will probably…	☐ **d.** are dependent on fallen timber or the dead wood of dying trees.
5. Many forests have been devastated…	☐ **e.** whenever people needed open land for farming.

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SHORT OPEN QUESTIONS

3. Answers the questions.

1. Why should mature trees, snags, and decomposing logs be preserved?
2. Why should the fragmentation of natural forest areas be avoided?
3. Why are ecological corridors useful?
4. Why is the pine processionary moth considered dangerous for conifer trees?
5. What are the most serious problems which affect forests?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

artificial · conservation · disturbance · genetic · habitat · interfere · management · outside · reserves · species

How to Conserve Biodiversity

There are different but complementary approaches to biodiversity **1.** .....
They are off-site conservation and on-site conservation. Off-site conservation means conservation of life forms **2.** ..... their natural habitat. It is the method in which part of the population or the entire endangered **3.** ..... is taken from its natural habitat which is threatened. Breeding and maintaining of these species take place in **4.** ..... ecosystems such as zoos, nurseries, botanical gardens, etc. On-site conservation refers to the preservation and protection of the species in their natural **5.** ....., where the natural ecosystem is protected and maintained. It means the conservation of **6.** ..... resources in natural populations of plant or animal species. On-site conservation involves the **7.** ..... of biodiversity in the same area where it is found. Different methods of on-site conservation include biosphere **8.** ....., national parks, and wildlife sanctuaries. Wildlife sanctuaries are protected areas where wild animal habitats are protected from any sort of **9.** ...... The capturing, killing and illegal hunting of animals is strictly forbidden. A few human activities such as cultivation, wood collection, and other forest product collection are allowed here, but they must not **10.** ..... with the conservation of the animals.

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MULTIPLE CHOICE

5. Choose the correct option.

1. The processionary moth…
- **a.** affects mainly conifers.
- **b.** defoliates mainly broadleaves.
- **c.** is not dangerous for pets.
- **d.** is particularly visible in September.

2. What is biodiversity?
- **a.** A kind of ecological corridor.
- **b.** A wide range of different species in an ecosystem.
- **c.** A low number of different species in an ecosystem.
- **d.** A large-scale ecosystem.

3. What is the general effect of biological hazards on biodiversity?
- **a.** Decreased biodiversity.
- **b.** Increased biodiversity.
- **c.** Unaffected biodiversity.
- **d.** Unlimited biodiversity.

4. Which of the following is an example of a biological hazard?
- **a.** Acid rain.
- **b.** Oil spill.
- **c.** Pests and diseases.
- **d.** Forest fragmentation.

5. The biological control of chestnut gall wasp…
- **a.** cannot be applied in Mediterranean orchards.
- **b.** is effective against females and young larvae.
- **c.** can be used only in summer.
- **d.** is the best method to destroy the pest.

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Total score ...../50

U 3.1 **Soil**

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Erosion

Erosion is the geological process in which earthen materials are worn away and transported by natural forces such as wind or water. A similar process, weathering, breaks down or dissolves rock, but does not involve movement. Erosion is the opposite of deposition, the geological process in which earthen materials are deposited, or built up, on a landform. Most erosion is performed by liquid water, wind, or ice, usually in the form of a glacier.

Liquid water is the major agent of erosion on Earth. Rain, rivers, floods, lakes, and the ocean carry away bits of soil and sand and slowly wash away the sediment. Rainfall produces four types of soil erosion: splash erosion, sheet erosion, rill erosion, and gully erosion.

Splash erosion describes the impact of a falling raindrop, which can scatter tiny soil particles as far as 6 metres. Sheet erosion describes erosion caused by runoff. Rill erosion describes erosion that takes place as runoff develops into distinct small streams, the rills. Finally, gully erosion is the stage in which soil particles are transported through large channels.

The ocean is a huge force of erosion, too. Coastal erosion, which is the wearing away of rocks, earth, or sand on the beach, can change the shape of entire coastlines. During the process of coastal erosion, waves crumble rocks into pebbles and pebbles into sand. Waves and currents sometimes transport sand away from beaches, moving the coastline farther inland. Coastal erosion can have a huge impact on human settlements as well as coastal ecosystems.

Adapted from*: https://education.nationalgeographic.org/resource/erosion*

Glossary:
gully: *canalone*
rill: *rigagnolo*

	T	F
1. Water and rain may be responsible for soil erosion.	☐	☐
2. Erosion and weathering have the same effects on earthen materials.	☐	☐
3. Erosion and deposition have different meanings.	☐	☐
4. Erosion is hardly ever caused by liquid water, wind or ice.	☐	☐
5. Different types of soil erosion are caused by rainfall.	☐	☐
6. Runoff is responsible for splash erosion.	☐	☐
7. A rill is a large watercourse.	☐	☐
8. The shape of coastlines can be totally modified by removal of rocks, earth, or sand.	☐	☐
9. Waves cause rocks and pebbles to bump into each other and break up.	☐	☐
10. Human settlements may be seriously compromised by coastal erosion.	☐	☐

 Name ..... Class ..... Date .....

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VOCABULARY

2. Write the words corresponding to these definitions.

1. Herbaceous plants that grow over the surface of the ground, preventing soil erosion. .....

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2. A farming practice that helps to prepare the soil for plant growth. .....

3. A soil containing a mixture of sand, silt, and clay. .....

4. An area of very wet, muddy land. .....

5. Vertical succession of horizons. .....

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CLOZE TEST

3. Complete the text with the missing parts given below.

The Soil Food Web

The food soil web describes the biological interaction of organisms living in the soil. Each field, forest, or pasture has a unique soil food web with a particular proportion of bacteria, fungi, and other groups, and a particular **1.** ..... As these organisms eat, grow, and move through the soil, they make it possible to have clean water, clean air, healthy plants, and moderated water flow.

They sequester nitrogen and other nutrients, and they fix nitrogen **2.** ..... Many organisms enhance soil aggregation and porosity, thus increasing infiltration and reducing runoff. Soil organisms feed on crop pests and **3.** ..... All food webs are fueled by plants, lichens, moss, photosynthetic bacteria, and algae that use the sun's energy to fix carbon dioxide from the atmosphere. Most soil organisms get energy and carbon by consuming the organic **4.** ..... A few bacteria get energy from nitrogen, sulfur, or iron compounds. As organisms decompose complex materials, or consume other organisms, nutrients are **5.** ..... other soil organisms. All plants – grass, trees, shrubs, agricultural crops – depend on the food web for their nutrition.

Adapted from: *https://hunterlandcare.org.au/the-soil-food-web-part-1-introduction/*

a. are food for above-ground animals.
b. compounds found in plants, other organisms, and waste by-products.
c. converted from one form to another, and are made available to plants and to
d. from the atmosphere.
e. level of complexity within each group of organisms.

...../10

 Name ..... Class ..... Date .....

SHORT OPEN QUESTIONS

4. Answer the questions.

1. What is soil made of?
2. Which soil is the best for plants?
3. What does the soil provide plants with?
4. What are the main forms of soil degradation?
5. What are the different tillage systems?

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MULTIPLE CHOICE

5. Choose the correct option.

1. Runoff is…
   - **a.** the wearing down of rock by disintegration.
   - **b.** the waste of nutrients.
   - **c.** the gradual destruction of the bedrock by water.
   - **d.** the draining away of rainfall from the surface of an area.
2. The solid surface of the earth is…
   - **a.** the top soil.
   - **b.** the subsoil.
   - **c.** the ground.
   - **d.** the profile.
3. Horizon 0…
   - **a.** is characteristic of agricultural lands.
   - **b.** is commonly called top soil.
   - **c.** is made up of decaying organic matter.
   - **d.** includes continuous masses of hard rock.
4. The soil profile…
   - **a.** lies between the ground surface and the parent rock.
   - **b.** is a vertical section of soil below the parent rock.
   - **c.** is dense rock that covers most of the earth's land surfaces.
   - **d.** is made up of two layers.
5. Which statement is true?
   - **a.** Accelerated soil erosion has been happening for millions of years.
   - **b.** Soil can be swept away because of deforestation, overgrazing, tillage, and monocropping.
   - **c.** Organic matter does not help prevent erosion.
   - **d.** The ability of water to erode soil cannot be reduced in any way.

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Total score ...../50

U 3.1 Soil

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Soil Degradation

One of the most demanding challenges listed by the SDGs is to halt the growth of soil degradation processes by 2030. Europe and Italy are no strangers to the problem. In fact, one of the main threats to Italy is water erosion, which particularly afflicts the Apennine regions. The main responsibility is linked to intensive farming practices, especially in hilly areas. Wind erosion and loss of organic matter associated with industrial agriculture, combined with climate change, represent the foretaste of desertification, to which we are concretely exposed.

As far as compaction is concerned, due to processing with heavy agricultural vehicles that destroy the soil structure, Italy has "average" or "high" levels of susceptibility in the Po Valley and along the cultivated strips of the Adriatic coast and major islands.

The problems of diffuse contamination are also very relevant, due to the considerable use of pesticides and the excessive concentration of nitrates, especially in areas with a high livestock intensity in the Lombard plain.

Salinisation, which in Italy mainly concerns the coastal plains exposed to salt intrusion, is to be monitored in relation to the possible effects of climate change, which expose irrigated soils, particularly those in the Po Valley, to this risk. The same plain is greatly exposed to the risk of damaging biological functions due to the loss of biodiversity of the soils. Finally, the prevalence of landslides is to be noted, a form of degradation that affects all the mountain ranges and their hilly strips.

Adapted from: *https://soil4life.eu/en/degrado-del-suolo/*

Glossary:
foretaste: *assaggio*
landslide: *frana*

	T	F
1. Interrupting soil degradation processes is one of the priorities of Agenda 2030.	☐	☐
2. Soil degradation only impacts our country.	☐	☐
3. Alpine areas are mainly affected by water erosion.	☐	☐
4. Wind erosion and loss of organic matter, combined with climate change, may lead to desertification.	☐	☐
5. The soil structure is damaged by the use of heavy agricultural vehicles.	☐	☐
6. Soil compaction in the Po Valley has a high tendency to be susceptible to damage.	☐	☐
7. The excessive use of pesticides causes contamination.	☐	☐
8. The low concentration of nitrates is mainly due to intensive livestock grazing.	☐	☐
9. Irrigated fields in the Po Valley are exposed to the risk of salinisation.	☐	☐
10. Hills are not affected by landslides.	☐	☐

 Name ..... Class ..... Date .....

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VOCABULARY

2. Write the words corresponding to these definitions.

1. Allowing cattle to eat too much grass for extended periods of time, causing damage. .....
2. The action of surface processes that removes soil. .....
3. Wild plants growing where they are not wanted, in competition with cultivated plants. .....
4. The loss of water-soluble plant nutrients from the soil. .....
5. The organic components of soil formed by the decomposition of vegetable or animal matter. .....

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CLOZE TEST

3. Fill in the text with a suitable word for each space.

affect · biological · climatic · depend · developing · process · reduction · result · run-off · water

Dryland Degradation

Land degradation is, usually, the **1.** ..... of complex inter-relationships between biophysical and socio-economic issues which **2.** ..... many people and their land, especially in the tropics and **3.** ..... countries. The term land degradation involves both soil and vegetation degradation. Soil degradation refers to negative changes in the physical, chemical, and **4.** ..... properties of the soil, whereas vegetation degradation is the **5.** ..... in the number of species and the vegetational composition.

Usually, land degradation is described in terms of the loss in natural resources (soil, **6.** ....., fauna and flora) or in the biophysical **7.** ..... by which it functions. Soil can be eroded, salinised or impoverished. Water can be lost through evapotranspiration, evaporation, infiltration, **8.** ....., pollution, or overuse. The causes of dry land degradation are complex and may be the product of anthropogenic or **9.** ..... factors, such as the impact of drought and desiccation on ecosystems, overgrazing, the undervaluation of land resources, and numerous other social and economic processes. The link between desertification and poverty is direct and intimate and affects all those who **10.** ..... on the land as a basic resource, whether for crops, livestock, or fuel-wood.

Adapted from: *http://article.sapub.org/10.5923.j.ijaf.20130302.03.html*

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 Name ..... Class ..... Date .....

SHORT OPEN QUESTIONS

4. Answer the questions.

1. What is the soil food web?
2. What are the classes of soil and how do they differ?
3. How do plants prevent soil erosion?
4. What is the soil profile made up of?
5. What is meant by tillage?

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MULTIPLE CHOICE

5. Choose the correct option.

1. Earthworms…
   - **a.** are harmful to the environment.
   - **b.** are beneficial to the soil.
   - **c.** are useless to the countryside.
   - **d.** compromise the availability of nutrients in the soil.
2. Desertification…
   - **a.** is a process which turns productive land into desert.
   - **b.** is the result of long-term floods.
   - **c.** leads to the formation of parent rock.
   - **d.** leads to the increase of plant density.
3. A vertical section of soil showing the sequence of the various layers is called…
   - **a.** profile.
   - **b.** loam.
   - **c.** ped.
   - **d.** texture.
4. The basic components of soil are…
   - **a.** loam and inorganic matter.
   - **b.** silt, clay and loam.
   - **c.** sand, silt, clay and organic matter.
   - **d.** minerals, organic matter, water and air.
5. Loam is…
   - **a.** a mixture of sand, silt and clay and organic material.
   - **b.** a mixture of nitrogen, phosphorus and potassium.
   - **c.** a subsurface horizon.
   - **d.** a layer of partially weathered parent rock.

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Total score ...../50

U 3.2 Water

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and answer the questions.

Irrigation in the Past

The growth of irrigation historically accompanies the development of agriculture, with the first attempts at irrigation occurring about 5,000 years ago. Archaeological investigation has identified evidence of irrigation where the natural rainfall was insufficient to support crops.

Perennial irrigation was practised in the Mesopotamian plain, where crops were regularly watered through a matrix of small channels formed in the field.

Basin irrigation was practised by the ancient Egyptians, who exploited the flooding of the Nile to inundate land plots and fertilise them with the river sediment.

Sophisticated irrigation and water storage systems date back to the 3,000 BC in Pakistan and North India. By 200 AD, the Chinese were using chain pumps to lift water from lower to higher elevations: these were powered by foot pedals, hydraulic waterwheels, or rotating mechanical wheels pulled by oxen.

In Western Europe, large-scale irrigation dates back to 2,000 years ago, when Romans built aqueducts to channel water from the mountains. Gravity brought the water down to the fields, reservoirs and cities. Even until relatively modern times, Roman techniques to collect, store, and channel water over huge distances remained unsurpassed. A true masterpiece of this stunning engineering is the Pont du Gard aqueduct, built in 19 BC, to pipe water to the city of Nîmes in southern France.

1. When did people start irrigating crops?
2. How was water conveyed to irrigate fields by the Mesopotamians?
3. Which method of irrigation was chosen in ancient Egypt?
4. What fertilised the flooded lands in Egypt?
5. What were Chinese chain pumps used for?
6. What did the Romans build to exploit water resources?
7. How did the Roman solution work?
8. Where can you admire an excellent example of Roman engineering mastery?
9. When was Pont du Gard built?
10. What French city was water piped to?

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Only a small part of freshwater resources…
2. Water for agriculture is distributed to fields or other cultivated areas…
3. The soil's vulnerability to being swept away by wind and water is also…
4. Sprinklers are supplied by a permanent, …
5. Subsurface drainage removes excess water from the soil profile through…

a. by means of canals, ditches or pipes.
b. a network of perforated tubes installed below the soil surface.
c. movable or portable pipe system.
d. supply water for everyday life.
e. due to the loss of protective vegetation through deforestation.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What are the consequences of incorrect management of underground water resources?
2. Why is water consumption so high nowadays?
3. Why is drip irrigation an efficient method of irrigation?
4. What is the relationship between climate change and water availability?
5. What does the design of a drainage system depend on?

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CLOZE TEST

4. Complete the text with the expressions given below.

desalinating · drinking water · filtered · marine · mineral salts · pressure · pure · salty · seawater · world's population

Desalination Plant

Water: there's one word for it but two ways to describe it. There's water we drink and water we can't drink. More and more of us are consuming this **1.** ..... which represents only an infinitesimal part of the resource available on Earth. In twenty years, forty-seven percent of the **2.** ..... will live in areas subject to serious water scarcity, and yet, 40 percent of us live near the coast.

What if we could actually drink **3.** .....?
Let's see how this is possible! To protect the **4.** ..... ecosystem, seawater is pumped at a speed three times slower than a fish swims.
This water is then **5.** ..... to remove all particles such as algae and sand. After this stage, only molecules of water and salt remain. The salt water is then sent at a very high **6.** ..... through an extremely fine membrane. The pressure exerted on the water during this process is equivalent to 100 elephants standing on a manhole cover. This is called reverse osmosis. The energy produced by this process is partly recovered and reused to operate the plant. For every 2 litres of saltwater pumped, we obtain one litre of **7.** ..... and demineralised water. The other litre of water, called brine, is twice as **8.** ..... After being treated and diluted it is returned to its natural marine environment. The pure water is enriched with **9.** ..... essential for human health, and the water is then distributed in the drinking water network, all the way to the tap.
Today, more and more plants are **10.** ..... seawater.

Glossary:
brine: *acqua salmastra*
manhole: *tombino*
reverse osmosis: *osmosi inversa*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement is true?
- **a.** All natural waters are renewable.
- **b.** Renewable waters cannot become non-renewable through human action.
- **c.** A renewable resource is finite.
- **d.** Water is a renewable resource because it can be used over and over again.

2. A pipe system supplies water in…
- **a.** furrow irrigation.
- **b.** sprinkler irrigation.
- **c.** border irrigation.
- **d.** basin irrigation.

3. Which statement is false?
- **a.** Most of the water on the Earth's surface is freshwater.
- **b.** Over 96% of the Earth's water is represented by oceans.
- **c.** Water is supplied from boreholes, dams, reservoirs, rivers and lakes.
- **d.** The individual use of water has greatly increased since the last century.

4. Drainage…
- **a.** always has an environmental impact.
- **b.** increases soil erosion.
- **c.** aims at removing excess water from the soil.
- **d.** is responsible for soil degradation.

5. In micro irrigation, water…
- **a.** flows across the entire field.
- **b.** covers the field.
- **c.** is sprayed all around the field.
- **d.** is applied to the root zone of plants.

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Total score ...../50

U 3.2 Water

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Water Crisis

The water we drink today has been around in one form or another for hundreds of millions of years. While the amount of freshwater on the planet has remained fairly constant over time, the population has exploded. This means that every year competition for a clean, copious supply of water for drinking, cooking, bathing, and sustaining life intensifies. Water scarcity is the result of myriad environmental, political, economic, and social forces.

Freshwater makes up a very small fraction of all water on the planet. Only 0.007 percent of the planet's water is available to fuel and feed its 8 billion people.

Due to geography, climate, engineering, regulation, and competition for resources, some regions seem relatively rich in freshwater, while others face drought and debilitating pollution. However, wherever they are, people need water to survive. The resource is essential for producing food, clothing, computers and keeping us and the environment healthy.

Unfortunately, humans have proved to be inefficient water users. For example, the average hamburger takes 2,400 litres of water to produce, and many water-intensive crops, such as cotton, are grown in arid regions. According to the United Nations, water use has grown at more than twice the rate of population increase in the last century. By 2025, an estimated 1.8 billion people will live in areas plagued by water scarcity, with two-thirds of the world's population living in water-stressed regions as a result of use, growth, and climate change.

The challenge we face now is how we can make a difference by reducing our water footprint and how we may effectively conserve, manage, and distribute the water we have.

Adapted from*: https://www.nationalgeographic.com/environment/article/freshwater-crisis*

	T	F
1. Drinking water has been available on the Planet for centuries.	☐	☐
2. Freshwater resources have increased over time.	☐	☐
3. Environmental, political, economic, and social factors affect water availability.	☐	☐
4. Only a small portion of the planet's water can be used by people.	☐	☐
5. Freshwater resources are equitably distributed all over the world.	☐	☐
6. Water is necessary for human survival because it is used in all human activities.	☐	☐
7. People have learned to use water efficiently.	☐	☐
8. Cotton does not need a lot of water.	☐	☐
9. World population has more than doubled in the last century.	☐	☐
10. We can reduce our water footprint if we use our freshwater resources more efficiently.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Surface water is water naturally…
2. Subsurface drainage…
3. Since every soil type has different properties that affects drainage, …
4. Temperature is expected to rise in most areas, but more in higher…
5. Most freshwater on Earth…

☐ **a.** every field needs a specific drainage system.
☐ **b.** inland areas and at higher latitudes.
☐ **c.** removes excess water from the soil profile.
☐ **d.** open to the atmosphere, in lakes, reservoirs, rivers.
☐ **e.** is locked up in ice caps and glaciers.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why can water be considered both a renewable and a non-renewable resource?
2. How does climate change affect water quality?
3. What are the main systems of irrigation?
4. What are the beneficial effects of good drainage?
5. Can the disposal of drainage water interfere with ecosystems?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

checking · contamination · department · disinfecting · groundwater · pesticides · private · protection · safe · source

Private Drinking Water Wells

About 10% people in the US get water from their own private water supplies. Most of these supplies are taken from **1.** ..... through wells, but some households also use water from streams or cisterns. The Environmental Protection Agency does not oversee **2.** ..... wells but recommends the owners to take precautions to ensure the **3.** ..... and maintenance of their drinking water supplies.

People who use private wells need to take precautions to ensure their drinking water is **4.** ...... It is of paramount importance to test private water supplies annually for nitrate and coliform bacteria to detect **5.** ..... problems early. If you suspect a problem, you should test them more frequently and for more potential contaminants, such as radon or **6.** ...... If a contaminant is detected, you should test the water supply again to check the concentration. If a standard is exceeded in your sample, contact your public health **7.** ..... for assistance. Some problems of contamination can be solved by **8.** ..... a well or by removing or filtering contaminants. Other problems may require a new **9.** ..... of water or a new deeper well. If serious problems persist, you need to stop using water from private wells which may be contaminated until a new water source can be obtained. Finally, it is important to protect your water supply by **10.** ..... the activities near the water source, keeping contaminants away from the well itself.

Adapted from*: https://www.epa.gov/ground-water-and-drinking-water*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement is false?
- **a.** Water covers more than 70% of the Earth's surface.
- **b.** Water occurs as a solid, a liquid, and a gas.
- **c.** The largest use of water is for direct human consumption (70%).
- **d.** Oceans hold about 96.5% of all the Earth's water.

2. Water quality is compromised because…
- **a.** oxygen levels are reduced by higher temperatures.
- **b.** pollution and sedimentation are increased by lower intensity and frequency of rainfall.
- **c.** water resources are reduced.
- **d.** glaciers continue to retreat.

3. One should choose the best irrigation method…
- **a.** regardless of waterlogging.
- **b.** regardless of soil drainage.
- **c.** taking into account the risk of pollution.
- **d.** considering the soil type and the crop.

4. Drip irrigation is the most suitable for…
- **a.** vegetables and soft fruit.
- **b.** alfalfa and sugar beets.
- **c.** rice and wheat.
- **d.** maize and sunflower.

5. A drainage system…
- **a.** enhances soil erosion.
- **b.** can improve the crop yield.
- **c.** compromises soil nitrogen and aeration.
- **d.** cannot prevent waterlogging and leaching.

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Total score ...../50

U 3.3 Plants

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Tips for Safeguarding Plants from Acid Rain Damage

Acid rain forms when sulphur dioxide and nitrogen oxide react with chemicals like water, oxygen and carbon dioxide in the atmosphere to form sulphuric acid and nitric acid. Water containing these acidic compounds falls back to earth as rain, harming plants and other immobile objects below. Although the acid from acid rain is weak, normally no more acidic than vinegar, it can seriously alter the environment, damaging plants and aquatic ecosystems. The way that acid rain damages plants is very subtle. Over time, the acidic water alters the pH of the soil where plants are growing, binding and dissolving vital minerals and carrying them away. As the soil pH falls, plants will suffer increasingly obvious symptoms, including yellowing between the veins on their leaves.

Rain that falls on leaves can eat away the outer waxy layer of tissue that protects the plant from drying out, leading to the destruction of the chloroplasts that drive photosynthesis. When a lot of leaves are damaged at once, your plant may become very stressed and attract a host of pests and disease organisms.

The best way to protect plants from acid rain is to prevent rain from falling on them, but with larger trees and shrubs this may be impossible. In fact, many experts recommend planting more tender specimens under large trees to protect them from damage. Where trees aren't available, moving these delicate plants to gazebos or covered porches will do. When all else fails, some thick plastic draped over stakes surrounding the plant can hold off acid damage, provided that you place and remove the covers promptly.

Adapted from*: https://www.gardeningknowhow.com/plant-problems/environmental/acid-rain-damage.htm*

	T	F
1. Pollutants mix with water in the air and form acid rain.	☐	☐
2. Acid rain is not a dangerous form of pollution.	☐	☐
3. Acid rain contains more acid than vinegar.	☐	☐
4. Plants can suffer damage from acid rain in their root system and shoot system.	☐	☐
5. The soil PH increases as a consequence of acid rain.	☐	☐
6. Acid rain falling on leaves limits the photosynthesis process.	☐	☐
7. Acid rain helps destroy pests attacking plants.	☐	☐
8. It is quite easy to prevent acid rain from falling on large trees.	☐	☐
9. The best way to protect delicate plants is by placing them in covered places.	☐	☐
10. The plastic drapes used to protect plants from acid rain must be removed as soon as possible.	☐	☐

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 Name ..... Class ..... Date .....

TRANSLATION

2. Translate the text into English.

Le piante svolgono il ruolo più importante nel ciclo della natura: consolidano il suolo, prevenendo l'erosione dovuta alla pioggia e al vento, moderano la temperatura e offrono luoghi dove la fauna selvatica può vivere e rifugiarsi. Nelle foreste pluviali tropicali, le piante possono anche modificare l'andamento delle precipitazioni su vaste aree e arricchire il suolo con le foglie cadute e il legno in decomposizione. Oltre al cibo, le piante forniscono prodotti in legno, fibre, farmaci, oli, combustibili e materie prime.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What characterises angiosperms?
2. What parts of plants belong to the reproductive structure?
3. What are the functions of roots?
4. What kind of damage can weeds do to crops?
5. How can weeds be controlled?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

carbohydrates · carbon dioxide · chloroplasts · energy · glucose · hydrogen · leaves · opposite · reaction · starch

Photosynthesis: from Light Energy to Chemical Energy

Photosynthesis is the conversion of light energy into chemical **1.** ..... to be used by the plants for growth and nourishment. *Photo* means light in Greek and *synthesis* means putting together or combining water, **2.** ..... and chemicals in the presence of light.

Plants take up water from the ground into the **3.** ..... which have pores very similar to the pores on the skin of our bodies. They are responsible for the exchange of gases. Once the carbon dioxide and the water reach the **4.** ..... in the presence of sunlight, the process of photosynthesis starts. The sun energy is absorbed and used to split water molecules into **5.** ..... and oxygen. Oxygen is released into the atmosphere, while hydrogen and carbon dioxide are used to form **6.** ..... (glucose, starches and cellulose) for plants. Some of the **7.** ..... is used immediately for the growth and development of plants, while the extra glucose, which is not used, is stored in the form of **8.** ..... in the leaves. Some of this extra glucose is also stored in the roots of the plants. Photosynthesis is not a reversible **9.** ..... as the formation of glucose is a chemical change, which cannot be reversed. Therefore, the light energy can be converted into chemical energy but the **10.** ..... cannot occur.

Adapted from: *https://www.britannica.com/science*

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MULTIPLE CHOICE

5. Choose the correct option.

1. In the Plant Kingdom, plants are mainly classified according to…
- **a.** the presence of green chloroplasts.
- **b.** their reproduction system.
- **c.** their ability to convert carbon dioxide into chemical energy.
- **d.** the presence of flowers.

2. Spore bearing plants…
- **a.** include conifers.
- **b.** are mostly evergreen.
- **c.** include bacteria, fungi, and mosses.
- **d.** are flowering plants.

3. Pests are…
- **a.** destructive insects or other animals that attack crops.
- **b.** simple plant organisms without green chlorophyll.
- **c.** microscopic organisms existing in air, water, and soil.
- **d.** parasitic germs which can develop in cells.

4. Gymnosperms…
- **a.** cannot be evergreen.
- **b.** have flowers hidden in cones.
- **c.** have seeds in cups.
- **d.** are flowering plants.

5. Which statement about weeds is false?
- **a.** Some weeds have health benefits.
- **b.** Some weeds are edible.
- **c.** Some weeds can be controlled.
- **d.** All weeds are poisonous.

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Total score ...../50

U 3.3 Plants

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Factors Affecting Photosynthesis

Three factors can limit the speed of photosynthesis: light intensity, carbon dioxide concentration, and temperature. Without enough light, a plant cannot photosynthesise very quickly, even if there is plenty of water and carbon dioxide. Increasing the light intensity will boost the speed of photosynthesis. Other times, photosynthesis is limited by the concentration of carbon dioxide in the air. Even if there is plenty of light, a plant cannot photosynthesise if there is insufficient carbon dioxide. Moreover, if it gets too cold, the rate of photosynthesis will decrease. In the same way, plants cannot photosynthesise if it gets too hot.

Farmers can use their knowledge of factors limiting the rate of photosynthesis to increase crop yields.

This is particularly true in greenhouses, where the conditions are more easily controlled than in the open air outside:

- the use of artificial light allows photosynthesis to continue beyond daylight hours; bright lights also provide a higher-than-normal light intensity;
- the use of artificial heating allows photosynthesis to continue at an increased rate;
- the use of additional carbon dioxide released into the atmosphere inside the greenhouse also allows photosynthesis to continue at an increased rate.

However, the additional cost of providing extra lighting, heat and carbon dioxide has to be weighed against the increased crop yield and the extra income it will provide. In practice, the farmer will need to find the optimum growing conditions for the crop, given the costs of providing extra lighting, heat and carbon dioxide.

Paraffin lamps have traditionally been used in greenhouses. Their use increases the rate of photosynthesis because, in addition to the light generated by the lamps, the burning paraffin produces even heat and carbon dioxide.

Adapted from: *https://www.elevise.co.uk/gab4e.html*

	T	F
1. Temperature, CO_2 concentration, and light intensity are factors that can limit the rate of photosynthesis.	☐	☐
2. The gas needed for photosynthesis is hydrogen.	☐	☐
3. Plants in a greenhouse can photosynthesise if the carbon dioxide concentration is increased.	☐	☐
4. A greater amount of oxygen increases the rate of photosynthesis.	☐	☐
5. The waste by-product of photosynthesis is carbon dioxide.	☐	☐
6. Farmers can control the favourable conditions for crop growth in the open air.	☐	☐
7. Electrical energy is needed for photosynthesis to take place.	☐	☐
8. In greenhouses, crop production can be increased thanks to artificial heating.	☐	☐
9. Greater crop production should balance higher production costs.	☐	☐
10. Paraffin lamps generate light, heat and carbon dioxide.	☐	☐

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 Name ..... Class ..... Date .....

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TRANSLATION

2. Translate the text into English.

Le piante sono importanti per tutta la vita sulla Terra. Tutto ciò che mangiamo proviene direttamente o indirettamente dalle piante. Le piante regolano anche il ciclo dell'acqua: contribuiscono a distribuire e purificare l'acqua del pianeta e spostano l'acqua dal suolo all'atmosfera. Le piante producono ossigeno e assorbono anidride carbonica durante la fotosintesi. L'ossigeno è essenziale per la respirazione cellulare di tutti gli organismi aerobi. Inoltre, la rimozione dell'anidride carbonica dall'atmosfera riduce l'effetto serra e il riscaldamento globale.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why is the root system important?
2. How are the root system and the shoot system connected?
3. What two main groups can flowering plants be divided into?
4. What does the root system consist of?
5. What are weeds?

/10

 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

beneficial · channels · compost · habitat · hold · nutrients · properties · seed · topsoil · wind

Super Plants

Do you know that garden weeds may be **1.** .....? Weeds are fast growing, so they can quickly cover bare ground to protect it. Their roots **2.** ..... soil together and keep it from eroding away in the **3.** ..... or rain. Their presence can indicate the need for mulch to protect soil.

Many weeds accumulate vital **4.** ..... from the subsoil and bring them into their leaves. As the weed leaves die back, they make a healing medicine for damaged **5.** ...... Their presence can indicate the need to enrich your soil with amendments such as **6.** ....., because each time you harvest vegetables, you extract nutrients from the soil.

Decaying roots add organic matter to the soil, provide **7.** ..... for rain and air to penetrate and create tunnels for worms and other beneficial soil microbes.

Weeds are usually quick to sprout, but relatively short-lived. For this reason, they flower frequently in order to set **8.** ..... for the next generation. The flowering and their dense foliage can attract beneficial insects looking for **9.** ..... or nectar. In addition, some weeds have medicinal **10.** ..... and are nutritious as well as edible.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Flowers and fruit belong to…
- **a.** the vegetative structure.
- **b.** the root system.
- **c.** the reproductive structure.
- **d.** the vascular tissue.

2. Infectious plant diseases are…
- **a.** not transmissible.
- **b.** caused by unfavourable environmental conditions.
- **c.** spread only by insects.
- **d.** caused by pathogenic agents.

3. Which statement about the respiration process is false?
- **a.** Oxygen is produced.
- **b.** Carbon dioxide is produced.
- **c.** Oxygen is absorbed.
- **d.** It occurs in darkness and light.

4. Angiosperms…
- **a.** have no flowers.
- **b.** have seeds in cups.
- **c.** are mostly evergreen.
- **d.** have flowers.

5. Weeds are harmful because they…
- **a.** provide feed for wildlife.
- **b.** contaminate the crop.
- **c.** generate organic matter.
- **d.** stabilise soil.

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Total score ...../50

U 3.4 Seeds and fertilisers

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The Superfood for Plants

Comfrey is a large herb, native to Europe, which grows prolifically in damp places such as river banks. It is a perennial, so it dies down in winter and then comes back up in spring. As such, it can easily get out of control in a garden, so would not normally be deliberately introduced. Comfrey is a multi-functional, prolific, and low-maintenance herb. Its flowers attract pollinators and the large leaves provide habitat for beneficial insects. It is also one of the most potent and effective medicinal herbs known.

As it is high in nitrogen, phosphorus, potassium, potash, and calcium, comfrey can fertilise the soil for healthier and more abundant crops. These nutrients are released as the leaves decay. Potassium is used particularly to promote healthy flowers, seed and fruit: comfrey leaves contain up to three times more potassium than farmyard manure.

It is an excellent bio-activator in the compost bin, too. If you have a large amount of dried brown material – such as fall leaves – layering it with comfrey cuttings is an efficient way to balance out the carbon-to-nitrogen ratio and start decomposition. To this aim, collect comfrey leaves and crush them. Add water, then pour the entire solution onto the compost pile, where its nutrients will both enrich the whole heap and encourage decomposition.

Adapted from: *https://www.tenthacrefarm.com/comfrey-uses/*

Glossary:
comfrey: *sinfito*
to layer: *disporre a strati*

	T	F
1. Comfrey is of European origin.	☐	☐
2. It cannot stand damp land.	☐	☐
3. It is an annual plant.	☐	☐
4. It requires little maintenance.	☐	☐
5. It has few healing properties.	☐	☐
6. Its mineral compounds are beneficial to the soil.	☐	☐
7. When its leaves decay, comfrey releases its nutrients into the soil.	☐	☐
8. Phosphorus is essential to improve flower growth.	☐	☐
9. Livestock produce better manure than comfrey leaves.	☐	☐
10. Comfrey is an excellent bio-activator as it enriches the compost pile and encourages decomposition.	☐	☐

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 Name ..... Class ..... Date .....

SENTENCE COMPLETION

2. Complete the sentences.

1. Multiple cropping is a cropping system where .....
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2. Mixed cropping means growing .....
..... without row arrangement.
3. Farmers use chemicals to .....
.....
4. Organic fertilisers derive from the remains of .....
.....
5. Gene banks guarantee .....
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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What advantages does rotation give to the soil?
2. What is a fertiliser?
3. What are the polluting effects when an excess of nitrogen and phosphorus contaminates water?
4. What is the advantage of producing uniform varieties of seeds?
5. What is the outcome of seed market power concentrated in four big agribusiness companies?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

cryopreservation · diversity · exceptional · freezing · long-term · methods · plant · risk · species · traditional

Alternatives to Conventional Seed Banking

Cryopreservation, a method of storing tissues in liquid nitrogen, is becoming increasingly important to rare **1.** ..... conservation. This is because many plant species, including large groups such as oaks, orchids, and bryophytes, are unable to be stored long-term using more **2.** ..... seed banking methods. Using cryopreservation techniques, researchers are able to preserve greater crop **3.** ..... and conserve more genetic resources for future generations. Exceptional plants are those that cannot be conserved **4.** ..... using conventional seed banking methods. This includes species with few or no seeds available for banking, **5.** ..... with seeds that are intolerant of desiccation and freezing, or seeds that can tolerate drying, but not **6.** ....., or species that may only tolerate storage at –20°C for less than 10 years. For ex situ conservation, such species require **7.** ..... alternative to conventional storage, such as **8.** ..... and in vitro methods. Many of the world's plant species may fit these storage categories. The primary purpose of a conservation collection of an **9.** ..... species is to support the species' survival and reduce its extinction **10.** ....., therefore accurate records of provenance and diverse genetic representation are prerequisites.

Adapted from: *https://saveplants.org/best-practices/what-are-alternatives-conventional-seed-banking/*

Glossary:
ex situ: *fuori dall'ambiente naturale*

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MULTIPLE CHOICE

5. Choose the correct option.

1. What statement about relay cropping is false?
- **a.** Soil texture and structure is endangered.
- **b.** Carbon sequestration is increased.
- **c.** Income for producers is higher.
- **d.** Mechanisation may be difficult.

2. Chemicals used to kill harmful insects are…
- **a.** fertilisers.
- **b.** pesticides.
- **c.** useless.
- **d.** always dangerous to the plants.

 Name ..... Class ..... Date .....

3. Organic fertilisers…
- **a.** are rich in essential nutrients in equal proportion.
- **b.** are always ready for immediate supply.
- **c.** may compromise the survival of some microorganisms found in the soil.
- **d.** contain essential nutrients in unequal proportions.

4. The Global Seed Vault…
- **a.** produces high quality seeds.
- **b.** stores only Norwegian seeds.
- **c.** stores duplicates of seed samples from all over the world.
- **d.** is irrelevant in the protection of biological heritage.

5. The Farmers' seed system…
- **a.** promotes the reproduction of homogenous varieties of seeds.
- **b.** is closely related to chemical enterprises.
- **c.** advocates the free distribution of seeds and knowledge among peoples.
- **d.** implies the lack of genetic diversity in available seeds.

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Total score ...../50

U 3.4 Seeds and fertilisers

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Farmers Trapped by Seed Consolidation

Land and seed once belonged to no one and were shared by all, replicating the giving essence of the natural world. Today, these precious resources are tightly controlled. The modern U.S. food and agriculture system focuses mainly on economic efficiency without taking care of the well-being of small family farmers, rural communities, or the land.

The benefits of traditional indigenous farming practices – which produced an abundance of nutritious food while restoring soil nutrients, preserving the freedom of wild animals, and even controlling weeds and pests – are being considered as "alternatives" to today's conventional, industrial agriculture model.

In the 1930s, a growing number of plant breeders and horticulturalists rediscovered techniques to breed hybrid varieties with desirable traits and developed markets around their exclusive seed. The increased demand for agricultural exports generated by World War II led to the mass acceptance of these hybridised seed, upon which farmers gradually became reliant. Then, rising mechanisation and research developments in the U.S. post-war economy, parallel to those in the agriculture industry, led to the issue of strict laws to protect the intellectual property of inventors.

Today, more and more seeds have traits that are protected with patents. This makes it a real risk to sow farm-saved seeds. Seed piracy is dealt with severely: growers caught breaking the law have to pay high fees and destroy their crop. Consequently, the consolidation of the seed industry traps farmers in a cycle of dependence and perpetuates a destructive model of farming which threatens biodiversity and soil health.

Adapted from: *https://sustainableagriculture.net/blog/farmers-trapped-in-unsustainable-cycle-by-biotechnology-seed-consolidation/*

Glossary:
reliant: *dipendente*
to sow: *seminare*
tightly: *strettamente*

	T	F
1. In the past, land and seed belonged to one system.	☐	☐
2. The American agriculture system gives great importance to small family farmers and rural communities.	☐	☐
3. Traditional farming practices used to produce a lot of nutritious food but exploited the soil nutrients.	☐	☐
4. In the 1930s a lot of horticulturalists bred hybrid varieties with desirable traits.	☐	☐
5. After World War II farmers gradually came to rely on hybrid seeds.	☐	☐
6. In the US there was an increase in mechanisation and research developments after World War II.	☐	☐
7. Legislators refused to write laws to protect inventors' intellectual property.	☐	☐
8. It is risky to grow patented seeds.	☐	☐

9. Farmers who break the law are severely punished. ☐ ☐

10. Biodiversity and soil health are endangered by the consolidation of the seed industry. ☐ ☐

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SENTENCE COMPLETION

2. Complete the sentences.

1. A sequential cropping system optimises .....

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2. Organic fertilisers help the soil .....

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3. A soil is fertile if it contains .....

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4. The goal of the Global Seed Vault is to .....

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5. In a farmers' seed system, farmers themselves .....

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What is particularly difficult with mixed cropping?
2. Why is organic matter so important for the soil?
3. How can nutrients be replaced after crop harvesting?
4. What is the aim of worldwide gene banks?
5. What are the main features of high-quality seeds?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

damage · diseases · environmental · grains · hybridised · pesticides · production · revolution · starvation · varieties

Green Revolution: Curse or Blessing?

Green Revolution refers to a series of research and development initiatives between the 1940s and the late 1970s which increased agricultural **1.** ..... around the world, beginning most markedly in the late 1960s.

This **2.** ..... involved developing high-yielding varieties of cereal grains, expanding irrigation infrastructures, modernising management techniques and distributing **3.** ..... seeds, synthetic fertilisers and pesticides to farmers, thus saving over a billion people from **4.** .....

Poorer farmers, however, often have not been able to provide the required growing conditions and therefore have obtained even lower yields with "improved" **5.** ..... than they had obtained with the older species that were better adapted to local conditions and that had some resistance to pests and **6.** .....

The Green Revolution resulted in **7.** ..... degradation, increased income inequality and worsened absolute poverty. It relied on the extensive use of **8.** ....., which were necessary to limit the high levels of pest **9.** ..... that inevitably occurred in monocropping. It definitely affected both agricultural and wild biodiversity, as it relied on just a few high-yield **10.** ..... of each crop.

Adapted from: *https://www.britannica.com/event/green-revolution*

Glossary:
markedly: *considerevolmente*

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MULTIPLE CHOICE

5. Choose the correct option.

1. What statement is false? Monocropping…
- **a.** can reduce soil fertility.
- **b.** exhausts nutrients.
- **c.** is more vulnerable to weeds.
- **d.** protects the soil structure.

2. Crop rotation aims at…
- **a.** reducing plant diseases and pests.
- **b.** increasing the weeds.
- **c.** developing soil deficiencies.
- **d.** changing the ploughing sense.

 Name ..... Class ..... Date .....

3. Organic matter is made from…
- **a.** lively substances.
- **b.** living substances.
- **c.** minerals.
- **d.** animal waste and plant remains.

4. The Commodity seed system…
- **a.** promotes peasants' autonomy.
- **b.** is centred around the standardisation of seed varieties.
- **c.** contributes to biodiversity protection.
- **d.** contributes to increase food systems resilience against climate change.

5. Which statement is true?
- **a.** Crop uniformity needs to be safeguarded to help agriculture adapt to the climate crisis.
- **b.** High temperature and humidity inside the Seed Vault ensure seed safekeeping.
- **c.** In Italy, regional laws have been adopted for decades to protect the biological heritage.
- **d.** Crop diversity does not depend on the genetic integrity of seeds.

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Total score **...../50**

U 4.1 Crops

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Superpowers of Shiitake Mushrooms

Shiitake mushroom is the superhero of the fungi kingdom. Its name is Japanese, and comes from the word "*Shii*", which is the name of the oak tree the mushroom usually grows on. The medicinal properties of these mushrooms have been studied since the Ming Dynasty (1369–1644), when Japanese elders considered them the "elixir of life". Their use has a long history in Asian folklore for healing an extensive list of ailments. As research verifies the medicinal and gastronomic qualities of shiitake, it has recently gained popularity in the West for its nutritional and medicinal value. Shiitake mushrooms provide a healthy source of carbohydrate, protein, and essential amino acids. They are low in fat and contain high concentrations of vitamins D, B-6, B-9 and B-12, and minerals. Although there is no formal definition of a "superfood," Shiitakes unquestionably deserve this award: it prevents weight gain, lowers cholesterol, boosts the immune system and combats infections. Possibly, its most exciting property is its cancer-fighting ability. There is a growing body of evidence that the Shiitake-derived compound lentinan has potent anti-tumour abilities. Lentinan is already an approved drug constituent in Japan and is generally used to extend survival and improve the quality of life of patients receiving conventional cancer therapy. Oddly, despite being the third most prescribed drug globally, it has not as yet been approved by the Federal Drug Administration (FDA). The cancer-fighting characteristics of Shiitake compounds are very likely due to their ability to boost the immune system, although some studies have documented Shiitake extracts destroying and preventing the proliferation of tumour cells, while leaving non-tumour cells untouched.

Adapted from*: https://www.honeycolony.com/article/shiitake-mushrooms*

	T	F
1. The name of the Shiitake mushroom comes from the geographical area where it grows.	☐	☐
2. During the Ming Dynasty the shiitake mushroom was considered the elixir of life.	☐	☐
3. Scientific research has verified the medicinal qualities of Shiitake.	☐	☐
4. This mushroom is a superfood because of its gastronomic qualities.	☐	☐
5. It contains protein, vitamins and amino acids.	☐	☐
6. It can help prevent weight increase.	☐	☐
7. It can significantly worsen the function of immune cells.	☐	☐
8. The anti-tumour abilities of the compound lentinan have been verified.	☐	☐
9. The FDA has already approved lentinan.	☐	☐
10. Shiitake extracts may eliminate both tumour and non-tumour cells.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Cereals are grains produced by... ☐
2. Legumes are annual plants belonging to... ☐
3. Even if potatoes contain toxic compounds, … ☐
4. False fruits are not formed from the ovary, but… ☐
5. Edible subterranean fungi are... ☐

a. they are recommended for a balanced diet.
b. from a different part of the flower.
c. the family *Fabaceae*.
d. called truffles.
e. plants belonging to the grass family.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What substances do leguminous crops contain?
2. How can peanuts be used?
3. Can potatoes be poisonous?
4. How should potatoes be stored?
5. What are the main groups of vegetables? Give examples.

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CLOZE TEST

4. Complete the text with the words given below.

cardiovascular · cultivars · desserts · dietary fibre · folic acid · native · nutritional · pressure · sugar · vegans

Interesting Benefits of Adzuki Beans

These small beans are **1.** ..... to East Asia and the Himalayan region and are commonly eaten in Japan, China, Korea, and other Asian nations, although they can be found in other parts of the world. The name *adzuki* comes from Japanese, although the pronunciation often sounds like "azuki". They are primarily red in colour, but white, black, and mottled **2.** ..... can also be found in certain areas.

When adzuki beans are boiled and sweetened into a red bean paste, the applications are endless in savoury dishes, sweet **3.** ....., sushi, cakes, or as a topping for waffles, biscuits, or bread. They can even be used to make ice cream. Besides the unique flavour, adzuki beans are also a real **4.** ..... powerhouse! There is a significant amount of protein, which is a crucial element, particularly for vegetarians and **5.** ..... who don't get protein from animal sources. Moreover, their high content of B vitamins and **6.** ..... can prevent the development of birth defects. Adzuki beans are also high in **7.** ....., one of the key elements of digestive health. This fibre has a second purpose, that of regulating the activity of insulin receptors in the body to ensure that blood **8.** ..... levels remain normal. Adzukis can also improve heart health. Folate, potassium, magnesium, and dietary fibre may combine into a potentially powerful **9.** ..... boost in adzuki beans. Dietary fibre may help balance cholesterol levels, while potassium increases blood flow, thereby reducing blood **10.** ..... and protecting from a heart attack.

Adapted from: *www.organicfacts.net/health-benefits/other/adzuki-beans*

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MULTIPLE CHOICE

5. Choose the correct option.

1. The first cultivated plants were…
- **a.** saprophytes.
- **b.** tubers.
- **c.** cereals.
- **d.** nightshades.

2. Which statement is false?
- **a.** Vegetables can be eaten raw.
- **b.** Vegetables provide vitamins, minerals and fibre.
- **c.** Vegetables can be grown only in warm seasons.
- **d.** Root vegetables can be stored through wintertime.

3. The tuber vegetable category includes…
- **a.** artichoke, asparagus and fennel.
- **b.** garlic, onion and shallot.
- **c.** beet, carrot and radish.
- **d.** potato, Jerusalem artichoke and sweet potato.

4. Mushrooms are…
- **a.** low in calories and rich in vitamins and minerals.
- **b.** tuberous crops from the Solanaceae family.
- **c.** false fruits.
- **d.** rich in chlorophyll.

5. Drupes are…
- **a.** dry fruits.
- **b.** simple fruits.
- **c.** aggregate fruits.
- **d.** multiple fruits.

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Total score ...../50

U 4.1 Crops

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Rice: a Staple Food

Rice has been cultivated in China since ancient times and was introduced to India before the time of the Greeks. Chinese records of rice cultivation go back 4,000 years. In classical Chinese the words for agriculture and for rice culture are synonymous, indicating that rice was already the staple crop at the time the language was taking form.

Today, rice forms the main source of food for nearly half of the world's population. It is the predominant dietary energy source for seventeen countries in Asia and the Pacific, nine in North and South America and eight in Africa. Rice provides 20% of the world's dietary energy supply, while wheat supplies 19% and maize 5%.

Methods of growing differ greatly according to the places, but in most Asian countries the traditional hand methods of cultivating and harvesting rice are still practised. The seedlings are started in seedling beds and after 30 to 50 days transplanted by hand to the fields, which have been flooded by rain or river water. During the growing season, irrigation is maintained by canals or by hand watering. The fields are allowed to drain before cutting.

Rice is usually harvested when the grains have a moisture content of around 25 percent. Harvesting, which is carried out manually, is followed by threshing either immediately or within a day or two.

The nutritional value of rice depends on its variety, white, brown, black, red and purple, each prevalent in different parts of the world. It also depends on the nutrient quality of the soil rice is grown in, whether and how the rice is polished or processed, the way it is enriched, and how it is prepared before consumption. Brown or red rice has a greater food value than white, since the outer brown coatings contain the proteins and minerals, while the white endosperm is chiefly carbohydrate.

	T	F
1. The Greeks introduced rice cultivation to India.	☐	☐
2. Rice has been cultivated in China since 4000 BC.	☐	☐
3. Rice cultivation means agriculture in classical Chinese.	☐	☐
4. Rice is a staple food for nearly half of the world's population.	☐	☐
5. It represents the main source of energy for eight countries in North and South America.	☐	☐
6. Maize supplies more energy than rice.	☐	☐
7. Today, rice is still harvested by hand in most Asian countries.	☐	☐
8. Rice is threshed 25 days after harvesting.	☐	☐
9. The nutrient quality of the soil may affect the nutritional value of rice.	☐	☐
10. Proteins and minerals are contained in the outer brown coating of rice.	☐	☐

 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Quinoa, amaranth and buckwheat are... ☐
2. Lentils contain... ☐
3. Potatoes contain toxic compounds which are concentrated in... ☐
4. Mushrooms are low in calories and... ☐
5. Fruit-bearing vegetables include... ☐

a. the highest percentage of protein.
b. rich in vitamins and minerals.
c. classified as pseudo-cereal grains.
d. their leaves, stems, sprouts and fruits.
e. pumpkin, cucumber, pepper and tomato.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why are cereals important?
2. What is the main characteristic of leguminous crops?
3. What are soybeans used for?
4. Why are legumes used as manure?
5. Why are vegetables essential in a healthy diet?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

crops · evaporation · loam · manure · moisture · nutrient · retention · rest · soil · tilling

How to Prepare the Best Soil for a Vegetable Garden

A good garden starts with a good **1.** ....., and there's no better example than a vegetable garden.

You can grow some crops in clay, and you can grow some **2.** ..... in sand. But most vegetables grow best in rich, crumbly **3.** ..... soil full of life (earthworms and microbes, for instance). Amending the soil with compost, animal **4.** ..... and other soil builders such as fallen leaves is one way to gradually build up a productive soil. Organic matter provides nutrients and increases the water **5.** ..... and absorption capacity of the soil.

Tilling is a great way to break up the soil and incorporate soil amendments, as well to correct **6.** ..... or pH imbalances. It is important, however, not to overdo it. Repeatedly **7.** ..... the same soil will result in a fine, powdery dust that dries up. This activity should be done in spring or fall, but not when the soil is wet as it can severely damage the soil's structure, inhibiting plant growth in the future. After tilling, the land should be left to **8.** ..... for 4 to 6 weeks before seeding.

Vegetable gardens are highly dependent on moisture. A good soil mix with plenty of organic matter will, in fact, hold more **9.** ...... It may be useful to install a drip irrigation system which keeps moisture at ground level where there's less **10.** ..... and less chance of encouraging diseases with wet foliage.

Adapted from*: https://www.familyhandyman.com/list/how-to-prep-soil-for-a-vegetable-garden/*

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MULTIPLE CHOICE

5. Choose the correct option.

1. What family do cereals belong to?
- **a.** Solanaceae family.
- **b.** Fungi.
- **c.** Grass family.
- **d.** Nightshades.

2. Potatoes…
- **a.** should be avoided in diets.
- **b.** are poor in fibre.
- **c.** should be stored at a high temperature.
- **d.** have a high level of glycoalkaloids if exposed to light or damaged.

3. Truffles are…
- **a.** edible subterranean fungi.
- **b.** undesirable organisms which can damage crops.
- **c.** oval brown seeds of a tropical palm.
- **d.** herbaceous plants.

4. Which statement is false?
- **a.** Vegetables are rich in vitamins.
- **b.** Vegetables cannot be stored for a long time.
- **c.** Any part of every vegetable is edible.
- **d.** Organic fertiliser is recommended for any type of vegetable.

5. Pome fruits…
- **a.** are simple fruits with seeds.
- **b.** have seed chambers called carpels.
- **c.** have a single seed included in a stone.
- **d.** are also known as drupes.

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Total score ...../50

U 4.2 Oil plants

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Immortal Trees

Homer called it "liquid gold." Olive oil has been more than a simple food to the peoples of the Mediterranean: it has been medicinal, magical, an endless source of fascination and wonder and a fountain of great wealth and power. In ancient Greece, athletes ritually rubbed it all over their bodies, and it was dripped into the tombs of dead saints and martyrs. Olive trees, the symbol of abundance, glory and peace, have an enormous resistance, a vital force which renders them nearly immortal.

An olive tree can live for over 200 years and after a tree dies, new branches will begin to bud in the same place on the same root. Particularly old are some olive trees in the garden of Gethsemane, Jerusalem. Examined by some Italian researchers, they are supposed to date back to the mid-12th century, although it is thought that their roots may be even older. The DNA analysis also showed that those trees had an identical genotype, indicating they are likely to have originated from branch cuttings taken from a common 'parent' tree.

There is some debate as to the accuracy of various techniques in ascertaining the age of olive trees. Many ancient olive trees around the world have not undergone reliable scientific testing, and the estimates of their true age vary greatly. Two famous olive trees claim to be the world's oldest ones: the olive tree on the island of Crete, estimated to be from 3,000 to 5,000 years old, and the Three Sisters in Northern Lebanon, thought to be 6,000 years old.

	T	F
1. Olive oil has always been considered a source of richness.	☐	☐
2. In the past they used to put small drops of olive oil in the burial place of saints.	☐	☐
3. Greek athletes used to drink some drops of olive oil.	☐	☐
4. The olive tree is considered the symbol of vital force because of its size.	☐	☐
5. After an olive tree dies, it is necessary to put a new plant in its place.	☐	☐
6. The Gethsemane olive grove has existed since 1200.	☐	☐
7. The genetic constitution of the Gethsemane olive trees shows identical features.	☐	☐
8. The age of olive trees can be determined without any doubt.	☐	☐
9. The oldest olive tree is in Lebanon.	☐	☐
10. The approximate age of the olive tree in Crete is 5,000 years old.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Canola is an oilseed rape of a variety developed in...
2. Copra is the kernel of the fruit of...
3. Small shoots and branches of olive trees may be...
4. The olive fly is considered a serious pest...
5. The bacterial pest *Xylella fastidiosa* is not...

☐ **a.** harmful to humans.
☐ **b.** in the cultivation of olives.
☐ **c.** Canada and grown in North America, which yields a healthy cooking oil.
☐ **d.** affected by hard freezing.
☐ **e.** the coconut palm.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. Where are olive trees cultivated?
2. What may olive flies (*Bactrocera oleae*) do before flying away from the olive?
3. What are cover crops used for in olive orchards?
4. What are the most important oilseed producing areas?
5. What nutrient do soybeans contain in large amounts?

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CLOZE TEST

4. Complete the text with the words given below.

beneficial · cover crop · cultivated · dry · native · ornamental · seed · sunflowers · vegetable · versatility

Sunflowers: a Versatile Native Crop

The wild sunflower is **1.** ..... to North America but commercialisation of the plant took place in Russia. It was only recently that the sunflower plant returned to North America to become a **2.** ..... crop. But it was the American Indian who first domesticated the plant into a single headed plant with a variety of **3.** ..... colours including black, white, red, and black/white striped.

When Europeans first came to the U.S., they viewed sunflowers just as **4.** ..... flowers. Nowadays, millions of acres of sunflowers are grown worldwide as this crop is particularly appreciated for its **5.** .....: it can be exploited for various uses and can grow on a wide range of soils in many latitudes, being tolerant even to **6.** ..... conditions.
The largest worldwide market of sunflowers is for **7.** ..... oil production, which is considered a superior oil for cooking purposes, whether in commercial kitchens or for home use. However, surprisingly, several hundred thousand acres of **8.** ..... are grown each year for birdseed, whose business in only the U.S. is a multi-billion-dollar industry. In addition, sunflowers are used as part of multi-species **9.** ..... mixes planted in mid-summer for soil improvement. They not only add a little colour to the cover crop patch but also feed some songbirds and serve to host pollinators and other **10.** ..... insects.

Adapted from*: https://extension2.missouri.edu/g4701*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Oil derived from coconut palm is mostly used as...
- **a.** food additive.
- **b.** livestock feed.
- **c.** fibre.
- **d.** cooking oil.

2. The major driver of deforestation is the expansion of the...
- **a.** olive tree.
- **b.** coconut palm.
- **c.** cotton plant.
- **d.** oil palm.

3. Olive trees need...
- **a.** mild winters and warm, dry summers.
- **b.** cold winters and hot summers.
- **c.** warm winters and long, rainy summers
- **d.** mild winters and hot, humid summers.

4. Which statement about pruning olive trees is false?
- **a.** Olive trees should be pruned as little as possible.
- **b.** This practice is necessary to increase productivity.
- **c.** This practice is necessary to eliminate dead wood.
- **d.** Pruning must be done after flowering.

5. Olive trees can be seriously damaged by...
- **a.** high temperatures.
- **b.** drought.
- **c.** water stagnation.
- **d.** incorrect pruning.

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Total score ...../50

U 4.2 Oil plants

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The Last Place on Earth: How Sumatra's Rainforest is Being Cleared for Palm Oil

An environmental organisation, The Rainforest Action Network (RAN), published a study in July accusing plantation owner PT Agra Bumi Niaga (ABN) of growing oil palms on illegally deforested land in the Leuser ecosystem, in northern Sumatra.

This ecosystem, which covers 2.6 million hectares of peatlands and forests, is the last place on Earth where Sumatran orangutans, elephants, tigers and rhinos coexist in the wild, and is home to more than 200 mammal and 500 bird species, many of which cannot be found anywhere else in the world. Known as the "last place on Earth" for its unique biodiversity, it is key to the future of critically endangered species.

The area is being damaged not only by palm plantations, but also by pulp production and infrastructure projects such as hydroelectric dams. The Gayo Lues dam in Tampur, for example, has been approved by the committee responsible for reviewing environmental impact, yet the project involves flooding 4,000 hectares of the Leuser ecosystem and relocating dozens of families.

"The human disturbance inside this national park is happening at an alarming rate; it is suffering an increasing rate of deforestation," says Arief Wijaya, World Resources Institute Indonesia's senior manager for climate and forest. "The roles of local government need to be strengthened, and law enforcement should take place more strongly," Wijaya says. "Without strengthened law enforcement, and more attention from the government to preserve this ecosystem, it will soon disappear, or at least become very scarce."

Adapted from*: https://www.theguardian.com/.../last-place-on-earth-deforestation*

	T	F
1. The ABN company has planted oil palm trees in the north of Sumatra.	☐	☐
2. The Rainforest Action Network has deforested large areas to grow oil palm trees.	☐	☐
3. The Leuser ecosystem is characterised by large plantations.	☐	☐
4. The Leuser ecosystem is called the last place on Earth where endangered species coexist.	☐	☐
5. Most species living in this area can also be found in other parts of the world.	☐	☐
6. The project of building a dam will cause greater damage to this area.	☐	☐
7. The environmental impact committee has blocked the Gayo Lues Dam project.	☐	☐
8. The national park deforestation is expanding quickly.	☐	☐
9. Local government actions must be implemented.	☐	☐
10. The World Resources Institute is responsible for the disappearance of this ecosystem.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. The most important oilseed producing areas are...
2. Cotton is grown for...
3. Oil derived from the coconut palm kernel is...
4. Olive trees need mild winters and...
5. The olive fly infestation can...

a. mostly used as livestock feed.
b. both seed and fibre.
c. compromise olive oil acidity.
d. long, warm, dry summers.
e. in the temperate zones.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What does a biological intervention against olive flies involve?
2. What are the negative effects of the olive peacock spot infestation?
3. What is the goal of LIFE projects?
4. What can the sunflower crop be used for?
5. What are the main products derived from canola seed?

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CLOZE TEST

4. Complete the text with the words given below.

element · gathering · indigenous · medicine · nitrogenous · oil · position · pruning · region · soils

The Olive Tree: a Protagonist of Greek Nature

Greece is full of olive groves. The **1.** ..... olive tree first appeared in the eastern Mediterranean, but it was in Greece that it was first cultivated. Since then, the presence of the olive tree in the Greek **2.** ..... has been uninterrupted and closely connected with traditions and culture of the Greek people.

Olive oil has always been a distinctive **3.** ..... of the country. Its systematic cultivation started in the Stone and Bronze Age. Olive oil production held a prominent **4.** ..... in the Cretan Minoan and the Mycenaean society and economy, as shown by excavations and findings. Apart from the financial gains,

the olive tree was worshipped as sacred and its **5.** ....., besides being offered to the Gods and the dead, was also used in the production of perfume, **6.** ....., and in daily life as a basic product in diet, lighting and heating. This crop shows a marked preference for calcareous **7.** ....., limestone slopes and sea breeze. Careful **8.** ..... is practised in order to preserve the flower-bearing shoots of the preceding year, while keeping the head of the tree low, so as to allow the easy **9.** ..... of the fruit; a dome or rounded form is generally the aim of the pruner. The spaces between the trees are occasionally fertilised with animal manure or other **10.** ..... matter.

Adapted from*: www.sfakia-crete.com*

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MULTIPLE CHOICE

5. Choose the correct option

1. Olives need to have...
- **a.** small amounts of water.
- **b.** huge amounts of water.
- **c.** adequate amounts of water.
- **d.** water diffused in a small quantity as vapour.

2. A common cooking oil is produced using...
- **a.** canola seed.
- **b.** cotton seed.
- **c.** copra.
- **d.** flaxseed.

3. Which statement about cover crops is false?
- **a.** They act as a windbreak.
- **b.** They reduce soil erosion.
- **c.** They improve soil fertility.
- **d.** They help control *Xylella fastidiosa.*

4. Olive tree fertilisers...
- **a.** should be fed in high quantities.
- **b.** are mostly NKP compounds.
- **c.** should be applied during the harvesting period.
- **d.** are specifically produced.

5. Olive oil in Italy is mostly produced in...
- **a.** Piedmont, Aosta Valley and Liguria.
- **b.** Apulia, Calabria and Sicily.
- **c.** Sardinia, Campania and Umbria.
- **d.** Tuscany, Emilia Romagna and Veneto.

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Total score ...../50

U 4.3 Vineyards

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The Origin of Grapes

Grape culture (or viticulture) is probably as old as civilisation itself. Archeological evidence suggests humans began growing grapes as early as 6500 BC during the Neolithic era. By 4000 BC, grape growing extended from Transcaucasia to Asia Minor and through the Nile Delta of Egypt. King Hammurabi of Babylon probably passed the world's first liquor law when he established rules for wine trade in 1700 BC.

The Hittites are credited with spreading grape culture westward as they migrated to Crete, Bosporus and Thrace, as early as 3000 BC. Later, the Greeks and Phoenicians extended grape growing to Carthage, Sicily, southern Italy, Spain and France. Under the influence of the Romans, grape production spread throughout Europe.

At the time of the fall of the Roman Empire, grape culture and wine making were associated primarily with monasteries. Later, the use of wine extended beyond religious rites and became a social custom. This increased the demand for grapes, and grape culture grew steadily from the 16th to the 20th century.

In 1655, the Dutch took grapes along with them to the Cape of Good Hope, where the *Vitis capensis* soon became a native species. The European grapes were brought to America by the Spanish and the Portuguese. In 1700, the Spanish introduced grape cultivation to California. Since then, many different species have been cultivated there. As a result, California now produces nearly 90% of the total crop in America. Today, there are more than 200 wineries in Napa Valley, California, making it the area with the highest concentration of wineries in the world.

Adapted from: *https://ipm.missouri.edu/MEG/2013/8/Grapes-A-Brief-History*

	T	F
1. Neolithic people started growing grapes.	☐	☐
2. The first law for the wine trade was passed in 4000 BC.	☐	☐
3. Grape cultivation was diffused in Crete by the Hittites.	☐	☐
4. The Greeks spread grape culture to Sicily, southern Italy, Spain and France.	☐	☐
5. During Roman times, grape growing extended over European areas.	☐	☐
6. From the 16th century onwards, grape culture and wine were associated with religious rites.	☐	☐
7. *Vitis capensis* was brought to America by the Dutch.	☐	☐
8. The Spanish imported grapevines to Europe in 1700.	☐	☐
9. A lot of grape varieties are cultivated in California.	☐	☐
10. Napa Valley has the highest concentration of wineries in the world.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Good drainage is essential...	☐	**a.** used as a support for vines.
2. Trellising is a structure...	☐	**b.** in mid-May.
3. The removal of suckers is done...	☐	**c.** flowers become sterile.
4. In case of heavy infestation from grape thrips, ...	☐	**d.** by red spider mites.
5. Photosynthesis is severely damaged...	☐	**e.** for the best growth of vines.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What is the primary cultivated grape species in the global wine industry in Europe?
2. What factors affect vine cultivation?
3. In the case of cordon spur pruning, can all vineyard operations be mechanised?
4. What is the most common training system in the case of warm, dry climates?
5. What can endanger the vigour of grapevines?

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CLOZE TEST

4. Complete the text with the words given below.

coastal · disadvantage · diverse · material · microclimates · nutrients · rootstocks · selected · varieties · vines

Vine Growing in South Africa

The wine industry in South Africa is undergoing an exciting period of change. Winemakers are experimenting new **1.** ..... of vine, as well as new clones of existing varietals such as Chardonnay and Cabernet Sauvignon. New clones and **2.** ..... which are particularly well adapted to the local soil and climatic conditions are being **3.** .....

As in other New World countries, it is hard for viticulturists to match vine varieties to soils and **4.** ..... in order to achieve the best results. The soils of the South African wine regions are highly **5.** ....., mainly due to pronounced differences in topography and geology. In the **6.** ..... zone, the general pattern is sandstone mountains, resting on granite intrusions and surrounded by shale at lower altitudes, whereas further inland, shale parent **7.** ..... and river deposits usually predominate. Not all soils in the Cape Winelands are fertile, but this is not necessarily to be perceived as a **8.** ..... Rich soils can produce over-vigorous **9.** ..... which can yield grapes lacking in character and complexity. Vines thrive in poor soils and are capable of putting down roots to a depth of several metres in search of **10.** ..... and water.

Adapted from: *http://vineyardvarieties.com/south-africa*

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MULTIPLE CHOICE

5. Choose the correct option.

1. A vineyard is a/an…
- **a.** place where wines are kept for many years.
- **b.** place where vines are planted to produce grapes.
- **c.** part of the plant used to grow a new plant.
- **d.** establishment where wine is made.

2. Grape leafhoppers…
- **a.** are rodents.
- **b.** overwinter inside the trunk.
- **c.** compromise the plant's ability to produce fruits.
- **d.** feed on berries.

3. All vines infected by grape *phylloxera*…
- **a.** must be removed.
- **b.** must be grafted onto *Vitis labrusca*.
- **c.** have translucent leaves.
- **d.** have no galls.

4. A dusty white layer on leaves, buds, young shoots, fruits and flowers implies…
- **a.** downy mildew infection.
- **b.** *phylloxera* infection.
- **c.** powdery mildew.
- **d.** grey mould infection.

5. Pinching back…
- **a.** is accomplished in early spring.
- **b.** is effective in the dormant season.
- **c.** is effective only in the dormant season.
- **d.** prevents foliage production at the expense of fruit.

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Total score ...../50

U 4.3 Vineyards

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Table Grapes

Compared to wine grapes, table grapes usually have larger berries and firmer pulp. These characteristics make table grapes less liable to spoil during shipping, since they will not wilt and crush as easily. They usually also have loose bunches and thicker skin, which makes them easy to eat. Another important characteristic of table grapes is the presence of aromatic compounds which are mainly absent in wine-producing varieties.

The most cultivated table grapes are selected according to specific criteria, such as shape and colour, presence of seeds, skin thickness, maturity period, resistance against diseases and pests, transportability and storage period.

Genetic research worldwide has been moving towards the establishment of new cultivars to satisfy market demand and consumers' tastes. The goal is to produce seedless varieties that, in addition to having suitable characteristics for adapting to various environments, also have the characteristic of being less susceptible to transport damage. Another important aspect of seedless grapes is that they are suitable for food industry processing. At the same time, certain varieties have been abandoned as their physical, quantitative and qualitative characteristics did not correspond to market needs and consumer tastes.

Added value could be created in this sector by targeting markets where local production is not available in the given period. Extending the maturity period is therefore required, and different viticultural methods have been developed to achieve this. Vineyard covering practices or greenhouses, for example, are used in table grape production to accelerate or delay grape maturity, thus allowing Northern Hemisphere harvests to begin as early as July and extend through to December.

Adapted from*: https://www.oiv.int/public/medias/5116/booklet-fao-oiv-grapes-focus.pdf*

	T	F
1. Wine grapes usually have firmer pulp than table grapes.	☐	☐
2. Table grapes are more susceptible to damage during transport.	☐	☐
3. Wine-producing varieties are mostly aromatic.	☐	☐
4. Shape and colour of berries as well as skin thickness are important criteria in selecting table grapes.	☐	☐
5. New cultivars are being created to fulfill market requirements.	☐	☐
6. Seedless varieties are disregarded.	☐	☐
7. Seedless grapes are more suitable to be processed.	☐	☐
8. Some varieties are no longer grown as they do not satisfy consumer tastes.	☐	☐
9. The maturity period can be brought forward or delayed.	☐	☐
10. In the northern hemisphere grapes may be harvested in July.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Pruning is necessary... ☐
2. In the Southern hemisphere, grapes are harvested... ☐
3. Pinching back consists in... ☐
4. Phyto-sanitary treatments are usually made... ☐
5. Vines infected by *phylloxera* should be removed... ☐

a. to limit the spread of pathogen to healthy plants.
b. from April to September.
c. removing the shoot tips to reduce foliage production.
d. from mid-February until early March.
e. to regulate both vegetative growth and fruit production.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What geographical area is *Vitis labrusca* native to?
2. What influences the choice of a specific training system?
3. What is the advantage of lifting the grapes higher above the ground?
4. What is attracted to grapes?
5. Why is leaf infection by powdery mildew dangerous?

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CLOZE TEST

4. Complete the text with the words given below.

cultivated · harvest · native · range · ripening · skin · varieties · vines · vineyards · winegrowing

Italy's Top 5 Red Grape Varieties

Grapes have been cultivated in Italy since the second millennium before Christ, and there is no Italian region that does not have its own **1.** ..... . From north to south, in the hills, on the plains, in the mountains, even on the smallest islands, **2.** ..... grow luxuriantly. Thanks to its geographical conformation and history, Italy is the country in the world with the greatest **3.** ..... of grape varieties. Here are the five most famous grape varieties in Italy.

Nebbiolo is a red grape variety **4.** ..... to Piedmont; it probably owes its name to the fog that is common in the Langhe areas during **5.** ..... time. Corvina is a red grape variety indigenous to Veneto; it owes its name to the very dark colouring of the **6.** ..... of its berries, which appears almost black just like the bird with the same name. Sangiovese is the most widely grown red grape variety in Italy, occupying about 11 percent of Italy's **7.** ..... area. It is also one of the oldest grape varieties, already known in Etruscan times.
Aglianico and Primitivo are red grape **8.** ..... widespread throughout the southern Italy. The name Aglianico probably comes from the Greek word *Hellenico* with a Spanish pronunciation following the domination of the Aragonese in southern Italy. Primitivo is mostly **9.** ..... in Apulia. The grape variety's name comes from the earliness of **10.** ..... of its grapes; in fact, it is harvested in late August and early September.

Adapted from*: https://theitalianclub.eu/it/blogs*

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MULTIPLE CHOICE

5. Choose the correct option.

1. *Vitis vinifera*...
- **a.** is the most common species of wine grape.
- **b.** does not include cultivars.
- **c.** is used for grape-flavoured soft drinks.
- **d.** has a short shelf life.

2. Grape *phylloxera*...
- **a.** is dangerous to any vineyard planted with grafted rootstock.
- **b.** is a grapevine pest which spread throughout Europe in the 18th century.
- **c.** can be cured using Bordeaux mixture.
- **d.** cannot be cured with a pesticide treatment.

3. Which statement is true?
- **a.** Tall vine trunks in wet climates increase fungal infections.
- **b.** Short vine trunks reduce the vine exposure to the sun.
- **c.** Widely spaced vines increase the vine's ability to access nutrients from the soil.
- **d.** Closely spaced vines limit production but improve quality.

4. The pergola training system...
- **a.** cannot protect the vine from winter frost.
- **b.** needs an iron-wire trellis.
- **c.** needs a wood or stone support structure.
- **d.** is usually adopted in hot climatic areas.

5. Desuckering is useful to...
- **a.** help the plant store nutrients.
- **b.** remove non-fruitful young shoots.
- **c.** contrast any fungal diseases.
- **d.** remove flowering canes.

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Total score ...../50

U 4.4 Gardening and landscaping

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The Botanical Garden in Padua

The world's first university botanical garden was created in Padua in 1545, which makes it the oldest surviving example of this type of cultural property. The garden was enriched with plants from around the world where the Venetian Republic had commercial activities, thus bringing a rich variety of exotic and rare species to Padua. The Botanical Garden of Padua represents the birth of botanical science and of scientific exchanges.

The garden is still in its original location, where it was established in the grounds of a Benedictine order, which had already been using plants to make tinctures and teas as remedies for centuries. It preserves its original layout, a circular central plot symbolising the world surrounded by a ring of water representing the ocean. Other elements were added later: architectural, such as ornamental entrances and balustrades, and practical, such as pumping installations and greenhouses.

It houses two important collections: the library, which contains more than 50,000 volumes and manuscripts of historical and bibliographic importance, and the herbarium, which is the second most extensive in Italy.

It has represented a source of inspiration for many other gardens in Italy and around Europe and has influenced both their architectural and functional designs as well as their didactic and scientific approaches in medicinal plants studies and related disciplines.

Even nowadays its herbarium and library can be numbered among the most important in the world. Its position, size and main characteristics, as well as its main research and didactic features, have remained essentially unchanged over the centuries, with a constant adaptation to the most advanced discoveries in botanical and educational sciences. In 1997 it was inscribed on the World Heritage List as a cultural treasure.

Adapted from: *http://whc.unesco.org/en/list/824*

		T	F
1.	Many botanical gardens similar to the one in Padua date back to the same period.	☐	☐
2.	Exotic and rare species were imported from countries where the Venetian Republic had trading business.	☐	☐
3.	The garden was founded on the property of a monastic order.	☐	☐
4.	Its central area symbolises the ocean.	☐	☐
5.	Its greenhouses were included in the original estate.	☐	☐
6.	The botanical garden has contributed to enhance the exchange of plants and scientific knowledge.	☐	☐
7.	The botanical garden houses the most extensive Italian herbarium.	☐	☐
8.	The botanical garden has influenced medicinal plant studies in other Italian and European gardens.	☐	☐
9.	Its layout has been completely renovated.	☐	☐
10.	It has been listed as a World Heritage property since 1997.	☐	☐

 Name ..... Class ..... Date .....

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SENTENCE COMPLETION

2. Complete the sentences.

1. Greenhouses provide suitable environmental conditions for .....
2. Floriculture, or flower farming, offers careers in .....
3. Green roofs help to .....
4. The Italian Renaissance garden emerged .....
5. The modern informal garden was built on .....

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. How did the English garden move away from Renaissance formality?
2. How innovative were W. Robinson and G. Jekyll?
3. What is a natural landscape made up of?
4. What does horticulture deal with?
5. What plants can survive in a semidormant state over long unfavourable seasons?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

bush · foliage · hybrid · medicinal · pest · pruning · roses · shrubby · spring · winter

***Alba* Roses**

Alba roses comprise an ancient group of **1.** ..... that have been in existence since classical times and were widely grown in the Middle Ages for **2.** ..... purposes. They are thought to have been brought to Britain by the Romans. A natural **3.** ..... between the damask rose and rosa canina, they are tall, **4.** ..... plants, disease proof, and extremely winter hardy. Although they bloom only once a year, in the late **5.** ..... or early summer, they are very vigorous and **6.** ..... resistant. The word *Alba* means white, but this lovely rose also comes in shades of pink. Albas are wonderfully fragrant and have distinctive grey-blue green **7.** ..... They have an ability to grow well even in the most difficult situations, including light shade. However, they do require dormancy in the **8.** ..... Albas can be trained to grow as climbers and appreciate some **9.** ..... of the longest and oldest canes once grown into a mature **10.** ..... This will result in new canes being produced from the bottom of the bush.

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MULTIPLE CHOICE

5. Choose the correct option.

1. A cultural landscape...
- **a.** has been modified by humans.
- **b.** consists of biotic factors only.
- **c.** consists of abiotic factors only.
- **d.** consists of different landforms.

2. Herbaceous plants...
- **a.** are permanent plants in the garden design.
- **b.** are transitory elements in the garden design.
- **c.** require less labour than shrubs and bushes.
- **d.** include bulbous plants.

3. The French garden style...
- **a.** refused strict geometric and symmetric layouts.
- **b.** was inspired by the Romantic movement.
- **c.** promoted a more informal mixture of native and exotic plants.
- **d.** was influenced by Italian Renaissance.

4. What is not true about the Italian Renaissance garden?
- **a.** It was inspired by classical ideals of order and beauty.
- **b.** It housed plenty of flowers.
- **c.** It included mainly evergreens and conifers.
- **d.** It adopted the use of topiary art.

5. A climber is...
- **a.** a plant shedding its leaves annually.
- **b.** a low-growing, spreading plant.
- **c.** any plant that grows climbing up trees.
- **d.** a plant which lives only for a year.

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Total score ...../50

U 4.4 Gardening and landscaping

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Green Roofs

Green roofs and roof gardens date back thousands of years. In ancient times, they consisted of turf roofs covered with earth and plants which provided protection from the elements, good insulation during the winter months, and a cool location in the summer.

The original inspiration for contemporary green roofs came from Iceland, where turf roofs and walls have been used for hundreds of years. The turf roofs soon became popular throughout cold Scandinavia: Norwegians used soil on roofs as insulation, utilising grasses and other species to hold the soil in place.

Modern green roofs are made of a system of manufactured layers placed over roofs, making them waterproof while supporting growing medium and vegetation. Unlike former "green roofs", this system offers reliable technology that provides sophisticated irrigation and protection against root penetration. Germany is known as the birthplace of modern-day green roof systems. It all started during the oil crisis of the 1970s, when West Germany explored lightweight adaptations of turf roofs for the purpose of energy conservation.

Since then, green roofs have been praised for their many benefits as cost-effective solutions for urban environmental problems and have become popular in North America and South-East Asia and, in particular, throughout Europe. We also see positive movement in the Middle East, the United Arab Emirates leading the way.

There's no doubt that in the historical sense, green roofs were created either because of convenience or to create something aesthetic the owner could enjoy, but, in more recent years, architects, builders, and city planners have begun turning to green roofs not for their beauty but for their practicality, their ability to mitigate the environmental extremes common on conventional roofs, and to create a better place to live for the local population.

Adapted from: *http://blog.green-urbanscape.com*

	T	F
1. Early green roofs provided good thermal insulation.	☐	☐
2. Ireland boasts a great tradition of green roofs.	☐	☐
3. Green roofs helped preserve heat in Norwegian houses.	☐	☐
4. Modern green roofs are waterproof thanks to a system of manufactured layers.	☐	☐
5. Sophisticated irrigation is supplied.	☐	☐
6. Modern green roofs have been used in Germany since the 1960s.	☐	☐
7. Green roofs are not worthwhile.	☐	☐
8. The United Arab Emirates disregard green roofs.	☐	☐
9. Early green roofs were created to satisfy aesthetic requirements, too.	☐	☐
10. Nowadays, architects are mainly focused on the usefulness of green roofs.	☐	☐

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 Name ..... Class ..... Date .....

SENTENCE COMPLETION

2. Complete the sentences.

1. Landscape policy aims at .....
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2. The English garden emerged in .....
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3. The main goal of the French gardening style was .....
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4. Permanent plants grown in a garden include .....
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5. Downsides of both green roofs and walls are .....
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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What inspired the French garden style?
2. Whose ideas had an immense impact on modern gardening?
3. What does floriculture study?
4. How are herbaceous plants divided?
5. Why are green roofs useful?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

arborists · biodiversity · green · horizontal · microclimate · mountain · nature · oxygen · summer · trees

A Vertical Forest in Milan

The first example of a vertical forest, inaugurated in October 2014 in Milan, consists of two residential towers of 80 and 112 metres. They host 800 **1.** ....., 11,000 perennial and covering plants and 5,000 shrubs, that is the equivalent – over an urban surface of 1,500 m^2 – of 20,000 m^2 of **2.** ..... forest. The development of such vertical forests creates a network of environmental corridors and increases **3.** ..... spaces in the city. In other words, they create an urban ecosystem linking urban life and **4.** .....

The plants in the building are protected from the Mediterranean sun during **5.** ..... During winter, the trees allow the sunlight to warm the interiors. The plants also become home to various insects, birds and animals, increasing **6.** .....

The diversity of plants helps to develop the **7.** ..... which produces humidity, absorbs CO_2 and fine particles, produces **8.** ....., and protects against radiation and noise pollution.

How do you actually maintain a forest on a skyscraper? A team of "flying gardeners", specialised **9.** ..... who are also expert climbers, periodically descend the edifice like professional climbers, hanging from ropes just as if they were climbing a **10.** ..... face.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Formal gardens are represented by…
- **a.** French gardens.
- **b.** English gardens.
- **c.** German gardens.
- **d.** cottage gardens.

2. A natural landscape…
- **a.** consists of different landforms.
- **b.** cannot vary.
- **c.** consists of biotic factors only.
- **d.** consists of abiotic factors only.

3. Horticulture deals with …
- **a.** ornamental plants and flowers.
- **b.** garden crops, fruits, vegetables, and ornamental plants.
- **c.** fruits and vegetables only.
- **d.** flowers and foliage plants.

4. What is not true about greenhouses?
- **a.** They provide favourable climatic conditions for plant growth.
- **b.** They are used for controlling temperature, humidity and light intensity.
- **c.** They are used to produce early vegetables and off-season crops.
- **d.** They are made of a material which stops solar radiation.

5. Vertical gardens are…
- **a.** made of very high trees.
- **b.** on the top of buildings.
- **c.** also called green walls.
- **d.** also called green roofs.

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Total score ...../50

U 5.1 Food production

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Can Eating Habits Affect the Environment?

What we eat every day can have big environmental implications. Producing food can use a lot of energy (producing greenhouse gas emissions), and the distance that food travels to get to you also produces greenhouse gases.

Reducing the amount of pre-packaged and processed food that we eat, buying fresh fruit and vegetables that are in season and have not travelled too far, and avoiding food waste are all great ways to reduce the environmental impact of our food.

Residents are also encouraged to shop locally using sustainable transport, grow their own food at home, compost their food waste and recycle their food packaging.

Food miles refer to the distance travelled by the food you eat, to get from where it was grown to your home, and the resulting greenhouse gas emissions from this journey. For a jar of pasta sauce, each ingredient is calculated from its individual farm to the factory; then, the jar goes to a supermarket distribution centre, then the local supermarket, then to your home. Choosing locally grown food, growing fruit, vegetables, and herbs at home or in a community garden, travelling locally and sustainably to purchase your food and choosing less processed food are all great ways to reduce your food miles.

Considering the food miles your food has travelled is an important consideration, but it is not always the only means of assessing the environmental impact of what you eat. For example, meat and dairy are very resource intensive in comparison to fruit, vegetables, and grains when we consider the water, energy and fertiliser needed to grow the feed as well as the animal, and the water and energy involved in processing, packaging, and transport. Eating one less serving of meat (150 g) a week could save 10,000 litres of water and 300 kg of greenhouse gas a year.

	T	F
1. Greenhouse gas emissions are increased by the production of food.	☐	☐
2. We can reduce the environmental impact of our food if we consume fruit and vegetables out of season.	☐	☐
3. Reducing or recycling food packaging is environmentally friendly.	☐	☐
4. It is advisable to buy food in large supermarkets, even if they are far away.	☐	☐
5. The total distance in miles the food item travels from field to plate is called field miles.	☐	☐
6. The best option to reduce pollution is to select the least efficient modes of food transport.	☐	☐
7. Buying local produce would lower carbon emissions.	☐	☐
8. The environmental impact of our eating habits is only related to food miles.	☐	☐
9. Fruit and vegetables are crops which require the maximum use of resources.	☐	☐
10. If we reduce our consumption of meat, we could reduce our water waste.	☐	☐

 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. In the past, wood smoke prevented…
2. Ice houses were the precursors…
3. In freeze-drying, food is first frozen and…
4. Specific food additives prevent…
5. Ultraviolet-C technology eliminates bacteria…

a. the impact on food of microorganisms.
b. without using heat or chemicals.
c. of refrigerators.
d. then placed in a vacuum chamber.
e. food spoilage.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What characterises industrial food products?
2. How could food be dried in a natural way?
3. What are the benefits of fermentation?
4. What do preservation methods aim at doing?
5. What are X-rays and gamma rays used for?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

crystals · dehydrate · flavour · food · heat · method · salt · spoil · spoilage · water

How to Preserve Food with Salt

Salting is an ancient food preservation **1.** ..... that has been practised for thousands of years.

Before the days of refrigeration and the modern **2.** ..... treatments that are used to prolong the shelf life of foods, salt was one of the main methods used to preserve **3.** ..... Without it, people were subject to having to consume food quickly before it would **4.** ..... Then, thanks to salting, people were able to store food and build up reserves that would last in times of scarcity.

Still in use even in modern times, this method of preservation confers a unique and delicious **5.** ..... to food, whose refinement derives from its high degree of salinity. To understand why **6.** ..... preserves, let us consider a piece of meat placed in a terrine and covered with cooking salt. After a few minutes, we see the salt **7.** ..... "disappear". They do not disappear; they simply expel **8.** ..... to the point that they melt completely. This is a physical-chemical phenomenon called "osmosis" whose function is to **9.** ..... the meat, which means to remove water, comprising the bacteria responsible for food **10.** .....

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MULTIPLE CHOICE

5. Choose the correct option.

1. Some of the oldest methods of food preservation date back to…
- **a.** the Middle Ages.
- **b.** 3000 BC.
- **c.** the 17th century.
- **d.** 5000 BC.

2. Bacteria spoiling food may be killed by…
- **a.** smoking.
- **b.** freezing.
- **c.** washing.
- **d.** sterilising and sealing.

3. Canning is a preservation method…
- **a.** in which the food is sealed in an air-tight container.
- **b.** which speeds up the bacteria's action.
- **c.** which removes liquid material from a solution.
- **d.** which prevents sprouting.

4. Vacuum-drying…
- **a.** is a slower preservation method than air drying.
- **b.** is a process which removes water from the food.
- **c.** means storing fresh food in a dry environment.
- **d.** slows down the impact of bacteria.

5. The technology using short electricity pulses for microbial inactivation is…
- **a.** PEF.
- **b.** MAP.
- **c.** Ultraviolet-C.
- **d.** ultrasound.

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Total score ...../50

U 5.1 Food production

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and answer the questions.

The Modern Food Philosophy: Ready Meals

If you find it difficult to prepare a hot meal for yourself, and can use an oven or microwave, you could consider buying ready meals from any supermarket or order them on the phone or via the Internet and have them delivered free to your home.

They are not the healthiest of food choices as they usually contain a lot of salt and added sugar to make them tastier, as well as artificial colourings, flavourings and preservatives, without which the food would only last a few days in the fridge before it went off.

Ready meals have been criticised as unhealthy, unappetising and expensive, but they are more popular than ever. Latest research shows that ready meals are still in vogue, since their market in the five largest European countries has been increasing.

European consumers' eating habits are constantly evolving, leading to new attitudes and consumption trends. This phenomenon marks a profound sociological change, both in the individual approach to food and the structural approach to market organisation.

The UK ready-meals market is the largest when compared to Germany, France, Italy, and Spain. As regards Italians, we can say that, although their diet remains typically Mediterranean, their eating habits are changing in favour of a greater use of ready-made foods. Sales of ready meals and other pre-prepared foods are growing fast, as is the number of companies that are entering this lucrative market. Demand for processed added-value foods is driven by young people and families with children who have less time for cooking. However, Italians remain fundamentally conservative in their tastes and eating habits and the rise of ready meals is well below the European average.

1. How can you get ready meals?

2. Why are they considered unhealthy?

3. What are the main objections to ready meals?

4. What is the trend of their market in the five largest European countries?

5. What is the effect of the evolution in eating habits?

6. What does this imply?

7. Where is the largest ready-meals market?

8. Who are the typical customers of the ready meal market?

9. What is the level of the ready meals market in Italy?

10. In short, how can Italian eating habits be defined?

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 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Quick-freezing stops the action of bacteria in food… ☐
2. Dehydration was mainly used… ☐
3. Food preservation aims at preventing… ☐
4. Artisanal food is produced… ☐
5. Some spices preserve food thanks to… ☐

a. the growth of microorganisms and food spoilage.
b. in small batches.
c. to dry fruit, vegetables, and herbs.
d. their antibacterial and antifungal properties.
e. without destroying nutritional substances and vitamins.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. When can artisanal production be considered eco-friendly?
2. How can the ingredients of industrial food be described?
3. What may food spoilage be caused by?
4. What containers are used for canning methods?
5. What is the major application field of ultrasound technology?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

boiling · eating · growth · harm · hot · microbes · products · refrigerator · resistant · temperature

How to Kill Microbes

Microbes are responsible for creating some of our most enjoyable food **1.** ..... such as cheese, bread, yogurt, and beer. But other microbes – such as salmonella, listeria, or E-coli 0157 – can do us a great deal of **2.** ...... In the UK alone, there are more than 10 million cases of gastroenteritis each year, caused by **3.** ..... and drinking food contaminated by microbes.

One of the characteristics of **4.** ..... is that they are very sensitive to temperature. Many of them do not like cold temperatures. Many of them do not like **5.** ..... temperatures. So we can preserve food by changing its temperature and one way to do this is just put food in a **6.** ..... You must remember that if you refrigerate food – and the microbes on it – you only slow down the **7.** ..... of microbes, you do not actually kill them. We also boil food, but **8.** ..... does not kill all the microbes, just most of them. Some bacteria are **9.** ..... to the temperature of boiling water, which is at 100°C. To get rid of them, you need to raise the **10.** ..... to about 121 degrees. But you can only do this by heating water under pressure.

Adapted from*: https://www.britannica.com/video/186469/overview-food-preservation*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Food preserved by freeze-drying is…
- **a.** first smoked and then frozen.
- **b.** first frozen and then placed in a vacuum chamber.
- **c.** first frozen and then boiled.
- **d.** first dried and then frozen.

2. Which statement is not true?
- **a.** Salt adds flavour and acts as a preservative.
- **b.** Salt is used to store meat or fish without refrigeration.
- **c.** Salt speeds up food ageing and spoiling.
- **d.** Salt is used to desiccate foods.

3. Physical preservation methods do not include…
- **a.** thermal processing.
- **b.** irradiation.
- **c.** water and air controlling.
- **d.** food additives and preservatives.

4. Industrial products are appreciated by customers because…
- **a.** they are not standardised.
- **b.** they are produced in small batches.
- **c.** they use local ingredients.
- **d.** they have high hygiene standards.

5. In canning, new bacteria may get in when the can is…
- **a.** opened.
- **b.** sealed.
- **c.** boiled.
- **d.** stored.

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Total score ...../50

U 5.2 Dairy products

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Homogenised Milk Myths

Nearly every aspect of cow's milk inspires debate: its fat, protein and sugar (lactose) content, the hormone residues it may contain, the pasteurisation process it undergoes, and even its very suitability for human consumption. But what could be wrong with homogenised milk?

When cow's milk is not homogenised, its fat separates out, producing a layer of cream on top. Developed in the late 19th century, commercial homogenisation is a mechanical (not chemical) process that breaks up the fat globules to such a small size that they remain suspended evenly in the milk, producing a uniform (homogeneous) consistency. It also gives milk a longer shelf life.

According to its detractors, homogenised milk contributes to heart disease, diabetes and other chronic disorders as well as allergies, largely by boosting the absorbability of an enzyme in milk called xanthine oxidase (XOD). They claim that the resulting higher blood levels of XOD increase disease-promoting inflammatory processes. While it's true that elevated activity of XOD (along with other enzymes) produced in the body can increase inflammation, the adverse effects of XOD in milk remain theoretical.

The notion that homogenisation, and milk's XOD in particular, is a health hazard was originally disproven by researchers from the University of California at Davis in a paper published in the American Journal of Clinical Nutrition back in 1983. Studies have shown that homogenisation actually improves the digestibility of milk and that it does not boost the risk of milk allergy or intolerance in children or adults. Over the years, nearly all the fears about milk have proven to be unfounded. Various studies have linked dairy products – possibly even whole milk, despite its saturated fat – to a reduced risk of cardiovascular disease. Researchers continue to examine the effects of various milk components on the risk of heart disease and on health in general. So far, there's no convincing evidence that homogenisation is an issue.

Adapted from: *https://www.mydiamonddental.com/homogenized-milk-myths-busted*

	T	F
1. People are concerned about cow's milk and its treatments.	☐	☐
2. Homogenised milk has got larger fat particles.	☐	☐
3. Homogenisation favours the separation of milk fat from the fluid milk.	☐	☐
4. A lot of chronic disorders may be caused by greater absorption of XOD milk enzyme.	☐	☐
5. High levels of XOD in the body can increase inflammatory processes.	☐	☐
6. It has been widely proved that the enzyme XOD present in milk has negative effects.	☐	☐
7. Researchers from the University of California confirmed that homogenised milk is a health hazard.	☐	☐
8. Homogenisation may increase allergy or intolerance to milk.	☐	☐
9. The risk of cardiovascular disease may be reduced thanks to dairy products.	☐	☐
10. Research on the effects of milk on health is still going on.	☐	☐

 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. To obtain milk powder, milk is homogenised, heat-treated and…

2. Heat treatments for milk kill…

3. Buttermilk is the liquid left behind…

4. Rennet is a substance derived from…

5. The cream is put in a cool ageing tank and then…

☐ **a.** transferred into a churn and shaken.

☐ **b.** the fourth stomach of calves.

☐ **c.** harmful bacteria.

☐ **d.** pre-concentrated before drying.

☐ **e.** after churning butter out of cream.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What minerals does milk contain?

2. What does the composition of fatty acids in milk depend on?

3. What is the most popular method of heat treatment for milk?

4. How long can condensed milk be preserved for?

5. How must dried milk powder be used after being rehydrated?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

barbarians · butter · celebration · consumption · cooking · medicinal · merchants · store · tax · weather

The History of Butter

Butter is as old as Western civilisation. In ancient Rome, it was **1.** ....., swallowed for coughs or spread on aching joints. In India, Hindus have been offering Lord Krishna tins full of clarified **2.** ..... for at least 3,000 years. In the Bible, butter is a food for **3.** ..... first mentioned when Abraham and Sarah offer three visiting angels a feast of meat, milk and the creamy yellow spread.

Although some of the earliest records of butter **4.** ..... come from Roman and Arabian sources, Mediterranean people have always favoured oil in their **5.** .....

Butter, it seems, was the fat of choice for the tribes of northern Europe, so much so that a Greek poet derisively referred to **6.** ..... from the north as "butter-eaters".

Climate likely played a key role in regional tastes, as the cool **7.** ..... at northern latitudes allowed people to **8.** ..... butter longer than Mediterranean cultures could. By the 12th century, the butter business was booming across northern Europe. Records show that Scandinavian **9.** ..... exported tremendous amounts each year, making the spread a central part of their economy. Butter was so essential to life in Norway, for example, that the King demanded a full bucket every year as a **10.** .....

Adapted from: *http://www.butterjournal.com/butter-history/*

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MULTIPLE CHOICE

5. Choose the correct option.

1. In the cheesemaking process…
- **a.** the curd is separated from the whey.
- **b.** the fat particles are broken up.
- **c.** the fat globules are separated from the liquid part.
- **d.** only whole milk is used.

2. Sterilisation kills bacteria at temperatures…
- **a.** below 0°C.
- **b.** below 60°C.
- **c.** above 140°C.
- **d.** around 72°C.

3. The chief milk protein, casein, is coagulated…
- **a.** by the action of fat.
- **b.** by the action of rennet.
- **c.** thanks to the high temperature of pasteurisation.
- **d.** thanks to the low temperature of refrigeration.

4. UHT milk is…
- **a.** ideal for children and old people.
- **b.** obtained by removing fat and fat-soluble vitamins.
- **c.** easily contaminated.
- **d.** heated at very high temperature.

5. Which statement is false about macronutrients? They are composed of…
- **a.** fats.
- **b.** proteins.
- **c.** vitamins.
- **d.** lactose.

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Total score ...../50

U 5.2 Dairy products

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

A Brief History of Cheese

As early as 8000 BC, the earliest Neolithic farmers living in the Fertile Crescent began dairy farming, which is almost as old as civilisation itself. The rise of agriculture led to domesticated sheep and goats, which ancient farmers raised for milk. But when left in warm conditions for several hours, that fresh milk began to sour. Its lactic acids caused proteins to coagulate, binding into soft clumps. Upon discovering this strange transformation, the farmers drained the remaining liquid and found the yellowish globs could be eaten fresh as a soft, spreadable meal.

The discovery of cheese gave Neolithic people an enormous survival advantage. Milk was rich with essential proteins, fats, and minerals. But it also contained high quantities of lactose – a sugar which is difficult to process for many ancient and modern stomachs. Cheese, however, could provide all of milk's advantages with much less lactose. And since it could be preserved and stockpiled, these essential nutrients could be eaten throughout scarce famines and long winters.

Under Roman rule, "dry cheese" or *caseus aridus*, became an essential ration for the nearly 500,000 soldiers guarding the vast borders of the Roman Empire.

And when the Western Roman Empire collapsed, cheesemaking continued to evolve in the manors that dotted the medieval European countryside. In the hundreds of Benedictine monasteries scattered across Europe, medieval monks experimented endlessly with different types of milk, cheesemaking practices, and ageing processes that led to many of today's popular cheeses. Parmesan, Roquefort, Munster and several Swiss types were all refined and perfected by these cheesemaking clergymen.

Eventually, this sophisticated cheesemaking tool spread around the globe, giving way to a wide variety of new, harder cheeses. Today, the world produces roughly 22 billion kilograms of cheese a year, shipped and consumed around the globe. But 10,000 years after its invention, local farms are still following in the footsteps of their Neolithic ancestors, hand crafting one of humanity's oldest and favourite foods.

Adapted from: *https://ed.ted.com/lessons/a-brie-f-history-of-cheese-paul-s-kindstedt*

	T	F
1. Ten thousand years ago Neolithic farmers started cheesemaking.	☐	☐
2. The ideal condition for milk souring was a cool temperature.	☐	☐
3. The discovery of milk transformation into something solid happened by chance.	☐	☐
4. During the process of transformation into cheese, the content of lactose increases.	☐	☐
5. Cheese gave Neolithic people a lot of advantage because it could be preserved for a long time.	☐	☐
6. Roman soldiers used to eat rations of cheese during the war campaign.	☐	☐
7. After the fall of the Roman Empire, the practice of cheesemaking was lost.	☐	☐
8. Some Benedictine monks experimented with different cheesemaking practices with poor results.	☐	☐

9. Today's popular cheeses like Parmesan or Roquefort were first experimented in

medieval monasteries. ☐ ☐

10. The yearly consumption of cheese reaches 22 billion kilograms in the world. ☐ ☐

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. During the ripening process, cheese…	☐	**a.**	by adding rennet.
2. The curd separation is obtained…	☐	**b.**	is aged in a closely monitored area.
3. Whey is the liquid residue left behind…	☐	**c.**	start fermentation in the yoghurt making process.
4. Condensed milk has…	☐	**d.**	after the formation of curd.
5. Starter cultures are necessary to…	☐	**e.**	a shelf life of two years.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Is there any relationship between curd size and cheese texture?
2. What are milk by-products called? Name some of them.
3. What are the basic compounds of butter?
4. During the cheese ripening process, what must be carefully monitored?
5. What is the aim of microfiltration?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

additives · blend · containers · flavours · ice · pasteurised · snow · syrups · vanilla · violets

A Special Blend of Dairy Products

Ice cream is a delicious way to help beat the heat on a summer's day. The history of ice cream starts with **1.** ..... . The very first version of ice cream was snow flavoured with sugar **2.** ..... poured over the top of it. These were typically found in China or Persia, and were flavoured using lemons, citrons, rosewater, and **3.** ..... . In Europe, nut and fruit flavours were favoured, with pistachio and hazelnut being particularly popular.

Ice cream is a **4.** ..... of dairy products (condensed milk, cream and butterfat), flavourings, sugar and other approved additives. The **5.** ....., which act as emulsifiers and stabilisers, are used to prevent heat shock and the formation of **6.** ..... crystals during the production process. The flavours have come a long way from the standard **7.** ....., strawberry and chocolate. By the 1970s, the International Association of Manufacturers had recorded over 400 different **8.** ..... including fruits, nuts, and even alcoholic drinks. The procedure to make ice cream is quite simple: milk, eggs, sugar and additives are blended, homogenised and **9.** ..... . The mixture is then poured into a very cold tank and whipped until smooth. The flavourings or chunks of food are then added and blended. Finally, it is packed into **10.** ..... and chilled even more.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Dairy products are made from…
- **a.** fresh or fermented cream from the churn.
- **b.** cows, goats and sheep milk.
- **c.** a mixture of milk, sugar and eggs.
- **d.** a blend of milk, sugar and fruit.

2. Shaping is the process by which…
- **a.** cheese is salted or smoked.
- **b.** cheese curd is separated from the whey.
- **c.** cheese fat is reduced.
- **d.** cheese is put into a mould to form it into a specific shape.

3. After pasteurisation, milk is…
- **a.** quickly filtered and packed.
- **b.** heated rapidly to kill all dangerous micro-organisms.
- **c.** cooled rapidly to inhibit the growth of micro-organisms.
- **d.** adulterated by adding colourings.

4. Which statement about sterilisation is false?
- **a.** It is the process of making something free from bacteria.
- **b.** It heats milk to a temperature of 200°C for two seconds.
- **c.** It kills off any micro-organisms and spores in the milk.
- **d.** It helps extend milk shelf life to three months.

5. Evaporated milk…
- **a.** is milk concentrated by evaporation without the addition of sugar.
- **b.** is essentially evaporated milk with sugar added.
- **c.** has a shelf life of three years.
- **d.** contains some beneficial digestive enzymes.

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Total score ...../50

U 5.3 The edible oil industry

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

French Walnut Oil

Walnuts from Périgord and Dordogne in France are said to produce the best oil. Their varieties (Grandjean, Marbot, Corne and Franquette) reveal their full flavour in numerous ways: cakes, wine, oil, aperitifs, salad dressing, fish, poultry, vegetables, etc.

In the French regions, walnuts are strictly graded for quality; it is even possible for one tree to have two separate grades of walnut. Since production is small, this oil is expensive.

It has a limited shelf life (about 6-12 months), either opened or unopened, so should be bought in small quantities and kept in a cool place, but not in the refrigerator.

This nut has AOC (Appellation d'Origine Contrôlée) Noix du Périgord status, which was extended across Europe in 2004, when it was awarded the AOP (Appellation d'Origine Protégée) label for fresh walnuts.

A Périgord Walnut Route (Route de la Noix du Périgord) has also been created: it goes through the walnut-producing heartlands of the Corrèze, Lot and Dordogne, with four different itineraries dedicated to four different varieties of walnuts. Here, visitors can enjoy tours and events at walnut-producing properties, mills, museums, distilleries, local markets, restaurants etc., and learn more about the nutritional qualities of this extraordinary nut.

Unlike other nut oils, unrefined walnut oil is made from nuts that are dried and then cold-pressed. A good quality walnut oil is topaz in colour, with a rich nutty taste. Taking short cuts in the production process causes the taste of the oil to vary tremendously. Some producers simply macerate the nuts in vegetable oil. Others do not roast them after grinding, while others over-filter them. These practices are all damaging to the oil: macerating gives little or no flavour to the oil; roasting is necessary for the rich nutty flavour (the label should always state that the nuts have been roasted), and too much filtering extracts too much flavour.

Adapted from*: http://theepicentre.com/ingredient/walnut-oil/*

	T	F
1. Grandjean, Marbot, Corne and Franquette are the main areas where the best walnut oil is produced.	☐	☐
2. Walnut oil is recommended with cakes, salad dressings, fish, poultry, and vegetables.	☐	☐
3. The larger the production, the higher the cost.	☐	☐
4. Shelf life is limited to 6-12 months in a cool place but not in the refrigerator.	☐	☐
5. The AOP label guarantees quality for fresh walnuts only in France.	☐	☐
6. The Périgord Walnut Route is a French tourist tour related to walnut production.	☐	☐
7. The aim of the tour is to learn more about the nutritional qualities of four different varieties of walnuts.	☐	☐
8. The colour of a good quality walnut oil is topaz.	☐	☐
9. After grinding, the nuts are roasted to give the oil a nutty flavour.	☐	☐
10. If the nuts are macerated in olive oil, the walnut oil acquires a nutty flavour.	☐	☐

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 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Extra virgin olive oil is… ☐
2. Oil defects relate to… ☐
3. Olive oil quality is set by… ☐
4. The best oils for frying have… ☐
5. Nets can be used… ☐

a. physico-chemical and organoleptic parameters.
b. a high smoke point.
c. oil of the best quality.
d. taste, colour, smell, and touch.
e. to harvest olives from trees.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What are the main factors affecting the features of olive oil?
2. How are olive oils classified?
3. What is the olive pomace?
4. What is the purpose of malaxation?
5. What are the disadvantages of unrefined oils?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

alternatives · amount · crossbreeding · levels · oil · processing · rapeseed · solvent · toxic · variety

Canola Oil: Healthy or Harmful?

Canola oil is a vegetable-based **1.** ..... found in countless foods. Many people have cut canola oil out of their diet due to concerns over its health effects and production methods. Canola oil is derived from **2.** ....., a bright yellow flowering plant species of the cabbage and mustard family. Rapeseed is very high in erucic acid, which is **3.** ..... in large amounts and is why a group of Canadian scientists in the 1970s began **4.** ..... a different variation of rapeseed. With very low **5.** ..... of erucic acid and glucosinolates (which aren't harmful but taste bitter), canola oil was developed to taste smoother and be healthier than other oils available at the time. It goes through **6.** ..... similar to other oils typically found in the American diet, such as corn, soybean and sunflower. They are all treated at high heat, and a **7.** ..... is used to extract the oil from the seed. With canola oil specifically, the chemical hexane is used as a solvent. But the little **8.** ..... of hexane is not at any sort of dangerous levels.

While there are healthier **9.** ..... – such as olive and avocado oil – canola oil is not toxic. The key to consuming canola oil is moderation. Variety helps us not only get the most nutrients, but also, if there is something in the food supply that might have a dangerous trace element, then your exposure is lower if you have a **10.** ..... of things in your diet.

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MULTIPLE CHOICE

5. Choose the correct option.

1. The degree of acidity of extra virgin olive oil is…
- **a.** very low.
- **b.** the same as other types of oils.
- **c.** very high.
- **d.** not a relevant factor.

2. Unrefined oils…
- **a.** have little nutritional value.
- **b.** are recommended for frying.
- **c.** are highly flavoured.
- **d.** are ideal for preparing delicately flavoured dishes.

3. Which statement is false?
- **a.** Harvested olives are transferred daily to the mill.
- **b.** It is important to minimise the time between picking and pressing.
- **c.** Mechanical olive-harvesting allows the integrity of fruit.
- **d.** Hand picking reduces the level of acidity in oil.

4. Oils that are extracted with chemical solvents are…
- **a.** unrefined oils.
- **b.** refined oils.
- **c.** extra virgin oils.
- **d.** healthier.

5. Separation of the oil from the olive's water is obtained…
- **a.** by chemical solvents alone.
- **b.** using shaking machines.
- **c.** using stone grinders.
- **d.** by means of natural decanting.

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Total score ...../50

U 5.3 The edible oil industry

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The Olive Oil Panel Test

Extra virgin olive oil tasting combines science and technology, as well as being an all-Italian pride in defence of quality and consumers.

It was 1980 when the International Olive Oil Council based in Madrid gave Mario Solinas the task of taking studies of olive oil from a sensorial point of view to a higher level. As director of the Institute for Olive Oil Extraction in Pescara, Solinas was the first to define the formula whereby olive oil is known as the juice made from the fruit of the olive tree.

Things have come a very long way since then and sensorial analysis is by now included in the compulsory tests used to classify olive oils under the European Regulation 2568/91.

In fact, no one would ever dream of drinking juice made from rotten or mouldy oranges. In the same way, we should certainly refuse to consume olive oils that have unpleasant odours caused by fermentation.

The introduction of the panel test placed consumers at the heart of the matter. Only perfect olives can yield quality extra virgin olive oils and the nose of appropriately trained tasters is the ideal measurement instrument for discovering defects in an olive oil, which is consequently downgraded, thereby protecting consumers.

Thanks to Mario Solinas, olive oil tasting has been transformed from an empirical practice implemented by olive oil sellers into a scientific technique.

The studies conducted by Mario Solinas were also the inspiration for the Protected Designations of Origin (PDO). In fact, if olive oils are to be certified as PDO, they must meet certain requirements, tastes and flavours that recall the territories they belong to and the typical features of such places. If the quality of extra virgin olive oil has improved over the years, it is also thanks to the skills of prominent Italian figures in the world of olive oil.

	T	F
1. The Panel Test certifies if olive oils meet quality standard.	☐	☐
2. Mario Solinas was the director of the IOC in Madrid.	☐	☐
3. According to Solinas, olive oil should be considered similar to any other fruit juice.	☐	☐
4. In 1991 the EU Regulation made the oil tasting analysis obligatory.	☐	☐
5. Olive fermentation can affect the odour of oil negatively.	☐	☐
6. Chemical analyses can identify all the defects of olive oil.	☐	☐
7. If an olive oil does not pass the sensorial analysis, it is reduced to a lower rank.	☐	☐
8. Mario Solinas has turned traditional olive oil tasting into a scientific technique.	☐	☐
9. A PDO certification is awarded only on the basis of the acidity grade.	☐	☐
10. The quality of extra virgin olive oil has basically always been the same through the course of the years.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Olive oil should be stored…	☐	**a.** is forbidden in extra-virgin oil production.
2. The use of any heat or chemical additives…	☐	**b.** in a cool place, far from any source of heat.
3. Organoleptic quality has to do with…	☐	**c.** salad dressings and vegetable seasonings.
4. Olives are usually harvested…	☐	**d.** the taste, aroma, colour and touch.
5. Walnut and hazelnut oils are perfect for…	☐	**e.** when they are changing colour from green to black.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why is timing important in olive harvesting?
2. Why should olives be transported to the mill as soon as possible?
3. How is olive oil separated from vegetable water?
4. What are the advantages of refined oils?
5. What is an oil smoke point?

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CLOZE TEST

4. Complete the text with the words given below.

companies · countries · cultivation · expansion · global · neighbouring · production · traditional · trend · varieties

Olive Oil Industry Megatrends

Historically, the olive oil industry has been concentrated in, and controlled by, Mediterranean **1.** ..... . Over the past decades there has been an **2.** ..... of the production to countries which previously were importers, such as the USA, Australia, Chile and, more recently, China and India.

While **3.** ..... in these countries is less than 2% of world production, their presence has had an impact on the **4.** ..... politics of olive oil as the new producing countries try to substitute imports with domestic products and expand into the export market. **5.** ..... producing countries, especially Spain, have expanded their production base into **6.** ..... countries such as Portugal and Morocco, as well as establishing joint ventures in South America, China and India. In China, large-scale olive **7.** ..... began in the 1960s. In the 1980s, more plants were introduced, including European **8.** ....., such as Leccino, Frantoio, Coratina and Ascolana Tenera from Italy. In Spain the aggressive growth of the industry has resulted in the acquisition of brands which traditionally were associated with Italy. This **9.** ..... has led to a softening of the association of brands with specific producing countries and has seen the growth of large **10.** ..... operating without the constraints of borders.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement is true?
- **a.** Peanut oil mustn't be used for cooking.
- **b.** Rapeseed oil does not contain any fatty acid.
- **c.** Olive oils have a medium smoke point.
- **d.** Olive oils have a much lower smoke point.

2. Extra virgin and virgin olive oil differ in…
- **a.** their sugar content.
- **b.** their acidity level.
- **c.** their fat content.
- **d.** their water content.

3. Olive oil should be stored…
- **a.** in a dark, dry place away from temperature changes.
- **b.** in a warm place to favour the decanting process.
- **c.** in a bright and dry place.
- **d.** in a humid cave to favour the formation of moulds.

4. Canola oil is made from…
- **a.** grapeseeds.
- **b.** hybrid rapeseeds.
- **c.** flaxseeds.
- **d.** corn kernels.

5. Grapeseed oil is made from…
- **a.** a hybrid variety of rapeseed.
- **b.** the germ of corn kernel.
- **c.** a variety of olives.
- **d.** a by-product of the wine making processing.

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Total score ...../50

U 5.4 Alcoholic beverages

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Guinness Beer

On the last day of December 1759, a determined young man named Arthur Guinness walked through the gate of an old, ill-equipped ale brewery in Dublin's James's Street. He had just signed a lease on the property for 9,000 years at £45 a year.

At that time, beer was almost unknown in rural Ireland, where whiskey and gin were the most readily available alcoholic drinks. In addition to ales, Arthur Guinness brewed a beer relatively new to Ireland that contained roasted barley, which gave it a characteristically dark colour. This brew was known as "porter" because of its popularity with the porters and dockworkers of Covent Garden and Billingsgate in London. "Porter" had been developed in London some years earlier and had been imported into Dublin to the detriment of local beers. Arthur Guinness produced this rich, deep drink so well, and even better than the English porter, that he eventually won a share of the English trade and revolutionised the brewing industry.

The word "stout" was added in the early 1820's as an adjective, qualifying the noun "porter". An "extra stout porter" was a stronger and more full-bodied variety. In 1825 Guinness Stout was available abroad and by 1838, Guinness St James's Gate Brewery was the largest in Ireland. In 1881, the annual production of Guinness had surpassed one million barrels a year and by 1914, St James's Gate was the world's largest brewery.

Today, Arthur Guinness would have been proud of St James's Gate. No longer the largest, it is certainly one of the most modern breweries. Guinness is now also brewed in 35 other countries around the world, but all these overseas beers must contain a flavoured extract brewed at St James's Gate. So, the very special brewing skills of Arthur's brewery remain at the heart of every one of the 10 million pints of Guinness enjoyed every day across the world.

Adapted from: *www.guinntiques.com/thestory.aspx*

	T	F
1. In 1759, Arthur Guinness became the owner of an old brewery in Dublin.	☐	☐
2. In the 18th century, beer was the most popular alcoholic drink in Ireland.	☐	☐
3. Guinness started producing a light-coloured beer made with roasted barley.	☐	☐
4. English porter was the most popular beer among dockworkers in London.	☐	☐
5. The Porter made by Arthur Guinness was not as good as the English one.	☐	☐
6. Guinness beer radically changed the brewing market.	☐	☐
7. In 1825, Guinness stout porter was exported to many foreign countries.	☐	☐
8. In 1881, Guinness brewery was the largest in Ireland.	☐	☐
9. Only the Guinness brewed in Irish breweries contains a special flavoured extract.	☐	☐
10. The world daily production of Guinness beer is 10 million pints.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Bottles of DOCG wines must also be labelled… ☐
2. Fermentation transforms… ☐
3. The bitterness of Amari… ☐
4. Ales and lagers differ in… ☐
5. To make the beer bright and clean, … ☐

a. the sugars of the juice into ethyl alcohol and carbon dioxide.
b. fermentation temperature and yeast.
c. one or more clarifying agents must be added.
d. with a paper strip seal of guarantee.
e. is balanced out by adding sugar syrup.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. How are wines classified?
2. What does fining consist in?
3. Where does wine mature?
4. Why can Lambic beer be produced only in the Payottenland region of Belgium?
5. What is not specified on a "*Vino da tavola*" label?

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CLOZE TEST

4. Complete the text with the words given below.

benefits · bitter · consumption · effects · health · metabolism · oxidative · reductions · studies · wine

Alcohol and Health

Alcoholic beverages have been consumed for thousands of years, attracting great human interest for social, personal, and religious occasions. Although excessive **1.** ..... of alcoholic beverages is commonly regarded to be detrimental to cardiovascular **2.** ....., there is a debate as to whether light-to-moderate intake is associated with significant **3.** ..... in cardiovascular mortality.

Some epidemiological investigations have attributed these benefits to the consumption of red **4.** ....., others have suggested that the drink type is irrelevant, while some research on the health **5.** ..... of beer demonstrate the preventive effects of this beverage and its components on lifestyle-related diseases. A series of **6.** ..... using animal models have shown that beer may prevent carcinogenesis and osteoporosis. Beer significantly protects plasma from **7.** ..... stress, while isohumulones, the **8.** ..... substances derived from hops, may prevent obesity and type-2 diabetes, improve lipid **9.** ....., and suppress atherosclerosis. Further studies are needed to clarify which components in addition to isohumulones are responsible for these beneficial **10.** ..... of beer and to address the underlying mechanisms.

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MULTIPLE CHOICE

5. Choose the correct option.

1. A winery is…
- **a.** a place where wines are kept for many years.
- **b.** a field where vines are planted to produce grapes.
- **c.** a part of the plant used to grow a new bud.
- **d.** an establishment where wine is made.

2. In France, wines are strictly labelled according to…
- **a.** their ageing time.
- **b.** the grapes they are composed of.
- **c.** the area where they are grown.
- **d.** their colour.

3. What does not influence the taste of beer?
- **a.** The type and amount of malt and water used.
- **b.** The size of the storage tanks.
- **c.** The type and amount of hops added.
- **d.** The method and the kind of yeast used.

4. Oak barrels…
- **a.** are more durable than stainless steel barrels.
- **b.** impart flavours and aromas only if they are old.
- **c.** are airtight.
- **d.** are porous and allow oxygen to interact with the wine.

5. Which statement is false?
- **a.** Lagers use top-fermenting yeast.
- **b.** Wheat beer is a top-fermented beer.
- **c.** Pilsner is a bottom-fermented beer.
- **d.** Ales generally use top-fermenting yeast.

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Total score ...../50

U 5.4 Alcoholic beverages

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Global Warming: Good for English Wine?

English wine has for a long time suffered from being a bit of a novelty item. For most people, finding out that English vineyards can make drinkable wine is a bit like hearing that an 80-year-old millionaire has fathered a child. Yet there are now more than 250 commercial vineyards in the UK, and the industry is transforming itself from one dominated by small-scale hobbyists into one that is surprisingly commercially astute.

Grapevines like summers that are warm, long and dry – they do best in the places we like to go on holiday to. Our summers here are too cool, too damp and they aren't really long enough for successful viticulture.

Yet there is a big hope for the English wine industry: global warming. If average temperatures rise a little, then one beneficiary will be English wine: from being an insignificant climate with one really good vintage a decade, yields and quality could grow, and with them the reputation of English wines.

The data shows that global average temperatures have risen significantly over the last 50 years and their rise is going to continue, with implications for worldwide winegrowers. This could be very good or very bad news for English wine. If there's a small rise in average temperature, this could transform our climate into one ideal for growing high-quality wine grapes. But if we have a *Day After Tomorrow* scenario, where global warming causes a rapid change in the North Atlantic Gulf Stream, we will be in big trouble. These ocean currents direct deep, warm water from the tropics up towards the north Atlantic and keep our climate warmer than it should be at such northerly latitudes. If the Gulf Stream slowed or stopped, the consequence would be a freezing climate and no hope of any sort of wine growing in the UK or much of Atlantic-influenced Western Europe. Anyway, there is no scientific certainty about the evolution of the global warming and its effects on the Gulf Stream.

Adapted from*: https://www.wineanorak.com/english_wine_feature.htm*

	T	F
1. English wine has long been considered something unusual.	☐	☐
2. British viticulture is going to turn into a commercial activity.	☐	☐
3. British summers are suitable for grapevines.	☐	☐
4. The rise of average temperatures will damage the production of wine in the UK.	☐	☐
5. Up until now good vintages have been very rare.	☐	☐
6. Average global temperatures started rising about 50 years ago.	☐	☐
7. Only British winegrowers will be affected by global warming.	☐	☐
8. The North Atlantic Gulf Stream helps mitigate the climate.	☐	☐
9. A moderate temperature rise could make the British climate ideal for growing vines.	☐	☐
10. Scientists can foresee the effects of global warming on the North Atlantic Gulf Stream.	☐	☐

 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Liqueurs are produced by combining a base spirit with…

2. The ageing of the wine, until it is considered ready for bottling, …

3. There are two standard methods of classifying wines: …

4. Clay and concrete barrels…

5. During fermentation, yeast and bacteria…

☐ **a.** convert sugar into alcohol and carbon dioxide.

☐ **b.** by region and by grape type.

☐ **c.** may take place in tanks or wooden barrels.

☐ **d.** fruits, nuts, herbs, and spices.

☐ **e.** do not release flavours into the wine.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. How are stems removed from the grape juice?
2. Why are clarifying agents added to beer?
3. What happens when the beer's wort is transferred in the whirlpool?
4. Are there different beer fermentation methods?
5. What grain is usually used for beer brewing?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

brewing · convents · culture · drink · family · fermentation · hops · maize · payment · water

The History of Beer

One of the first products humans made from grain and **1.** ..... was beer. The brewing tradition began some 6000 years ago. When the Sumerians, the oldest known civilisation on Earth, noticed the effect of the **2.** ..... process on an abandoned bowl of bread dough, they repeated the process to understand it and soon began "brewing". They had discovered a true **3.** ..... of the gods. They offered it to their gods as a sacrifice and gave it to their kings to drink.

Nearly every **4.** ..... developed its own version of beer using different grains. Africans used millet, **5.** ..... and cassava root. The Chinese used wheat; the Japanese rice; the Egyptians barley. However, **6.** ....., the main ingredients in modern beer, were not used in brewing until 1000 AD.

Before the Middle Ages, **7.** ..... was left to women, since it was considered a food as well as a celebration drink. In the first half of the Middle Ages, brewing began to be practised in Europe, shifting from a **8.** ..... tradition to centralised production in monasteries and **9.** ..... where beer became a symbol of hospitality for travelling pilgrims. During Medieval times, beer was used for trading, **10.** ..... and taxing.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement about MLF is false?
- **a.** MLF is a primary fermentation.
- **b.** The malic acid is converted into lactic acid.
- **c.** MLF leads to a reduction in acidity.
- **d.** MLF occurs naturally after the completion of the primary fermentation.

2. In the winemaking process, timing is an important factor for the…
- **a.** production of quality wines.
- **b.** marketing of wines.
- **c.** working times of winemakers.
- **d.** opening times of wineries.

3. Authentic Lambic beer…
- **a.** is artificially fermented.
- **b.** can be brewed everywhere in Europe.
- **c.** must be produced in Belgium.
- **d.** can be marketed only in Belgium.

4. The main differences between ales and lagers are…
- **a.** production area.
- **b.** bitterness and colour.
- **c.** alcohol content.
- **d.** temperature of fermentation and type of yeast.

5. A hydrometer…
- **a.** measures dissolved sugar in a small juice sample already in the vineyard.
- **b.** measures specific gravity, sugar and alcohol content.
- **c.** determines the alcohol content in dry wines.
- **d.** allows the wine to be cleared of sediment.

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Total score ...../50

U 5.5 Italian excellence

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Parmigiano Reggiano: Different Ages, Different Use

Some people call it *the king of cheese*: the truth is that in one name you find very different kinds of cheese with different uses. During the maturation, it gains its typical granular structure and, when cut into slivers, it becomes crumbly and soluble.

But how many people really know the differences between the various maturations of the king of cheeses?

Parmigiano aged 12-18 months is still relatively soft with some hints of crumbliness. It can be used for salads or aperitifs with fresh fruit, or in flakes over fried eggs or slices of meat.

The cheese matured for 19-24 months becomes perfect for tasting with balsamic vinegar or accompanied by dried fruit. It is also ideal to be grated on pasta dishes or to be used in the typical fillings of fresh pasta.

In the cheese aged 30-48 months there are no great differences in structure compared to a 24-month maturation. It gradually increases in friability, presenting an even stronger and stronger flavour. At this stage, milk enzymes convert lactose into lactic acid, making it suitable also for lactose intolerant and babies. Parmigiano Reggiano becomes perfect to be served at the end of a meal with wine or honey, which softens its somewhat intense flavour.

After 60-72 months of maturation, the cheese reaches structures and flavours that are truly unique!

It's difficult and rare to find these kinds of cheese: they must have perfect shape and ageing, but the reward is a wide essence and a unique deep flavour.

During this long period of maturation, the cheese loses practically all the water, all the fat and all the lactose in it, but retains an incredible flavour. It becomes an almost therapeutic food! It is very crumbly to the touch and to the chew and is fantastic to be eaten on its own, accompanied by sweet wine and jams.

Delicious, easy to digest and with various nutritional benefits, Parmigiano Reggiano has the unique taste of a product made without additives, perfect for all ages and all situations.

Adapted from*: https://bioreggiani.com/en/the-differences-between-the-maturing-periods-of-parmesan-cheese*

	T	F
1. Maturation gives Parmigiano Reggiano a grainy and crumbly structure.	☐	☐
2. After 12 months, the cheese is still young, but very crumbly.	☐	☐
3. The perfect cheese for pasta dishes must be aged 30 months.	☐	☐
4. The more mature the cheese, the more friable the texture.	☐	☐
5. After 30 months Parmigiano Reggiano becomes dry and even more crumbly, with an intense flavour.	☐	☐
6. The strong flavour of 48-month-aged cheese can be balanced if it is served with honey.	☐	☐
7. There is a wide production of 72-month aged cheese.	☐	☐
8. It is difficult to maintain the shape of a cheese wheel after a long maturation period.	☐	☐

9. People who are intolerant to lactose cannot eat Parmigiano. ☐ ☐

10. Owing to its strong flavour, a 60-month-aged cheese should not be eaten on its own. ☐ ☐

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. The casks where the Traditional Modena/ Reggio Emilia Balsamic Vinegar is aged may be of… ☐

2. Traditional Modena/Reggio Emilia Balsamic Vinegar is produced… ☐

3. The provinces where Parmigiano Reggiano is produced are… ☐

4. Durum wheat semolina and water are… ☐

5. Italian agri-food heritage is globally unique… ☐

a. Parma, Reggio Emilia, Modena and parts of the provinces of Mantua and Bologna.

b. the basic ingredients for dried pasta.

c. without adding any other substance.

d. in terms of quality and variety.

e. oak, mulberry, ash, chestnut, cherry, juniper or acacia.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What is the minimum ageing time of Traditional Modena/Reggio Emilia Balsamic Vinegar?

2. How is balsamic vinegar used in cooking?

3. What is the advantage of ageing vinegar in wooden barrels?

4. Why is durum wheat semolina less suitable for making bread than common wheat?

5. How is Italian Sounding considered from a legal point of view?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

fermentation · flavour · hops · oxygen · pepper · preserve · processes · slow · variety · vinegar

What's Vinegar?

The word is from the French *vin* (wine) and *aigre* (sour). Vinegar is made from a **1.** ..... of diluted alcohol products, the most common being wine and beer. But, whereas the fermentation of grapes or **2.** ..... to make wine or beer occurs in the absence of **3.** ....., the process of making vinegars relies on its presence. Vinegar is primarily used to flavour and **4.** ..... foods and as an ingredient in salad dressings and marinades. The use of vinegar to **5.** ..... food is centuries old, but it has also been used as a medicine, a corrosive agent, and as a preservative. In the Middle Ages, alchemists poured **6.** ..... onto lead in order to create lead acetate. By the Renaissance era, vinegar-making was a lucrative business in France. Flavoured with **7.** ....., cloves, roses, fennel, and raspberries, the country produced about 150 scented and flavoured vinegars. Historically, several **8.** ..... have been employed to make vinegar. Commercial vinegar is produced either by a fast or a **9.** ..... fermentation process. In general, slow methods are used in traditional vinegars where **10.** ..... proceeds slowly over the course of a few months or up to a year.

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MULTIPLE CHOICE

5. Choose the correct option.

1. The authentic Traditional Modena/ Reggio Emilia Balsamic Vinegar is made of…
- **a.** concentrated grape must, wine vinegar and caramel.
- **b.** only wine vinegar with caramel and pectin.
- **c.** cooked grape must from red grapes which are picked early.
- **d.** cooked grape must from grapes which are picked late.

2. Which statement is true?
- **a.** Traditional Modena/Reggio Emilia Balsamic Vinegar has no label.
- **b.** There is a lot of balsamic vinegar of low quality.
- **c.** Traditional Modena/Reggio Emilia Balsamic Vinegar is aged in a unique barrel.
- **d.** The maturation procedure is called solera.

3. Traditional Modena/Reggio Emilia Balsamic Vinegar…
- **a.** is highly appreciated by chefs and gourmets.
- **b.** has always been a commercial product.
- **c.** is a synonym of Balsamic Vinegar from Modena/Reggio Emilia.
- **d.** has been made since the 16th century.

4. Which of the following is not a marking of Parmigiano Reggiano?
- **a.** The dairy registration number.
- **b.** The letters DOP.
- **c.** The weight of the cheese wheel.
- **d.** The month and year of production.

5. The origin of pasta dates back to…
- **a.** around 1700-1100 BC in China.
- **b.** the 1st millennium BC in Greece.
- **c.** the 4th century BC in Italy.
- **d.** the 14th century AD in Italy.

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Total score ...../50

U 5.5 Italian excellence

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Unmask Your Food

The European Citizens' Initiative (ECI) is an important instrument of participatory democracy in the EU introduced by the Treaty of Lisbon. Each ECI has to be supported by at least one million EU citizens, and a minimum number of signatories is required from at least 7 Member States for the Commission to decide whether or not to take action.

The European Citizens' Initiative "Eat Original. Unmask Your Food" calls on the European Commission to impose mandatory origin labelling for all food products in order to prevent fraud and guarantee consumers' right to information.

The problem facing the EU is that, at this stage, origin labelling is only compulsory for certain foods: honey; olive oil; fresh fruit and vegetables; fish; beef and pig, sheep, goat and poultry meat. For all other foods, origin labelling is voluntary, which leaves large information gaps when it comes to the origin of, for instance, meat products, milk, dairy products and single-ingredient products such as flour or sugar. Leaving the products unlabelled can have serious consequences for the single market and consumers' rights.

In Europe, economically motivated adulteration of food is estimated to create damage of around EUR 8 to 12 billion per year, and this has increased over the last decades. Mandatory indication of origin on food labels helps prevent falsification and unfair commercial practices that damage the single market as well as national economies.

EU citizens have the right to be protected and to receive accurate information about the food they choose to purchase. In order to make informed choices, consumers need to know where products are harvested and processed and the origin of ingredients, and to be given more information about production and processing methods.

It is a common belief that this much-needed harmonised legislation will increase food safety and transparency throughout the food supply chain, as the system has been so clearly shown to be vulnerable without mandatory origin labelling in place.

Adapted from: *https://www.eesc.europa.eu/pt/news-media/news/unmask-your-food-says-europeans-citizens-initiative-eat-original*

	T	F
1. The Lisbon Treaty instituted the ECI.	☐	☐
2. Only the citizens of seven member states are allowed to invite the European Commission to make law proposals.	☐	☐
3. The ECI proposal in question concerns the request of obligatory labelling on European food products.	☐	☐
4. The aim of the new law proposal is to reduce the possibilities of food fraud.	☐	☐
5. So far, no foods are labelled with the indication of origin.	☐	☐
6. The economic damage caused in Europe by food fraud has been higher in the past decades.	☐	☐
7. Falsification practices cause a great damage to international and national economies.	☐	☐
8. Any label can give information about the food.	☐	☐

9. Consumers have the right to be informed about the food they buy. ☐ ☐

10. Thanks to this legislation, the food supply chain will be transparent and safe. ☐ ☐

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Ageing barrels for Traditional Balsamic Vinegar… ☐

2. Benedictine monks started producing Parmigiano Reggiano… ☐

3. Cattle producing milk for Parmigiano Reggiano must not be fed with… ☐

4. Compared to flour, semolina has... ☐

5. To prevent frauds and guarantee consumers' right to information, the food origin… ☐

a. nine centuries ago.

b. silage and fermented feeds.

c. must be labelled on each EU product.

d. are arranged in decreasing size, from 50 litres to 15 litres.

e. a higher satiating power.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What is Traditional Balsamic Vinegar made of?

2. What period does Modena Balsamic Vinegar date back to?

3. How does Italian Sounding impact on the Italian market?

4. What happens after cooking the curd of Parmigiano Reggiano?

5. What nutrients does durum wheat pasta contain?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

ages · bottles · cap · consortia · label · name · products · quality · system · years

How can we Protect the Quality of Balsamic Vinegar?

Balsamic Vinegar is without a doubt one of the most famous and fine Italian **1.** ..... . But, as many Italian foods with awards, you need to know what you are buying not to be fooled by the many different **2.** ..... with various names that you can find in almost all the shops.

To protect the value and **3.** ..... of authentic balsamic vinegar, a marketing and exportation consortium was formed in 1979 in Modena and the name "Aceto Balsamico Tradizionale di Modena" has been protected since 1983.

At present only these two **4.** ..... produce true Traditional Balsamic Vinegar: Reggio Emilia and Modena.

Reggio Emilia designates the different **5.** ..... of their balsamic vinegar by label colour. A red label means the vinegar has been aged for at least 12 years, a silver label for at least 18 years and a gold **6.** ..... designates that the vinegar has been aged for 25 years or more.

Modena uses a different **7.** ..... to indicate the age of their balsamic vinegar. A cream-coloured cap means the vinegar has been aged for at least 12 years and a magenta **8.** ..... bearing the designation *extravecchio* (extra old) shows the vinegar has been aged for 25 **9.** ..... or more.

In 2011 the Consortium of Producers Traditional Modena Balsamic Vinegar changed its **10.** ..... into Consortium of Producers Antique Acetaie.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Traditional Modena/Reggio Emilia Balsamic Vinegar is…
- **a.** a blend of white Lambrusco and red Trebbiano.
- **b.** enriched with additives.
- **c.** a variety of Balsamic Vinegar from Modena.
- **d.** characterised by a long ageing time.

2. Over the years, Traditional Modena/ Reggio Emilia Balsamic Vinegar…
- **a.** does not change in colour.
- **b.** is refilled with caramel.
- **c.** becomes deep brown in colour.
- **d.** does not need to be refilled.

3. Which statement is true?
- **a.** Balsamic vinegar derives its name from the place where it is produced.
- **b.** The procedure of refilling in different barrels is called solera.
- **c.** Balsamic vinegar derives its name from a miracle cure.
- **d.** Balsamic vinegar is a modern version of wine vinegar.

4. Which statement is false about the features of semolina?
- **a.** It is low in gluten protein.
- **b.** It is high in gluten protein.
- **c.** It is yellow in colour.
- **d.** It has a rough texture.

5. The Consortium mark is fire-branded on the wheel of Parmigiano Reggiano after…
- **a.** twenty days.
- **b.** twelve months.
- **c.** two years.
- **d.** twelve weeks.

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Total score ...../50

U 6.1 Ruminant livestock

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Shetland Sheep Breed

Sheep have lived on the Shetland Islands for well over 1,000 years, adapting to the harsh environment and thriving in the cold, wet climate. The sheep of Shetland were an important part of subsistence agriculture of the islands, and the rugged habitat and geographical isolation produced a breed that is distinct and significant.

The Shetland breed likely descends from ancient Scandinavian sheep, and it is a member of the northern short tailed sheep breed family. Historically, only a few Shetland sheep were exported, and it was not until recently that large populations were established on the British mainland and in other countries. Though fleece continues to be the breed's primary product today, Shetlands in Britain are also finding a commercial niche for crossing with Cheviots and other breeds to produce market lambs.

Shetland sheep are fine boned and small in size. Rams weigh 90-125 pounds, and ewes weigh 75-100 pounds. Most rams have spiralled horns, while most ewes are hornless. Shetland sheep are calm and charming in disposition, docile, and intelligent.

The Shetland breed is especially prized for its wool, which is fine, soft, and strong. Fleeces average two to four pounds and vary from wavy to straight. Eleven colours and thirty colour patterns are recognised in the Shetland breed. This diversity is a great asset both to the breed and to the fibre artisans who enjoy using its fleeces.

Glossary:
rugged: *accidentato*
to thrive: *crescere bene*

		T	F
1.	Sheep have adapted to the cold temperatures of the Shetland Isles a long time ago.	☐	☐
2.	The isolation of the Isles contributed to the distinctive characteristic of this breed.	☐	☐
3.	Scandinavian sheep are descendants of Shetland sheep.	☐	☐
4.	The Shetland sheep breed can be found only on the Shetland isles.	☐	☐
5.	Shetland sheep are crossed with Cheviots to produce finer wool.	☐	☐
6.	The bone structure of this breed is heavy and strong.	☐	☐
7.	An adult male may weigh more than 100 pounds.	☐	☐
8.	This breed can be easily handled.	☐	☐
9.	The fleece is wavy, strong and soft.	☐	☐
10.	The different colours and patterns of the fleeces tend to diminish their value.	☐	☐

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 Name ..... Class ..... Date .....

SENTENCE COMPLETION

2. Complete the sentences.

1. Livestock husbandry implies providing animals with .....
.....
2. The omasum produces a grinding action on the feed and .....
.....
3. In the past, cattle served a triple purpose, providing .....
.....
4. Piemontese, Maremmana and Chianina are .....
.....
5. Goats can be used for land vegetation management .....
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SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why is animal husbandry essential to modern agriculture?
2. What does the rumen contain?
3. Where are sheep generally kept?
4. What goat breeds produce the finest fibre?
5. What is the aim of the National Association of Sheep and Goat Breeders?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

ability · bites · digestive · feeders · fibre · forage · indigestible · mouths · parts · stomachs

Grazers vs Browsers

Differences between browsers and grazers extend beyond diet selection: they include specialisation within the **1.** ..... tract that may allow grazing and browsing herbivores to better extract nutrients from their preferred **2.** ..... Grazers and browsers have measurable differences in the morphology of their organs and body mass that may influence their **3.** ..... to digest and harvest their feed. Both kinds of animals will eat the same amounts of nutrients, but because their mouths are shaped differently, they can't eat in the same way. Larger animals are often grazers, and they can fit a lot more food in their **4.** ..... than smaller browsing animals can. This is important because grazers eat a lot of **5.** ..... material in order to get the nutrients they need. Grazing animals, like cows and horses, have very large, wide **6.** ..... and take very big bites. Browsing animals, like deer and rabbits, have small, narrow mouths and they take small **7.** ..... They have very delicate tongues and lips that allow them to pick out the **8.** ..... of the plants that will break down easily and have lots of nutrients. Intermediate/mixed **9.** ..... like sheep have characteristics of both grazers and browsers: typically, they can eat selectively but still tolerate considerable amounts of **10.** ..... in their diet.

...../10

MULTIPLE CHOICE

5. Choose the correct option.

1. Milkers…
- **a.** are not dairy cows.
- **b.** are not beef cows.
- **c.** have smaller udders.
- **d.** are intended for slaughter.

2. Strong fences should be built for goats because…
- **a.** they may jump beyond the fence.
- **b.** they need to be protected from flooding.
- **c.** they may get out of any hole in the fence.
- **d.** they tend to dig holes under the fence.

3. A veal is…
- **a.** an adult male sheep.
- **b.** the young of cattle of either sex.
- **c.** the meat of a young sheep.
- **d.** the meat of a calf.

4. The *Bos taurus* species…
- **a.** includes European breeds.
- **b.** includes tropical breeds.
- **c.** includes only Italian cattle breeds.
- **d.** is the result of crossing with Zebu.

5. Sheep need some type of cover when…
- **a.** they need extra activity.
- **b.** the weather is too dry.
- **c.** the weather is too sunny or wet.
- **d.** they graze.

...../10

Total score ...../50

U 6.1 Ruminant livestock

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Everything You Need to Know About Being a Sheep Farmer

Sheep farmers are responsible for the daily care and maintenance of sheep that are used for meat or wool production. The duties of a sheep farmer may include feeding, shearing wool, giving medication orally or via injection, maintaining farm buildings and fences, monitoring the flock for any signs of illness or disease, assisting with difficult births, and managing waste. They may also be responsible for marketing their animals to meat or wool distributors, transporting animals to the sales or show ring, harvesting hay or other forage, and maintaining farm equipment.

Sheep farmers cooperate with large animal veterinarians to maintain the health of their flock through a health management programme. They may also rely on advice from animal nutritionists or livestock feed sales representatives to develop nutritionally balanced rations for the flock.

Sheep farmers may have to work long hours including time on nights, evenings, and weekends. The work is largely conducted outdoors, so extreme temperatures and varying weather conditions are possible. It is also important that sheep farmers take safety precautions when working with their livestock to reduce the chance of injury.

Sheep farmers may be involved in meat or wool production. There are two primary sheep farming options for meat production: they can raise flocks on pasture land and sell their lambs to feedlots, or they can purchase lambs and raise them to appropriate weight for slaughter. Sheep leather has also grown in popularity and is proving to be a solid source of income.

Glossary:
flock: *gregge*

	T	F
1. The work of a sheep farmer is quite simple.	☐	☐
2. Taking care of animal health also includes detecting any signs of disease.	☐	☐
3. Cooperation with vets is important to maintain good health in the animals.	☐	☐
4. Sheep do not necessarily need a balanced diet.	☐	☐
5. Sheep farmers usually work inconvenient hours.	☐	☐
6. Most sheep farming activities are performed indoors.	☐	☐
7. Sheep farmers may be injured when working.	☐	☐
8. Sheep are raised only for wool production.	☐	☐
9. Sheep farming activity involves the sale of lambs to feedlots.	☐	☐
10. Raising sheep for leather has proved to be economically unrewarding.	☐	☐

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 Name ..... Class ..... Date .....

SENTENCE COMPLETION

2. Complete the sentences.

1. The *Bos indicus* species is easily identified by .....
2. Ruminants have the unique ability to .....
3. Australia and New Zealand are .....
4. Sheep breeds are classified according to .....
5. Goat raising in Italy is primarily destined for .....

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What does the term livestock refer to?
2. What is the function of the omasum?
3. What should a goat-proofed fence be equipped with?
4. How can sheep breeds be classified?
5. What animals prefer feeding on short, tender grasses and clover?

...../10

 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

breed · cattle · climate · complexity · grain-fed · grass · hormones · production · quality · steaks

Cattle Breeding in the Argentine Pampas

With 50 million cattle, Argentina has the world's second highest cattle population and is the number four exporter. The main **1.** ..... of its beef animals is the Aberdeen-Angus, since it is easy to manage, guarantees economic production and its meat is of superior **2.** .....

Not all Argentinian cattle make great beef: areas near the sea or wine producing areas are not good for raising **3.** ..... The main region of beef production is Las Pampas, a farming region that is ideal for producing top-class beef thanks to its sufficient rainfall, mild **4.** ....., rich soil and vast terrain.The best areas for beef **5.** ..... are the provinces of Entrerios (between the Parana and the Uruguay rivers, which create a very special climate), and north of the Pampas.

Unlike **6.** ..... cattle in America, which receive hormones to fatten them up and give their meat extra 'marbling' (intra-muscular fat), livestock here graze freely over the grasslands and require no **7.** ..... The livestock is fattened in open spaces in the Pampas, whose 100 different types of **8.** ..... are one of the factors that contribute to the quality of the beef, imparting a greater **9.** ..... of flavours. So these cattle are smaller but provide tasty and tender **10.** ..... with 10% less cholesterol and 25% less marbling than U.S. beef.

...../10

MULTIPLE CHOICE

5. Choose the correct option.

1. A young goat is called…
- **a.** a calf.
- **b.** a kid.
- **c.** a lamb.
- **d.** a little.

2. Ruminants have some characteristics in common: …
- **a.** they are only omnivorous.
- **b.** they do not regurgitate food.
- **c.** they have a four-compartment stomach.
- **d.** they do not digest foodstuff high in roughage.

3. A heifer is…
- **a.** a young female cow that has never calved.
- **b.** a young sheep.
- **c.** a crossbreeding between a sheep and a goat.
- **d.** a milk breed.

4. Dairy cows…
- **a.** are more robust than beef cows.
- **b.** are intended for slaughter.
- **c.** are rectangular in shape.
- **d.** have small udders.

5. A steer is…
- **a.** a cow no more than 2 years old.
- **b.** an adult female of the cattle family.
- **c.** a young cow of either sex.
- **d.** an adult male castrated before maturity.

...../10

Total score ...../50

U 6.2 Non-ruminant livestock

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The Farms of the Future

Recently, a number of beef producers in Europe and North America have switched to raising ostriches commercially because of the higher and faster financial returns of ostrich projects compared to those of other farm animals such as cattle, sheep and even poultry.

The ostrich is undoubtedly the world's largest living bird. It is very adaptable and grows under extreme conditions. Adult males stand 2.4 m tall and can weigh well over 100 kg; they are flightless, but their strong legs mean that they can run up to 70 km per hour when necessary.

Today, ostrich farms are considered to be among the most profitable agricultural projects. They are often referred to as "the farms of the future" because of the large variety of possible products and hence their high profit potential. Ostriches are raised commercially for their meat, eggs, skin and feathers.

They produce red meat which is very similar in taste and texture to veal and beef. It is high in protein yet low in fat. From the health point of view, ostrich meat is far better than other types of meat as it contains far less fat and, in particular, less cholesterol.

Ostrich skin (hide) is considered one of the most luxurious leathers, even more than crocodile and snake skin. Ostrich leather is thick, durable and extremely soft, and can be manufactured into a variety of products, such as shoes, bags, purses and jackets. Ostrich feathers are used for cleaning fine machinery and equipment, as well as for decorations and in the fashion industry.

In the last few years, ostrich farming has progressed dramatically, and the world ostrich industry has achieved some economic stability. Unfortunately, despite its great potential, the ostrich has received and continues to receive little attention from scientists. If ostrich production is to provide the meat of the future, a scientific approach is the only way forward.

Adapted from: *https://www.doc-developpement-durable.org/file/Elevages/autruches&Emeus/Recent%20developments%20in%20ostrich%20farming.pdf*

	T	F
1. Several livestock breeders have started raising ostriches.	☐	☐
2. The profit coming from ostrich husbandry is higher but slower.	☐	☐
3. Rearing poultry is less profitable than rearing ostriches.	☐	☐
4. There is no other living bird as large as an ostrich.	☐	☐
5. Ostriches cannot bear severe conditions.	☐	☐
6. Ostriches fly at 70 km/h.	☐	☐
7. Ostrich meat is unhealthy.	☐	☐
8. Crocodile skin is more precious than ostrich skin.	☐	☐
9. Ostrich feathers are used for a wide range of applications.	☐	☐
10. There is very little scientific contribution to this type of farming.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Poultry are domestic birds raised for…	☐	**a.** such as cereals, tubers and grass.
2. Most egg-laying hens are confined…	☐	**b.** eggs, meat, feathers or skin.
3. Chickens raised for meat…	☐	**c.** treatment or therapy aided by a horse.
4. Pigs eat a very wide variety of foods…	☐	**d.** in small battery cages.
5. Hippotherapy literally means…	☐	**e.** are called broilers.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What were chickens raised for until the late 19th century?
2. When did the modern poultry industry begin?
3. What kind of animals are pigs?
4. Why is the intensive pig farming system expensive?
5. Why do equines contribute to sustainable agriculture?

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CLOZE TEST

4. Complete the text with the words given below.

behaviour · cage · chickens · eggs · farms · harm · hens · industry · machines · nutrients

Hens in Factory Farms

There are over 380 million individual hens in the United States egg **1.** ..... alone. And, sadly, over two-thirds of egg-laying hens spend their lives trapped in the confines of a tight battery **2.** ...... These cages inflict both physical and psychological **3.** ..... on chickens, preventing them from moving or expressing any of their natural **4.** ...... Hens will become so distressed by their confinement that they develop harmful coping mechanisms – like pecking endlessly at other **5.** ..... or attempting to make nests out of nothing.

During their short lifetimes on factory farms, **6.** ..... lay about 300 eggs – an exhausting process that depletes the calcium and **7.** ..... in their bodies. While a hen can live up to ten years in nature, she'll become "spent" – unable to produce more **8.** ..... – after only about two years. Because the egg industry can no longer profit off of the eggs that she lays, factory **9.** ..... will typically send a spent hen to slaughter. In short, the industry treats hens like egg-laying **10.** ....., not the gentle, sentient beings that they are.

Adapted from*: https://thehumaneleague.org/article/hen-rescue-and-rehoming*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Non-ruminant livestock…
- **a.** are only herbivorous.
- **b.** may be herbivorous.
- **c.** are not poultry.
- **d.** are only omnivorous.

2. Poultry is the term for…
- **a.** wild birds.
- **b.** mammal birds.
- **c.** domestic birds.
- **d.** herbivorous birds.

3. The primary species raised in poultry farming are…
- **a.** hogs, boars and razorbacks.
- **b.** cattle, sheep and goats.
- **c.** chickens, turkeys and geese.
- **d.** stallion, mare and foals.

4. Which statement is false?
- **a.** Horses may be raised for meat production.
- **b.** Horses may be fed with hay and concentrated feed.
- **c.** Horses are raised for different kinds of activities.
- **d.** Horses are ruminants.

5. Equines…
- **a.** are graminoids feeders.
- **b.** are ruminant herbivores.
- **c.** do not adapt their diet easily.
- **d.** eat great amounts of forbs and legumes.

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Total score ...../50

U 6.2 Non-ruminant livestock

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Like Machines on a Production Line

Pigs are highly social animals with a high level of curiosity and well-developed exploratory behaviour. Under natural conditions, they live in family groups usually consisting of several sows and their young. They spend much of their time rooting, grazing and exploring their environment and pregnant sows construct an elaborate nest before giving birth.

They should have access to pasture to provide a complex and stimulating environment. When housed indoors, adequate space and environmental enrichment are essential for their welfare. Lacking a suitable substrate to explore, pigs redirect their exploratory behaviour towards pen structures and other pigs, which could lead to damaging behaviour such as ear and tail biting. Particularly critical is the condition of sows. In Australia, pregnant pigs are forced by law to spend a significant portion of their lives confined to sow stalls. These are small metal and concrete cages where the animal cannot even turn around. However, it is proved that sow stalls cause serious physical and psychological harm to pregnant pigs. Despite this, these devices are commonly used on factory farms as a way of keeping the cost of producing pig meat low by simplifying farm management and maximising the number of pigs that can be kept in a given area.

Permanent confinement within sow stalls can frustrate a pig's natural behaviour like exploring and socialising with other pigs and can inflict skin abrasions when sows press up against the metal bars. Sow stalls often lead to serious health problems, including reduced bone strength and muscle weight, as well as compromised locomotion.

Adapted from: *https://www.voiceless.org.au/hot-topics/pigs*

	T	F
1. Pigs are lone animals.	☐	☐
2. Housing and management of pig farms should provide adequate space and environment.	☐	☐
3. Australian laws allow pregnant pigs to spend their lives outdoor.	☐	☐
4. Sow stalls are made of metal and concrete.	☐	☐
5. Sow stalls are large enough to provide a comfortable housing.	☐	☐
6. Sows remain in a stall throughout their pregnancy.	☐	☐
7. Confined sows are only psychologically hurt.	☐	☐
8. The severe restriction imposed by stalls affects the welfare of a sow.	☐	☐
9. On factory farms pork production cost is lower.	☐	☐
10. Stalls help protect sows from any injury.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Chickens are descendants of… ☐
2. Birds that are raised roaming freely during the day… ☐
3. The primary species raised in poultry farming are… ☐
4. Pigs need a… ☐
5. The different breeds of horses are raised… ☐

a. chickens, turkeys, ducks and geese.
b. for meat production as well as for different kinds of activities.
c. dry, draught-free place to sleep.
d. wild fowls which were gradually domesticated.
e. are called free-range poultry.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. How long does the gestation period of a sow last?
2. Why is poultry a convenient livestock for small farms?
3. What kind of protein supplement are pigs given?
4. At what age can pigs be marketed?
5. What does the equine breeding system depend on?

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CLOZE TEST

4. Complete the text with the words given below.

chewing · cows · digest · food · fragment · herbivores · mastication · movements · ruminate · species

Horses Chew Efficiently

Cows, camels, and many other herbivores are ruminants, meaning they chew **1.** ....., swallow it, and then return the parts that still require chewing back to the mouth for further **2.** ..... and swallowing. Horses belong to a group of herbivores **3.** ..... that doesn't do this. They chew, swallow, digest, and that's it.

Horses chew their food only once, but with the same regular, rhythmic **4.** ..... as cows who ruminate their food after eating. Herbivores digest their food much better if it has been strongly fragmented by intensive **5.** .....
Researchers of the University of Zurich are now investigating whether the chewing movements of the ruminants are similar to those of other **6.** ..... "Much to our surprise, the evaluation software determined that horses do not eat, but rather **7.** .....," says Marie Dittmann, doctoral student at the University of Zurich. "Although horses are not ruminants, they **8.** ..... their food with the same rhythmic chewing movements as **9.** ..... do during rumination."
Horses do not have a second chance to re-chew something that is hard to **10.** ..... For that reason, they have to masticate very thoroughly when eating.

Adapted from: *https://www.sciencedaily.com*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Pigs have a digestive system…
- **a.** similar to that of ruminants.
- **b.** similar to that of humans.
- **c.** which can't digest roughage.
- **d.** which needs high quantity of fibre.

2. Hippotherapy is …
- **a.** a method of husbandry where animals can move freely.
- **b.** a method of husbandry where animals are shut up in cages.
- **c.** an English riding competition.
- **d.** a therapeutic riding of equines used to stimulate disabled people.

3. Poultry are mainly raised for…
- **a.** egg, meat or feather production.
- **b.** egg and leather production.
- **c.** eggs and labour.
- **d.** exhibition and cockfighting.

4. It is convenient to grow pigs because they…
- **a.** are herbivorous.
- **b.** grow quickly.
- **c.** they are never reared in pens.
- **d.** can graze freely without causing damage.

5. Which statement about equines is false?
- **a.** They produce a small amount of greenhouse gases.
- **b.** They are raised for meat and milk production.
- **c.** They cannot be raised outdoors.
- **d.** They do not have a rumen.

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Total score ...../50

U 6.3 Alternative forms of breeding

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the text and answer the questions.

Impacts of Aquaculture on the Environment

The impact of aquaculture on the environment is an increasingly important issue as aquaculture operations expand globally. This impact is largely dependent on the intensity of production, the species farmed and the farm location.

In South-East Asia, where finfish and shellfish are heavily produced and poorly managed, there is a fairly heavy impact on the environment. This is due to the addition of solids and nutrients to the marine environment to help fish grow. Such a rapid, unnatural build-up of organic material can have a negative impact on the local flora and fauna.

In addition, outbreaks of disease from local fisheries can spread quickly because of the high concentrations in which fish are retained and is easily spread into wild fish populations if uncontrolled. Aquaculturalists used to tackle these outbreaks with antibiotics in fish feed until scientists pointed out the effect of the drugs on local aquatic ecosystems, as well as on consumers. Vaccinations are, however, now readily available for farmed fish and the practice of using drugs to tackle disease is seldom used in Western aquaculture.

Any additional related impact on aquaculture may also be due to the escaping of non-resident species, transmission of disease, lack of control of predatory species and competition among different organisms.

Despite a negative outlook, there is some positive impact on the environment to be recognised from aquaculture. This can be found in nutrient enriched areas where the farming of filter feeders such as shellfish improve water quality. Farmed fish are also generally free of environmental contaminants such as mercury and heavy metals as they exclusively eat human-processed feed whose toxin levels are regulated.

Adapted from: *https://greentumble.com/environmental-impacts-of-aquaculture/*

1. What does the impact of aquaculture on the environment depend on?
2. Where are finfish and shellfish heavily produced?
3. What is responsible for the negative impact on the marine environment?
4. What is a possible risk from high concentrations of fish?
5. How did aquaculturalists use to tackle outbreaks of disease?
6. Are antibiotics a good solution?
7. What is the risk in the case of fish escaping from the farm?
8. How can water quality be improved?
9. What is the advantage of farmed fish?
10. What do farmed fish eat?

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 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Honeybee colonies are essential for agriculture because…	☐	**a.** according to the density of the organisms farmed.
2. A bee society is organised into…	☐	**b.** it causes fewer greenhouse gas emissions.
3. Royal jelly is used for feeding a young larva which…	☐	**c.** they ensure plant reproduction by pollination.
4. Aquaculture plants are classified into intensive, semi-intensive and extensive…	☐	**d.** three groups: queens, workers and drones.
5. Insect farming is considered less polluting than cattle farming as…	☐	**e.** will develop into a fertile queen.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What's the difference between wild bees and honeybees?
2. How long can a queen live?
3. What happens to drones in winter?
4. What are the most common types of aquaculture systems?
5. What are insects farmed for?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

attack · crickets · drinks · food · flours · globe · hazardous · range · regulations · risks

Edible Insects: between Innovation and Perplexity

The launch of the sale of foods made with edible insects coincides with the release of the EU Regulation on "novel food" which came into effect in January 2018 and under which EFSA is in charge of evaluating the **1.** ..... and advantages of these products.

The notion of "novel food" is not new. Throughout history, new types of **2.** ....., food ingredients or ways of producing food have found their way to Europe from all corners of the **3.** ...... Bananas, tomatoes, pasta, tropical fruit, maize, rice, a wide **4.** ..... of spices – all originally came to Europe as novel foods. Under EU **5.** ....., any food that was not consumed "significantly" prior to May 1997 is considered to be "novel".

Among the insect-based foods, cricket flour is gaining popularity. Derived from ground-up **6.** ....., it is a sustainable and nutritious alternative to traditional grain **7.** ..... Being gluten-free, cricket flour can be used together with other flours to prepare baked goods, crackers and breadsticks, dry biscuits, spaghetti, potato products, beer-like **8.** ....., and chocolate items. So far there hasn't been much interest in this phenomenon, which is even seen to be **9.** ..... in several European nations, including Italy. In fact, a Coldiretti survey found that 54% of Italian consumers disagree with Brussels' actions and see crickets as a direct **10.** ..... on the Mediterranean diet.

Adapted from: *https://www.efsa.europa.eu/en/topics/topic/novel-food*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Rainfall, soil condition and geographic location of the crop influence varieties of…
- **a.** pollinators.
- **b.** honey.
- **c.** wasps.
- **d.** bees.

2. What is true about honeybees?
- **a.** They were imported to EU from America.
- **b.** They are native to South America.
- **c.** They were indigenous to all continents.
- **d.** They were imported from Africa or Asia.

3. Which statement about Colony Collapse Disorder is false?
- **a.** The reason for Colony Collapse Disorder is still unknown.
- **b.** It may be due to environmental changes.
- **c.** Bees started disappearing one century ago.
- **d.** It is a quite recent emergency.

4. Aquaculture is the farming of aquatic organisms in…
- **a.** fresh or marine waters for human use.
- **b.** fresh waters for feeding animals.
- **c.** artificial ponds only.
- **d.** marine waters for large-scale production in artificial raceways.

5. An inland pond aquaculture system…
- **a.** needs separate chambers for housing fish and water treatment.
- **b.** does not need any aeration systems.
- **c.** is often found offshore.
- **d.** usually consists of inland artificial ponds.

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Total score ...../50

U 6.3 Alternative forms of breeding

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and answer the questions.

Vertical Ocean Farms

As a fisherman in Newfoundland, Bren Smith saw his livelihood vanish when the Atlantic seaboard's cod stocks collapsed in the 1990s after years of overfishing. After a successful transition into shellfish farming in the Long Island Sound, he was ruined again when powerful hurricanes demolished his oyster crops in 2011 and 2012. He realised traditional methods of fishing or aquaculture wouldn't work under current conditions. Diversifying his farming and raising multiple marine species wasn't enough. So, he had to invent a new strategy, based on a vertical approach to aquaculture, whose technique he called "3D ocean farming". It consists of underwater lines supporting seaweed crops, hanging net enclosures to grow scallops and mussels and horizontal ropes on the water's surface, anchored to hurricane-proof floats. Clam and oyster cages, also connected to the surface ropes, sit on the seabed. This farm serves as a storm-surge protector and as a habitat for marine wildlife, too. "Each species is carefully selected," says Bren Smith, "oysters fix excess nitrogen, and seaweeds soak up carbon dioxide. Requiring zero input, such as fertiliser, these farms are designed to have a negative carbon footprint."

In 2013, Smith established the non-profit organisation Green Wave to train new seaweed farmers in order to replicate his model throughout the globe. His goal is to grow environmentally restorative species that mitigate climate change and restore ocean ecosystems. This means re-imagining the role of the fisherman, from hunter-gatherer to ocean entrepreneur who grows food, fuel, and fertiliser for local communities.

Adapted from*: https://ideas.ted.com/vertical-ocean-farms-*

Glossary:
oyster: *ostrica*
scallop: *capasanta*
storm-surge: *mareggiata*

1. Where was Bren's fishing area at first?
2. What contributed to the collapse of cod stocks in the Atlantic?
3. How was Bren's experience in shellfish farming in the Long Island Sound?
4. How did he judge the traditional methods of fishing or aquaculture?
5. What was his new approach to aquaculture?
6. What is grown in 3D ocean farming?
7. What are oysters used for?
8. What are seaweeds used for?
9. When was Green Wave founded?
10. What kind of production model is Green Wave going to promote?

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 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Worker bees indicate the direction of the food source…	☐	**a.** marine and freshwater farming.
2. The role of drone bees is…	☐	**b.** to mate with the queen.
3. The chemical reasons for Colony Collapse Disorder…	☐	**c.** may be due to pesticide poisoning.
4. Italian aquaculture mainly focuses on…	☐	**d.** by performing the waggle dance.
5. Crickets are considered highly nutritious as…	☐	**e.** they are a protein-rich food.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. What do the varieties of honey depend on?
2. What is the origin of honeybees?
3. When was Colony Collapse Disorder first noticed?
4. How can aquaculture activities be classified?
5. Are there any insects authorised as edible by the EU?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the words given below.

beehives · biodiversity · collapse · countryside · flowers · honey · limitations · pesticides · pollination · quality

Urban Beekeeping

As urban beekeeping is an increasingly popular trend, we can say bees will actually bring nature back into metropolitan contexts. Bees actually thrive better in the city than in the **1.** ..... . The reason is simple: urban pollution is not decimating bees as **2.** ..... and fertilisers are. Bees collect pollen from the inside of **3.** ....., thus avoiding smog residue collected on petals and other exterior floral parts. In addition to this, flowers and plants in city gardens and patios provide bees with large **4.** ..... .

City beekeeping of course poses precise **5.** ..... to safeguard both citizens and bees themselves. Beekeepers must report and geolocate **6.** ....., assuring a minimum distance between hives and distance from hive to streets and public schools. As regards the **7.** ..... control of the honey produced, both the final product and the production area are regularly tested.

The urgency in protecting bees and their **8.** ..... production is not dictated by mere market demand, but rather it is aimed at protecting the insects' function in our ecosystem. Without bee **9.** ....., many interconnected species and processes functioning within an ecosystem would **10.** ..... and seriously threaten the future of our planet.

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MULTIPLE CHOICE

5. Choose the correct option.

1. Which statement is false?
- **a.** The European Union is the main honey producer.
- **b.** Apiculture products are honey, pollen, propolis, royal jelly and beeswax.
- **c.** Honey should be harvested on dry days.
- **d.** Honeybees are essential to ensure plant reproduction by pollination.

2. One of the main tasks of worker bees is…
- **a.** to attract the drones.
- **b.** to attract the queen.
- **c.** to forage for food.
- **d.** to lay up to 2,500 eggs a day.

3. Royal jelly is used…
- **a.** for poisoning drone bees.
- **b.** for feeding worker bees.
- **c.** for attracting drone bees.
- **d.** for feeding larvae.

4. Drone bees…
- **a.** survive in the hive for a couple of years.
- **b.** are kicked out of the hive in winter.
- **c.** can live up to five years.
- **d.** are usually infertile.

5. A recirculating aquaculture system…
- **a.** can seriously compromise the environment.
- **b.** reduces the need for fresh, clean water.
- **c.** needs a unique chamber for housing fish and water treatment.
- **d.** is often found offshore.

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Total score ...../50

U 6.4 Livestock management

TEST 1

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

The History of Scrapie

In 18th century Britain, the most important commercial product was wool, involving nearly one fourth of the working population. Then, with the Industrial Revolution and the increasing dominance of mercantilism, fine wool became a valuable commodity. In this setting, a discussion took place in the British Parliament in 1755 about the economic effects of a fatal and spreading disease in sheep, and the need for the government to do something about it. However, no solution was found. Scholars of the disease started studying and describing its unpredictable increase and decrease in different countries over the following two centuries in England, France, Germany, and central Europe. Even today it is not clear where or when the disease actually first appeared, although there is a suggestion that it was already present in Northern Europe and Austro-Hungary before the beginning of the 18th century. The early 19th century saw a rapid extension of scrapie as a result of the practice of inbreeding to improve the quality of wool.

Around the middle of the 19th century, veterinarians in England, France, and Germany initiated the scientific study of scrapie, including systematic neuropathologic examinations, and efforts to identify an infectious pathogen. French and English researchers finally succeeded in transmitting scrapie to healthy sheep. The transmissible nature of scrapie was thus established beyond any doubt, although debate about the interaction between environmental and genetic factors continues to the present day.

As the practice of inbreeding was no longer in use, scrapie declined during the late 19th century. However, the disease has never entirely disappeared.

Adapted from: *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1114482/*

	T	F
1. In 18th century British economy was mainly based on the wool trade.	☐	☐
2. The majority of the British working population dealt with wool.	☐	☐
3. In 1755 the British Parliament evaluated the risk of a disease spreading in sheep.	☐	☐
4. The increase and decrease of the disease occurred at a regular pace in European countries.	☐	☐
5. Scientists do not know what country the disease came from.	☐	☐
6. The spread of scrapie had nothing to do with the practice of inbreeding.	☐	☐
7. An infectious pathogen was discovered in the middle of the 19th century.	☐	☐
8. Scrapie was proved to be transmissible.	☐	☐
9. It was proved there is no interaction between environmental and genetic factors.	☐	☐
10. The late 19th century showed a decreasing trend of the disease until it disappeared.	☐	☐

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 Name ..... Class ..... Date .....

MULTIPLE MATCHING

2. Match the beginnings and endings.

1. Some possible causes of livestock contagious diseases are…
2. There are no remedies for livestock affected by...
3. Kosher slaughter ritual is…
4. Farm buildings include farmhouse, buildings for machinery, …
5. Animal welfare refers to…

a. bacteria and viruses.
b. based on Jewish law.
c. BSE, scrapie, ASF and avian influenza.
d. the physical and mental health of animals.
e. silos and animal housing.

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SHORT OPEN QUESTIONS

3. Answer the questions.

1. What is the outcome of breeding animals indoors or in CAFOs?
2. Are grain-based diets suitable for cows, goats, and sheep?
3. How can the environment benefit from raising cattle on pasture?
4. What factors have an impact on animal welfare?
5. Where are chickens raised for meat and egg production?

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CLOZE TEST

4. Complete the text with the questions given below.

a. What are the symptoms?
b. Why should I be worried?
c. What is swine flu?
d. Will it spread to the UK?
e. How dangerous is it?
f. What should I do if I think I have it?
g. How do humans catch it?
h. Should tourists planning to go to Mexico be worried?
i. How is the virus transmitted?
j. Is there a drug which can be effective against the human variant?

Swine Flu: What You Need to Know

1. ..... – It is a contagious respiratory disease in pigs caused by type A influenza viruses. Pigs are hit by regular outbreaks. There are many different types of swine flu.

2. ..... – Humans do not normally catch it, but they can contract the virus, usually if they have been in close contact with pigs. It is also possible for the constantly changing infection to spread from person to person, which happened in the latest outbreak.

3. ..... – Experts believe it is spread through coughing and sneezing. Scientists are uncertain why this outbreak occurred.

4. ..... – Similar to those of regular human seasonal influenza, including fever, fatigue, lack of appetite, coughing and a sore throat. Some people with swine flu have also reported vomiting and diarrhoea.

5. ..... – Anyone who has recently returned from affected countries should consult a doctor if they notice flu-like symptoms. To minimise any risk to yourself and others, you should contact the NHS directly, rather than going to your local GP surgery.

6. ..... – More than 100 people have died in Mexico, where the outbreak originated, and thousands have been made ill. Most of the dead were between 25 and 45.

7. ..... – Testing has shown that antiviral drugs appear to be effective against the human strain of swine influenza.

8. ..... – The World Health Organisation (WHO) warned that the outbreak had "pandemic potential" and countries have been advised to prepare for a rapid spread. Flu viruses can mutate, making it difficult to find effective vaccines.

9. ..... – WHO says there is no need to alter travel plans.

10. ..... – The Health Protection Agency said some cases are inevitable, but that it is too early to say whether these will lead to a larger outbreak in the UK.

Adapted from: *https://www.ecdc.europa.eu/en/swine-influenza/factsheet*

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MULTIPLE CHOICE

5. Choose the correct option.

1. Avian influenza affects…
- **a.** only wild birds.
- **b.** only domestic birds.
- **c.** mainly pigs.
- **d.** both domestic and wild birds.

2. BSE can affect…
- **a.** cattle and humans.
- **b.** birds.
- **c.** sheep and goats.
- **d.** only cattle.

3. To ensure accurate labelling of the meat supply, …
- **a.** postmortem meat inspection is compulsory.
- **b.** antemortem meat inspection is an option.
- **c.** antemortem and postmortem meat inspection is essential.
- **d.** meat is inspected only in the case of unhealthy animals.

4. Which is true?
- **a.** All EU countries impose the same rules about slaughtering methods.
- **b.** Kosher and halal methods are forbidden in Italy.
- **c.** The EU states have adopted various solutions for religious rites.
- **d.** There is no relationship between the slaughtering method used and meat quality.

5. Livestock stunning…
- **a.** needs sharp knives.
- **b.** aims at decreasing animals' stress.
- **c.** occurs where animals are free to move.
- **d.** compromises meat quality.

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Total score ...../50

U 6.4 Livestock management

TEST 2

Name .....

Class ..... Date .....

READING COMPREHENSION

1. Read the passage and decide if the statements are true or false. Correct the false ones.

Bee Parasites

Researchers have found that a type of fly parasite causes honeybees to abandon their hives and die after a period of disoriented, "zombie-like" behaviour. The phenomenon may lead to better understanding of colony collapse disorder, say the researchers. This mysterious disease has caused the loss of honeybee colonies extensively across the United States since it was discovered in 2006.

The parasites were identified as *Apocephalus borealis* native to North America, and they attack bees by injecting eggs into their abdomens. Once hatched, the parasites kill the bees within a couple of weeks and emerge from the body when they have finished feeding – but it's the behaviour they induce in bees that scientists have found fascinating.

It seems these flies are somehow interfering with the bees' "clock genes" that help them keep a normal day-night rhythm. In addition, infected bees exhibit jerky limb movement and general weakness, then leave the hive and congregate around bright lights – behaviour more similar to moths.

The scientists are trying to determine whether the infected bees leave the hive voluntarily, or if they give off a chemical signal that provokes the healthy members of the colony to throw them out.

Genetic analysis of the parasites confirmed that they are the same flies that have been infecting bumblebees, raising the possibility that the fly is an emerging and potentially costly new threat to honeybees.

"We don't know the best way to stop parasitisation, because one of the big things we're missing is where the flies are parasitising the bees," a researcher explained. "We assume it's while the bees are out foraging, because we don't see the flies hanging around the beehives. But it's still a bit of a black hole in terms of where it's actually happening."

Glossary:
to hatch: *schiudersi*
jerky: *convulso*
moth: *falena*

	T	F
1. Only bees with "zombie-like" behaviour are attacked by the parasite.	☐	☐
2. Colony collapse disorder occurred sparsely across the US.	☐	☐
3. *Apocephalus borealis* comes from North America.	☐	☐
4. Infected bees die after a couple of weeks.	☐	☐
5. Alterations in bees' day-night rhythm could be due to these parasites.	☐	☐
6. Scientists wonder if bees are forced out of their hive by their healthy mates.	☐	☐
7. There is no proof bumblebees and honeybees are infected by the same parasite.	☐	☐
8. This emerging parasite underlines the danger that could threaten honeybee colonies throughout North America.	☐	☐
9. Scientists know where bees are being parasitised.	☐	☐
10. Flies are usually seen hanging around the beehives.	☐	☐

 Name ..... Class ..... Date .....

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MULTIPLE MATCHING

2. Match the beginnings and endings.

1. BSE can spread… ☐
2. Inappropriate housing can cause animals'… ☐
3. Losses in animal growth, production and reproduction can be due to… ☐
4. Livestock can be fed using seaweed… ☐
5. In a system of conventional barns, the animals… ☐

a. animals' discomfort.
b. are tied in a stall.
c. as feed additives.
d. both to other cattle and to humans.
e. discomfort, stress and injury.

...../10

SHORT OPEN QUESTIONS

3. Answer the questions.

1. Why are corn and soy used as a base for animal feed?
2. What is the drawback of a grain-based diet for cows, goats, and sheep?
3. How can humans be infected by avian influenza?
4. What is the advantage of stunning livestock?
5. What housing systems can be chosen for cattle?

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 Name ..... Class ..... Date .....

CLOZE TEST

4. Complete the text with the questions given below.

a. What is the outcome for affected cattle?
b. How can we confirm whether a cow actually has EHD?
c. What lesions are veterinarians seeing in these animals?
d. What should a cattle producer do if he or she suspects EHD in some of his or her cattle?
e. How do cattle get this disease?
f. What is EHD?
g. Is there any vaccination measure for affected cattle?
h. What are the signs of EHD in cattle?
i. Can the affected cattle be treated with any medications?
j. Is the virus sensitive to temperature?

Epizootic Haemorhagic Disease

Russ Daly, Professor at South Dakota State University, is being interviewed about EHD.

1. ..... - EHD is a major infectious, viral disease in mule deer and antelopes, which in some years causes significant numbers of deaths in deer populations. It is uncommon for cattle to be affected. Clinical illness due to EHD is very rare in sheep and goats.

2. ..... - The clinical disease in cattle is quite mild and deaths are very infrequent. The most common signs noted in cattle consist in excessive salivation, stiffness, crusty skin on the teats, fever, and a reluctance to eat.

3. ..... - The most common manifestation of EHD in cattle in this South Dakota outbreak has been that of sores or ulcers in the mouth.

4. ..... - No, there is no vaccine for the EHD virus itself in cattle.

5. ..... - Veterinarians working with affected herds have been prescribing anti-inflammatory medications and antibiotics in the hope of preventing problems with secondary bacterial infections.

6. ..... - Reports from veterinarians are generally encouraging. Most of the affected cattle are recovering and beginning to eat.

7. ..... - EHD is a virus exclusively spread by biting flies of the *Culicoides* family. The virus is not directly contagious; it needs to be spread through the bite of one of these flies.

8. ..... - Transmission and numbers of new cases will decline with the onset of freezing temperatures.

9. ..... - The surest way is to detect the actual virus in the bloodstream. So, sending a blood sample to the lab for a test is the method of choice.

10. ..... - Contact their veterinarian. The herd veterinarian can advise on treatment and management of affected animals.

Glossary:
mule deer: *cervo mulo*

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 Name ..... Class ..... Date .....

MULTIPLE CHOICE

5. Choose the correct option.

1. Halal slaughter…
- **a.** is based on Jewish law.
- **b.** forbids the use of knives.
- **c.** is based on Islamic law.
- **d.** is allowed only after shooting the animal.

2. Animals displaying itchy skin and uncontrolled leg movements are affected by…
- **a.** BSE.
- **b.** African swine fever.
- **c.** avian influenza.
- **d.** scrapie.

3. Raising cattle on pasture…
- **a.** is not beneficial to the environment.
- **b.** helps decrease soil erosion and improve soil fertility.
- **c.** means breeding livestock CAFOs.
- **d.** has great economical advantages.

4. Animal well-being…
- **a.** is opposed by the European Commission.
- **b.** has nothing to do with animal welfare.
- **c.** is just a fad.
- **d.** concerns the physical and mental health of animals.

5. Possible causes of livestock diseases are…
- **a.** bacteria, viruses and fungi.
- **b.** loss of appetite, head down.
- **c.** drooping ears or lack of energy.
- **d.** abnormal behaviour.

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Total score ...../50

Unit 1.1 TEST 1 p. 114

1.
1. T; 2. F, There have been great changes in agricultural techniques; 3. T; 4. T; 5. F, It has decreased; 6. F, It is closely linked to breeding and genetics; 7. F, The chemicals have contributed to a greater production; 8. T; 9. T; 10. F, They are very important.

2.
1. e; 2. b; 3. c; 4. a; 5. d.

3.
Sample answers
1. It was Gregor Mendel; 2. Organic and sustainable farming adopt a more "ecological" approach to agriculture. However, organic farming excludes or strictly limits the use of synthetic chemicals and uses only natural waste or manure whereas sustainable farming does not exclude artificial fertilisers but attempts to optimise their use. Moreover, sustainable farming aims to provide a fair, secure living for farmers and, at the same time, protect natural resources to meet future needs; 3. They are Drip System, Ebb & Flow, Nutrient Film Technique, Water Culture and Wick System; 4. Since aquaponics is a combined culture of fish and hydroponic plants in a recirculating aquaculture system, it is particularly advantageous because plants use nutrients from fish waste and act as a biofilter; in this way it is possible to re-use nutrients, conserve water and share infrastructural and operational costs; 5. It involves managing a farm as a living organism, in a dynamic relationship with soil, water, air, warmth, and the universe.

4.
1. sound; 2. shortens; 3. air; 4. sprayed; 5. fish; 6. filter; 7. problems; 8. recycling; 9. powered; 10. climate.

5.
1. a; 2. d; 3. c; 4. b; 5. b.

Unit 1.1 TEST 2 p. 117

1.
1. F, They started their business in 2010; 2. T; 3. T; 4. T; 5. F, They are satisfied with it; 6. T; 7. F, Food produced in *Leafy Green Machine* tastes as good or better than food produced on a traditional farm; 8. T; 9. T; 10. F, Not yet, J. Friedman and B. McNamara are going to incorporate solar panels.

2.
1. e; 2. a; 3. d; 4. c; 5. b.

3.
1. Because the Augustinian priest Gregor Johann Mendel proposed the first theory of the units of inheritance, called genes. Thanks to his discovery, breeders could begin the process of selecting plants more scientifically; 2. The biodynamic method considers the earth as a living organism and tries to renew the soil in order to produce food that is full of vitality and nutrition. Biodynamic farming uses different principles that add vitality to the plant, soil and livestock. Specifically prepared preparations made from minerals and herbs are used to enhance the compost applied to fields and intensify the sunlight permeated into the plant; 3. The excessive application of synthetic fertilisers; 4. Antibiotics are useful to contrast diseases and infections in livestock; 5. Using farming techniques such as crop rotation, compost and animal manure.

4.
1. features; 2. code; 3. crossbreeding; 4. genes; 5. valid; 6. environment; 7. cancer; 8. risks; 9. people; 10. ingredients.

5.
1. c; 2. b; 3. d; 4. d; 5. c.

Unit 1.2 TEST 1 p. 120

1.
1. T; 2. F, A growing number of farmers do; 3. F, Most farm equipment has some PA components; 4. T; 5. F, There will be a decrease in CO_2 production; 6. F, For the smaller farmers these technologies are too expensive; 7. T; 8. T; 9. F, Agriculture has an uneven development due to the cost of technologies and the age of farmers; 10. T.

2.
1. e; 2. d; 3. a; 4. b; 5. c.

3.
Sample answers
1. They are forks, hoes, rakes, scythes, shovels, sickles and spades; 2. They are the thresher,

the reaper, the gasoline tractor, the combine and the steel plough; 3. Robots are playing a fundamental role as they lower operating costs, reduce the need for labour and increase farm efficiency and productivity. Farm robots can operate independently, replace humans in heavy or dangerous work and reduce dependence on seasonal labour; 4. Because their form depends on the kind of harvest; 5. Precision farming allows more precise application to the crops and better control of the dispersion of chemicals in the environment, whereas conventional agriculture tends to use a greater amount of pesticides, herbicides or fertilisers.

4.

1. world; 2. organic; 3. water; 4. sustainable; 5. high-tech; 6. precision; 7. seed; 8. robots; 9. project; 10. reliable.

5.

1. d; 2. c; 3. b; 4. d; 5. a.

Unit 1.2 TEST 2 p. 124

1.

1. T; 2. F, It is one of the most important; 3. F, It is going to start thanks to the use of connectivity and data management; 4. T; 5. T; 6. F, A growing number of farmers do; 7. T; 8. F, They have increased their yields and reduced nitrogen levels significantly; 9. F, It was reduced by 20%; 10. F, It will be effective.

2.

1 d; 2. b; 3. a; 4. e; 5. c.

3.

Sample answers

1. It is a tractor which operates without a person inside; 2. Robots can be used in raising livestock for feeding, cleaning, milking or collecting eggs; 3. The need for agricultural labour force can be reduced thanks to highly sophisticated machinery and robots; 4. Farm robots can operate independently, replace humans in heavy or dangerous work and reduce dependence on seasonal labour; 5. Drones are used for soil and fields analysis, planting, crop spraying, crop monitoring, irrigation and crop health assessment.

4.

1. technologies; 2. robots; 3. producer; 4. problems; 5. efficient; 6. vegetable; 7. reduce; 8. livestock; 9. health; 10. pests.

5.

1. c; 2. a; 3. d; 4. c; 5. b.

Unit 1.3 TEST 1 p. 128

1.

1. They milked cows by hand; 2. They managed to buy equipment, renovate farm buildings and obtain better seeds and fertilisers; 3. They could borrow from banks; 4. Because country life was still hard; 5. They were aware of the need of protecting the environment and using natural resources prudently and sustainably; 6. The outcome will be rural exodus, with a rapidly ageing population and not enough young people entering the sector; 7. They can be encouraged by training and funding provided by the CAP; 8. By selling their goods directly to the market and responding to market signals of supply and demand; 9. They can start farm shops, crafts and cultural activities or projects to renovate villages and rural infrastructure; 10. A clean environment, fresh food, a comfortable family accommodation in renovated barns and a range of activities linked to the farm.

2.

Sample answers

1. price fluctuation; 2. forestry, beekeeping, fruit cultivation, poultry and dairy farming; 3. on farm hygiene, food safety, animal health and welfare, biodiversity and landscape protection; 4. ten objectives; 5. biodiversity and landscape preservation.

3.

1. F, The CAP 2014-20 focused on the preservation of natural resources; 2. T; 3. T; 4. F, Diversification brings benefits to the rural community; 5. F, It has evolved.

4.

1. food; 2. diseases; 3. worries; 4. milk; 5. diversification; 6. farming; 7. seed; 8. goats; 9. conventional; 10. ice-cream.

5.

1. b; 2. d; 3. c; 4. a; 5. b.

Unit 1.3 TEST 2 p. 131

1.

1. It has changed to comply with new economic situations and citizens' requirements and needs; 2. It focuses on ten objectives; 3. By empowering a new generation of highly qualified young farmers, encouraging them to join the profession; 4. Yes, it takes measures to preserve landscapes and biodiversity; 5. They are based on the farm size in hectares; 6. On the contrary, they are granted a higher level of support per hectare; 7. At least 2%

of direct support payments allocated to each EU country; 8. To grant financial support to genuine farmers only; 9. To preserve carbon-rich soils; 10. Crop rotation instead of crop diversification.

2.

Sample answers

1. the prosperity of farmers, industries and consumers; 2. economic and environmental policies, climatic conditions and international market developments; 3. domestic markets much quicker than before; 4. to guarantee enough food for the post-war Europe; 5. this helps improve the environment and increase the absorption of carbon dioxide.

3.

1. T; 2. T; 3. F, A variety of economic, natural, and political factors are responsible for price volatility; 4. F, They are used in a non-sustainable way; 5. T.

4.

1. division; 2. environmentally; 3. world; 4. subsides; 5. birds; 6. measures; 7. pesticides; 8. dairy; 9. rural; 10. farm.

5.

1. a; 2. d; 3. a; 4. b; 5. c.

Unit 2.1 TEST 1 p. 135

1.

1. F, They have become interested in GM crops; 2. T; 3. F, It was one of the worst droughts for decades; 4. F, An increasing number of farmers consider the adoption of GM crops a priority; 5. T; 6. T; 7. F, That is the opinion of GM supporters, not everybody's; 8. T; 9. F, They support the use of organic and agroecological crops; 10. T.

2.

Sample answer

The relationship between climate change and agriculture involves mutual responsibility. Climate change affects agriculture through changes in average temperatures, rainfall and climate extremes (i.e. floods, drought, hurricanes); changes in pest and disease patterns; changes in atmospheric carbon dioxide; changes in the nutritional quality of some foods; changes in the growing season. On the other hand, agriculture affects climate through emissions of greenhouse gases (GHGs) such as carbon dioxide, methane and nitrous oxide. These emissions come directly from the fossil fuels used for farm equipment, the enteric fermentation of livestock, the wrong manure management, and the excessive use of nitrogen fertilisers.

3.

1. Ecosystems can be divided into terrestrial, freshwater, and marine; 2. Similar communities of plants, animals, and soil organisms in a specific area; 3. They trap more and more heat radiation and reflect it back to the Earth, causing average temperatures on Earth to rise; 4. It is caused by improper management of radioactive material from nuclear power plants; 5. Light and noise pollution. Light pollution is due to artificial light sources; noise pollution is excessive noise coming mostly from roads, aircraft and industry.

4.

1. frost; 2. spring; 3. water; 4. apple; 5. malformation; 6. equipment; 7. wind; 8. excess; 9. meteorological; 10. sprinklers.

5.

1. d; 2. c; 3. b; 4. c; 5. b.

Unit 2.1 TEST 2 p. 138

1.

1. F, It is its main cause; 2. T; 3. F, They become more acidic when the pH of the water decreases; 4. T; 5. T; 6. T; 7. F, It is lower; 8. T; 9. F, 2% of the ocean floor; 10. T.

2.

Sample answer

The Food and Agricultural Organisation of the United Nations has defined a new approach to farming called climate-smart agriculture (CSA). It adopts practices aiming at transforming agriculture: lower agricultural expansion into natural habitats; afforestation, reforestation, increased efforts to avoid deforestation, and restoration of underutilised or degraded lands; reduction and more efficient use of nitrogenous inputs; effective manure management and use of feed that increases livestock digestive efficiency. In this way, CSA can lower greenhouse gas emissions, store additional carbon from the atmosphere in the soil, and reduce vulnerability to the effects of climate change.

3.

1. They are abiotic factors; 2. It is likely due to the increase in greenhouse gas concentration which traps too much solar radiation on the Earth; 3. Weather consists of the short-term changes in the atmosphere in terms of temperature, humidity, precipitation, wind and atmospheric pressure. Climate is the average weather for a particular region and time period, usually taken over 30 years; 4. They are rainfall, wind and climate extremes (i.e. floods, drought,

hurricanes, thunderstorms); 5. Agriculture affects climate through emissions of greenhouse gases which come from the fossil fuels used for farm equipment, the enteric fermentation of livestock and the wrong manure management, or the excessive use of nitrogen fertilisers.

4.
1. storms; 2. clouds; 3. risk; 4. hail; 5. altitude; 6. forecaster; 7. message; 8. sky; 9. beneficiaries; 10. big.

5.
1. c; 2. d; 3. b; 4. c; 5. a.

Unit 2.2 TEST 1 p. 141

1.
1. F, It has been used for a long time; 2. F, He planned to use it; 3. T; 4. T; 5. T; 6. F, No, they are fossil fuels: they are made from decomposed plants and animals that have been buried in the ground for millions of years; 7. F, The ethanol in biofuels is made from corn; 8. F, It is the starches, sugars, and other molecules in plants that are broken down; 9. T; 10. F, For decades.

2.
1. Because this extends the growing season and avoids damage from low air temperatures; 2. They may threaten wildlife, can cause annoying noise and have a disruptive visual impact on the landscape; 3. During the Kyoto Conference; 4. It is the world's main international environmental organisation created in 1972 at the Stockholm conference; 5. It is a clean, sustainable, environmentally friendly economy with zero emissions that promotes health, wealth, and well-being.

3.
1. sector; 2. economy; 3. investment; 4. dark; 5. environmental; 6. timber; 7. damage; 8. change; 9. disasters; 10. exploitation.

4.
1. b; 2. d; 3. a; 4. e; 5. c.

5.
1. b; 2. a; 3. c 4. d; 5. c.

Unit 2.2 TEST 2 p. 144

1.
1. F, It produces no toxic pollution; 2. T; 3. T; 4. T; 5. F, It has been widely documented and studied; 6. T; 7. F, With low wind speed; 8. T; 9. F, Turbines may act as artificial reefs, thus increasing fish populations; 10. F, Wind farms do not represent a threat to species populations.

2.
1. They are dangerous because, when combusting, they release large quantities of greenhouse gases into the atmosphere; 2. Maintaining the global warming limit of 1.5°C; 3. It includes all forms of animal and plant organic matter; 4. It is an energy source for vehicles which is obtained through the electrolysis of water in special electrochemical cells powered by electricity produced from renewable sources; 5. It is a model of production and consumption which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products for as long as possible.

3.
1. low-carbon; 2. fuel; 3. radioactive; 4. dangerous; 5. low-level; 6. store; 7. ecologically; 8. waste; 9. burial; 10. technical.

4.
1. e; 2. b; 3. c; 4. a; 5. d.

5.
1. d; 2. c; 3. a; 4. b; 5. a.

Unit 2.3 TEST 1 p. 147

1.
1. T; 2. T; 3. F, Deforestation logs forests without further reforestation; 4. F, It stimulates offspring formation; 5. T; 6. F, They are weaker; 7. T; 8. T; 9. F, They must not be underestimated; 10. T.

2.
Sample answers
1. high forest systems and coppice systems; 2. latitude as tropical, temperate and boreal; 3. marking, felling, processing the trees and transporting the wood; 4. debarked by machines; 5. safeguard the presence of the ibex and wolf, respectively.

3.
1. They are shortwood harvesting, longwood harvesting, and whole-tree system; 2. Because they offer a wide range of microhabitats; 3. Because it pointed out the need for a coexistence between economy and the natural environment; 4. It deals with the protection of the marine environment, birds sites, and habitat sites of the EU; 5. It is used for construction work.

4.
1. variety; 2. species; 3. surface; 4. equator; 5. rainfall; 6. temperatures; 7. degradation; 8. rainforests; 9. timber; 10. farming.

5.
1. a; 2. a; 3. b; 4. c; 5. d.

Unit 2.3 TEST 2 p. 150

1.
1. F, Woodlands are used for different purposes; 2. F, It contains mainly deciduous trees; 3. T; 4. F, Fishing is allowed; 5. F, It is managed by the City of London Corporation; 6. T; 7. T; 8. T; 9. F, It encourages wildlife and fungi; 10. T.

2.
Sample answers
1. a sustainable manner; 2. one or more ecosystems that require the intervention of the State; 3. the seeds produced by the plants or from transplanted seedlings; 4. new suckers originated from the cut stumps; 5. the intended use of the wood, from 2-3 years up to 100 years.

3.
1. It studies the growth, composition, health and quality of the trees, and guarantees the conservation and balance of the forest ecosystem; 2. It is used for making fine furniture and decorative woodwork; 3. Partially controlled exploitation; 4. Sustainable tourism; 5. A possible coexistence between urbanised areas and natural environments.

4.
1. cutting; 2. companies; 3. selective; 4. cost-effective; 5. threat; 6. damage; 7. grow; 8. soil; 9. decreases; 10. species.

5.
1. a; 2. c; 3. b; 4. b; 5. d.

Unit 2.4 TEST 1 p. 153

1.
1. T; 2. F, Sporadically, with cleared patches; 3. F, The effects of fragmentation are well documented in all forested regions; 4. T; 5. T; 6. F, Fragmentation increases isolation; 7. F, It does; 8. T; 9. F, The environment of the adjacent non-forest land determines the environment of the forest fragment; 10. T.

2.
1. e; 2. c; 3. b; 4. a; 5. d.

3.
1. Because it provides food and places to nest for a wide range of wildlife; 2. Pruning and destroying the infested shoots, spraying pesticides or biologically controlling the pest by means of a natural parasitoid; 3. It leads to root system fragility and reduced stability in the event of storms; 4. It can cause loss of biodiversity, soil erosion, flooding and climate change; 5. Each year around 13 million hectares are deforested worldwide.

4.
1. country; 2. species; 3. diversity; 4. climate; 5. zones; 6. rainforests; 7. fauna; 8. marine; 9. earth; 10. biodiversity.

5.
1. c; 2. b; 3. a; 4. c; 5. d.

Unit 2.4 TEST 2 p. 156

1.
1. T; 2. F, Diseases can live in mud and water; 3. T; 4. F, It can limit the spread of plant diseases between different places; 5. T; 6. F, Broadleaved trees did; 7. T; 8. F, 30% of the samples; 9. T; 10. F, They can survive even in air-exposed infected leaves for more than a year.

2.
1. d; 2. c; 3. a; 4. b; 5. e.

3.
1. Because they help to preserve forest ecosystems and wildlife habitats; 2. Because fragmented areas could lead to more population extinctions and are less likely to be re-colonised; 3. Because they allow wildlife to move and exchange their genetic inheritance, facilitating re-colonisation and avoiding local extinctions; 4. Because it defoliates conifer trees, weakening them; 5. They are fragmentation, atmospheric pollution, and forest fires.

4.
1. conservation; 2. outside; 3. species; 4. artificial; 5. habitat; 6. genetic; 7. management; 8. reserves; 9. disturbance; 10. interfere.

5.
1. a; 2. b; 3. a; 4. c; 5. d.

Unit 3.1 TEST 1 p. 159

1.
1. T; 2. F, They have different effects; 3. T; 4. F, These elements cause most erosion; 5. T; 6. F, It

is responsible for sheet erosion; 7. F, It is a small watercourse; 8. T; 9. T; 10. T.

2.
1. groundcover; 2. tillage; 3. loam; 4. wetland; 5. soil profile.

3.
1. e; 2. d; 3. a; 4. b; 5. c.

4.
1. Soil is made up of mineral material, organic matter, water, air, and living organisms; 2. Loam, a mixture of clay, sandy and silty particles, and organic matter; 3. It provides plants with nutrients and water; 4. They are water erosion, wind erosion, chemical and physical deterioration; 5. Conventional tillage, zero tillage, minimum tillage and conservation tillage.

5.
1. d; 2. c; 3. c; 4. a; 5. b.

Unit 3.1 TEST 2 p. 162

1.
1. T; 2. F, It impacts both Italy and Europe; 3. F, Apennine areas are mainly affected by water erosion; 4. T; 5. T; 6. T; 7. T; 8. F, Intensive livestock grazing causes the high concentration of nitrates; 9. T; 10. F, Landslides affect all the mountain ranges and their hilly strips.

2.
1. overgrazing; 2. erosion; 3. weeds; 4. leaching; 5. humus.

3.
1. result; 2. affect; 3. developing; 4. biological; 5. reduction; 6. water; 7. process; 8. run-off; 9. climatic; 10. depend.

4.
1. It is the community of micro-organisms and organisms living in the soil; 2. There are three classes of soils depending on the size of its particles: sandy, clay, and silty soils. Two important differences are their relative capacity to hold water and their effects on soil drainage; 3. The plant roots hold the soil in position, slow down water flowing and produce organic matter which helps bind the soil particles together; 4. It is usually made up of six horizons which have different characteristics, colour and degree of fertility; 5. It is a farming practice that helps to prepare the soil for plant growth.

5.
1. b; 2. a; 3. a; 4. d; 5. a.

Unit 3.2 TEST 1 p. 165

1.
1. About 5,000 years ago; 2. Through a matrix of small channels formed in the field; 3. Basin irrigation; 4. The Nile sediment; 5. They were used to lift water from lower to higher elevations; 6. They built aqueducts to channel water from the mountains; 7. Water was conveyed to the fields, cities and reservoirs thanks to gravity; 8. An excellent example is the Pont du Gard aqueduct, in southern France; 9. It was built in 19 BC; 10. It was piped to Nîmes.

2.
1. d; 2. a; 3. e; 4. c; 5. b.

3.
1. The consequences are rising temperatures, dry land, drinking-water shortage, food shortage and famine; 2. Modern agriculture needs a large quantity of water for irrigation, and industries require a great amount of water for manufacturing processes; 3. Water is applied drop by drop to the root area of each plant by means of narrow, plastic tubes so evaporation, runoff and water waste are minimised; 4. Climate change can affect the hydrological cycle as regards precipitation, melting of snow and ice, increasing evaporation and changes in soil moisture and runoff; 5. It depends on topography, crops that will be grown in the field, and soil type.

4.
1. drinking water; 2. world's population; 3. seawater; 4. marine; 5. filtered; 6. pressure; 7. pure; 8. salty; 9. mineral salts; 10. desalinating.

5.
1. d; 2. b; 3. a; 4. c; 5. d.

Unit 3.2 TEST 2 p. 168

1.
1. F, It has been available for hundreds of millions of years; 2. F, They have remained constant; 3. T; 4. T; 5. F, Some regions are rich in water while others are affected by serious drought; 6. T; 7. F, We are inefficient water users; 8. F, It is a water-intensive crop; 9. F, Water use has more than doubled; 10. T.

2.
1. d; 2. c; 3. a; 4. b; 5. e.

3.
Sample answer
1. It is a renewable resource because it is recycled

in reasonably short periods of time; it is a non-renewable resource because it is being used at a much larger rate than it can be replenished; 2. Higher temperatures reduce stream flow and lake levels causing less dilution of pollutants and lower quality of water; 3. They are surface, sprinkler and drip irrigation; 4. Increase in crop production and improvement of aeration and soil nitrogen, which will result in earlier germination and better root development; 5. Yes, drainage could have a severe environmental impact due to the concentrations of salts, nutrients, and other crop-related chemicals in drainage discharge.

4.

1. groundwater; 2. private; 3. protection; 4. safe; 5. contamination; 6. pesticides; 7. department; 8. disinfecting; 9. source; 10. checking.

5.

1. c; 2. a; 3. d; 4. a; 5. b.

Unit 3.3 TEST 1 p. 171

1.

1. T; 2. F, It is one of the most harmful; 3. F, It is less than or as acidic as vinegar; 4. T; 5. F, It falls; 6. T; 7. F, It favours pest attacks because plants become stressed; 8. F, It is almost impossible; 9. T; 10. T.

2.

Sample answer

Plants play the most important part in the cycle of nature: they hold the soil in place, preventing erosion due to rain and wind, moderate the temperature and provide places where wildlife can live and hide. In tropical rainforests, plants may also change rainfall patterns over large areas and enrich the soil with their fallen leaves and rotting wood. Besides food, plants supply wood products, fibres, drugs, oils, fuels and raw materials.

3.

1. The presence of flowers; 2. Flower, fruit and seed; 3. They anchor the plant to the ground, take water and nutrients from the soil, and store food; 4. They can compete for water, nutrients, light and space, reducing crop yield; 5. By means of tools such as weed removers, through tillage or mowing, using natural enemies to control the germination of weed seeds, or applying herbicides to weeds or soil.

4.

1. energy; 2. carbon dioxide; 3. leaves; 4. chloroplasts; 5. hydrogen; 6. carbohydrates; 7. glucose; 8. starch; 9. reaction; 10. opposite.

5.

1. b; 2. c; 3. a; 4. c; 5. d.

Unit 3.3 TEST 2 p. 174

1.

1. T; 2. F, It is carbon dioxide; 3. T; 4. F, A greater amount of carbon dioxide does; 5. F, It is oxygen; 6. F, They can control the factors limiting photosynthesis in greenhouses; 7. F, Light energy is needed; 8. T; 9. T; 10. T.

2.

Sample answer

Plants are important for all life on Earth. Everything we eat comes directly or indirectly from plants. Plants also regulate the water cycle: they help distribute and purify the planet's water, and move water from the soil to the atmosphere. Plants produce oxygen and absorb carbon dioxide during photosynthesis. Oxygen is essential for cellular respiration for all aerobic organisms. Moreover, the removal of carbon dioxide from the atmosphere reduces the greenhouse effect and global warming.

3.

1. Because it stores and transports water and nutrients, produces hormones, and helps anchor the plant to the ground; 2. Through the vascular tissue; 3. They can be divided into monocotyledonous (monocots) and dicotyledonous (dicots) plants; 4. It consists of the primary root and a mass of roots; 5. All wild plants which grow where they are not wanted and in competition with cultivated plants.

4.

1. beneficial; 2. hold; 3. wind; 4. nutrients; 5. topsoil; 6. compost; 7. channels; 8. seed; 9. habitat; 10. properties.

5.

1. c; 2. d; 3. a; 4. d; 5. b.

Unit 3.4 TEST 1 p. 177

1.

1. T; 2. F, It grows better in damp places; 3. F, It is a perennial plant; 4. T; 5. F, They are considerable; 6. T; 7. T; 8. F, Potassium is particularly useful; 9. F, Comfrey leaves are richer in potassium; 10. T.

2.

Sample answers

1. two or three crops are grown annually on the same piece of land; 2. two or more crops in the same field at the same time; 3. compensate the loss of nutrients; 4. by-products of natural organisms and contain essential nutrients in unequal proportions; 5. the genetic integrity of seeds and, therefore, crop diversity.

3.
1. It has been proven beneficial to soil fertility and effective in weed, pest and disease control; 2. It is nutritional material added to soil to make plants grow better; 3. Eutrophication or nitrate leaching through the soil; 4. They are more suited to mechanised large-scale agriculture and give higher yields under specific conditions; 5. It will be a concentrated ownership of plant genetic resources, less choice in the marketplace and a lack of genetic diversity in available seeds.

4.
1. plant; 2. traditional; 3. diversity; 4. long-term; 5. species; 6. freezing; 7. methods; 8. cryopreservation; 9. exceptional; 10. risk.

5.
1. a; 2. b; 3. d; 4. c; 5. c.

Unit 3.4 TEST 2 p. 181

1.
1. F, Land and seed were shared by all; 2. F, It is mainly concerned with economic efficiency; 3. F, They restored the soil nutrients; 4. T; 5. T; 6. T; 7. F, Strict laws were issued to protect the intellectual property of inventors; 8. F, It is risky to grow farm saved seeds; 9. T; 10. T.

2.
Sample answers
1. the consumption of fertilisers and plant protection treatments; 2. retain moisture and resist erosion; 3. a reasonable and balanced supply of nutrients for a growing crop; 4. duplicate seed samples from the world's crop collections; 5. produce, disseminate, and access seeds directly from their own harvest.

3.
1. The application of fertilisers and pesticides to individual crops; 2. Because it stores nutrients and improves soil fertility and water-holding capacity; 3. By recycling manure or adding mineral fertilisers; 4. To hold collections of food crops for safekeeping; 5. They must be clean, free of weed seeds and other contaminants, certified for their viability, and have a good germination rate.

4.
1. production; 2. revolution; 3. hybridised; 4. starvation; 5. grains; 6. diseases; 7. environmental; 8. pesticides; 9. damage; 10. varieties.

5.
1. d; 2. a; 3. d; 4. b; 5. c.

Unit 4.1 TEST 1 p. 185

1.
1. F, It comes from the tree it grows on; 2. T; 3. T; 4. F, For its nutritional content; 5. T; 6. T; 7. F, It can improve the immune system; 8. T; 9. F, It has not approved it yet; 10. F, They destroy only tumor cells.

2.
1. e; 2. c; 3. a; 4. b; 5. d.

3.
1. They contain protein, vitamins, carbohydrates, fats, minerals, and fibres; 2. Peanuts can be eaten raw, toasted or salted; they are also used to make oil, butter, medicines, cosmetics, solvents and textile materials; 3. Potato sprouts are considered toxic due to their potentially high concentration of glycoalkaloids, which exert their toxic effects on the nervous system and cause a variety of symptoms including headaches, abdominal cramps, fever, hallucinations, and even death; 4. They should be stored in dark, well-ventilated areas, at about 5-7°C; 5. Vegetables may be classified into leafy green, stem, root, bulb, tuber, and fruit-bearing vegetables.

4.
1. native; 2. cultivars; 3. desserts; 4. nutritional; 5. vegans; 6. folic acid; 7. dietary fibre; 8. sugar; 9. cardiovascular; 10. pressure.

5.
1. c; 2. c; 3. d; 4. a; 5. b.

Unit 4.1 TEST 2 p. 188

1.
1. F, Rice was introduced to India before the time of the Greeks; 2. F, Around 2000 BC; 3. T; 4. T; 5. F, For nine countries; 6. F, It supplies one fourth; 7. T; 8. F, Immediately or in a couple of days; 9. T; 10. T.

2.
1. c; 2. a; 3. d; 4. b; 5. e.

3.
1. Because they are the main source of energy for the body; 2. Legumes are annual plants whose seeds are contained in pods which can be separated easily when ripe; 3. Soybeans are used to make oil and drinks; 4. The roots of leguminous plants contain bacteria which fix the atmospheric nitrogen by converting it into nutrients for the plants, thus supplying a great

amount of nitrogen to the soil; 5. Because they contain vitamins, minerals, fibre, and antioxidants.

4.
1. soil; 2. crops; 3. loam; 4. manure; 5. retention; 6. nutrient; 7. tilling; 8. rest; 9. moisture; 10. evaporation.

5.
1. c; 2. d; 3. a; 4. b; 5. b.

Unit 4.2 TEST 1 p. 191

1.
1. T; 2. T; 3. F, They used to rub it over their bodies; 4. F, Because it can live for many years; 5. F, New branches will germinate from the root of the old tree; 6. F, Since 12th century; 7. T; 8. F, It is difficult to determine the age of an olive tree with accuracy; 9. T; 10. T.

2.
1. c; 2. e; 3. d; 4. b; 5. a.

3.
1. They are mainly cultivated in Mediterranean areas; 2. They may lay eggs just under the skin of the olive fruit; 3. They help reduce the erosive forces of both raindrops and the wind by providing protection for the soil surface and by acting as a windbreak; 4. They are the temperate zones; 5. They contain a high quantity of protein.

4.
1. native; 2. cultivated; 3. seed; 4. ornamental; 5. versatility; 6. dry; 7. vegetable; 8. sunflowers; 9. cover crop; 10. beneficial.

5.
1. b; 2. d; 3. a; 4. d; 5. c.

Unit 4.2 TEST 2 p. 194

1.
1. T; 2. F, They have accused a plantation owner of growing oil palm trees illegally; 3. F, It is made of peatlands and forests; 4. T; 5. F, They live only here; 6. T; 7. F, The committee responsible for reviewing environmental impact has approved the project; 8. T; 9. T; 10 F, It is trying to draw the attention of the government to this problem.

2.
1. e; 2. b; 3. a; 4. d; 5. c.

3.
1. It involves using either the pheromone mating disruption, or the olive fly parasite, as well as traps or lures; 2. Defoliation of infected trees, poor growth and dieback of defoliated branches, and reduced fruit yield; 3. It is to analyse and reduce the impact of olive grove management; 4. It can be used to produce both margarine and oilseeds; 5. They are margarine, spreads, dairy blends, animal feed, emulsifiers and cooking oil.

4.
1. indigenous; 2. region; 3. element; 4. position; 5. oil; 6. medicine; 7. soils; 8. pruning; 9. gathering; 10. nitrogenous.

5.
1. c; 2. a; 3. d; 4. b; 5. b.

Unit 4.3 TEST 1 p. 197

1.
1. T; 2. F, It was passed in 1700 BC; 3. T; 4. T; 5. T; 6. F, They were associated with religious rites after the fall of the Roman Empire; 7. F, It was brought to South Africa by the Dutch; 8. F, They exported grapes to California; 9. T; 10. T.

2.
1. e; 2. a; 3. b; 4. c; 5. d.

3.
1. *Vitis vinifera*; 2. Soil composition, drainage and slope, and the microclimate including temperature, precipitation and exposure to sun, wind and fog; 3. Yes, all vineyard activities can be mechanised, including winter pruning; 4. Gobelet; 5. Pests and diseases.

4.
1. varieties; 2. rootstocks; 3. selected; 4. microclimates; 5. diverse; 6. coastal; 7. material; 8. disadvantage; 9. vines; 10. nutrients.

5.
1. b; 2. c; 3. a; 4. c; 5. d.

Unit 4.3 TEST 2 p. 200

1.
1. F, Table grapes have firmer pulp; 2. F, Wine grapes are more susceptible to damage; 3. F, They are mostly non-aromatic; 4. T; 5. T; 6. F, They are what genetic research is aiming at; 7. T; 8. T; 9. T; 10. T.

2.
1. e; 2. d; 3. c; 4. b; 5. a.

3.

1. The American Continent; 2. Climate, terroir and vine variety; 3. It increases airflow and sun exposure, thus reducing fungal infections; 4. Rodents, insects and birds; 5. Because it reduces plant vigour.

4.

1. vineyards; 2. vines; 3. range; 4. native; 5. harvest; 6. skin; 7. winegrowing; 8. varieties; 9. cultivated; 10. ripening.

5.

1. a; 2. d; 3. d; 4. c; 5. b.

Unit 4.4 TEST 1 p. 203

1.

1. F, The one in Padua is the oldest one; 2. T; 3. T; 4. F, It represents the world; 5. F, They were added later on; 6. T; 7. F, It is the second most extensive in Italy; 8. T; 9. F, It has remained essentially unchanged over the centuries; 10. T.

2.

Sample answers

1. optimum plant growth; 2. production, marketing, export and research; 3. reduce energy consumption in buildings; 4. in the late 15th century; 5. the tradition of the "cottage garden".

3.

1. It focused on a more natural look; 2. They both wished to promote more freedom in planting, a wider choice of plants, and the use of hardy plants over the prevailing taste for seasonal bedding; 3. It is made up of different landforms, such as mountains, hills, plains and highlands, lakes, streams, soils and natural vegetation; 4. It deals with fruit crops, vegetable crops, medicinal crops, flowers and other ornamental crops; 5. Herbaceous and bulbous plants.

4.

1. roses; 2. medicinal; 3. hybrid; 4. shrubby; 5. spring; 6. pest; 7. foliage; 8. winter; 9. pruning; 10. bush.

5.

1. a; 2. b; 3. d; 4. b; 5. c.

Unit 4.4 TEST 2 p. 206

1.

1. T; 2. F, Iceland does; 3. T; 4. T; 5. T; 6. F, Since the 1970s; 7. F, They are particularly cost-effective; 8. F, They are among the ones promoting them; 9. T; 10. T.

2.

Sample answers

1. maintaining the significant features of a landscape; 2. the early eighteenth century; 3. to make an extravagant impression on the viewers; 4. lawn grasses, ground covers, shrubs, climbers, and trees; 5. the costs for installation and regular maintenance.

3.

1. Italian Renaissance; 2. W. Robinson's and G. Jekyll's ideas; 3. It studies the cultivation of flowers and ornamental plants for commercial purposes, such as the production of cut flowers, potted plants, and landscape plants; 4. Into three categories: the short-lived annuals, the biennials and the perennials; 5. Because they help make our environment greener and provide good thermal insulation for houses.

4.

1. trees; 2. horizontal; 3. green; 4. nature; 5. summer; 6. biodiversity; 7. microclimate; 8. oxygen; 9. arborists; 10. mountain.

5.

1. a; 2. a; 3. b; 4. d; 5. c.

Unit 5.1 TEST 1 p. 209

1.

1. T; 2. F, We should consume seasonal fruit and vegetables; 3. T; 4. F, It is better to shop locally; 5. F, Food miles; 6. F, The most efficient means of transport; 7. T; 8. F, It is also related to the use of resources involved in processing and packaging; 9. F, They require fewer resources than meat and dairy, for example; 10. T.

2.

1. e; 2. c; 3. d; 4. a; 5. b.

3.

1. Long shelf life and high hygiene standards; 2. Through sun and wind; 3. It can not only preserve foods, but also make them more nutritious and palatable; 4. They aim at keeping food from spoilage for later use; 5. They kill bacteria, delay shelf life of products and prevent potato, onion and garlic sprouting.

4.

1. method; 2. heat; 3. food; 4. spoil; 5. flavour; 6. salt; 7. crystals; 8. water; 9. dehydrate; 10. spoilage.

5.

1. b; 2. d; 3. a; 4. c; 5. a.

Unit 5.1 TEST 2 p. 212

1.
1. You can get ready meals from any supermarket, on the phone or via the Internet; 2. They are considered unhealthy because they are rich in salt, added sugar, artificial colourings, flavourings and preservatives; 3. They have been criticised because they are considered unhealthy, unappetising and expensive; 4. The trend of their market is rising; 5. This evolution has brought on new attitudes and consumption trends; 6. This implies a new individual approach to food and a new structural approach to market organisation; 7. In the UK; 8. Typical customers are young people and anyone who has little time for cooking; 9. The level of the ready meals market in Italy is well below the European average; 10. Italian eating habits can be defined as fundamentally conservative.

2.
1. e; 2. c; 3. a; 4. b; 5. d.

3.
1. When it supports sustainable agriculture and encourages seasonal eating; 2. They can be both fresh and preserved; 3. It may be caused by oxidation, bacteria, moulds, and micro-organisms; 4. Sterile containers made of glass, plastic, or metal; 5. It is the fruit juice and beverage industry.

4.
1. products; 2. harm; 3. eating; 4. microbes; 5. hot; 6. refrigerator; 7. growth; 8. boiling; 9. resistant; 10. temperature.

5.
1. b; 2. c; 3. d; 4. d; 5. a.

Unit 5.2 TEST 1 p. 215

1.
1. T; 2. F, It has smaller fat globules; 3. F, It prevents the separation and creates a uniform consistency; 4. T; 5. T; 6. F, It is only theoretical; 7. F, The notion that milk's XOD is a health hazard was disproven by researchers; 8. F, It does not boost the risk of milk allergy or intolerance; 9. T; 10. T.

2.
1. d; 2. c; 3. e; 4. b; 5. a.

3.
1. Calcium, phosphorus, magnesium, zinc and potassium; 2. It depends on the livestock feed, geographical location, season and stage of lactation; 3. Pasteurisation; 4. Two years; 5. It must be treated as fresh milk.

4.
1. medicinal; 2. butter; 3. celebration; 4. consumption; 5. cooking; 6. barbarians; 7. weather; 8. store; 9. merchants; 10. tax.

5.
1. a; 2. c; 3. b; 4. d; 5. c.

Unit 5.2 TEST 2 p. 218

1.
1. T; 2. F, Warm temperature made milk go sour; 3. T; 4. F, The large quantities of lactose present in milk greatly diminish; 5. T; 6. T; 7. F, It continued in medieval manors; 8. F, They succeeded in creating a lot of popular cheeses; 9. T; 10. T.

2.
1. b; 2. a; 3. d; 4. e; 5. c.

3.
1. The smaller the curds are cut, the harder the resulting cheese will be; 2. They are called dairy products and include butter, cheese, cream, yoghurt and ice cream; 3. Butter contains milk fat, water, as well as protein, calcium, phosphorous and vitamins A, D and E; 4. The temperature and humidity of the place where cheese matures; 5. To remove souring bacteria using ceramic filters and increase milk shelf life.

4.
1. snow; 2. syrups; 3. violets; 4. blend; 5. additives; 6. ice; 7. vanilla; 8. flavours; 9. pasteurised; 10. containers.

5.
1. b; 2. d; 3. c; 4. b; 5. a.

Unit 5.3 TEST 1 p. 221

1.
1. F, Perigord and Dordogne are the areas of production; 2. T; 3. F, This oil is expensive because the production is small; 4. T; 5. F, In 2004 it was extended also in Europe; 6. T; 7. T; 8. T; 9. T; 10. F, Macerating gives little or no flavour to the oil.

2.
1. c; 2. d; 3. a; 4. b; 5. e.

3.
1. The variety of olive, climate, growing conditions, harvesting and pressing methods; 2. According

to their degree of acidity and quality, they are classified into extra virgin olive oil, virgin olive oil, lampante olive oil, refined olive oil, composed olive oil and olive-pomace oil; 3. The ground flesh and pits left after pressing; 4. To ensure greater uniformity to oil; 5. They oxidise easily and should not be cooked at high temperatures.

4.
1. oil; 2. rapeseed; 3. toxic; 4. crossbreeding; 5. levels; 6. processing; 7. solvent; 8. amount; 9. alternatives; 10. variety.

5.
1. a; 2. c; 3. c; 4. b; 5. d.

Unit 5.3 TEST 2 p. 225

1.
1. T; 2. F, He was the director of the Institute for Olive Oil Extraction in Pescara; 3. T; 4. T; 5. T; 6. F, The sensorial analysis done by trained tasters is the best way; 7. T; 8. T; 9. F, Also on the basis of tastes and flavours; 10. F, It has greatly improved.

2.
1. b; 2. a; 3. d; 4. e; 5. c.

3.
1. Olives must be picked at the right moment of ripeness when the concentration of oil in the fruit is high; 2. Because they deteriorate very quickly if they are stored for more than 48 hours and the acidity level rises; 3. By centrifugation or by means of natural decanting; 4. Refined oils are used as medium/high cooking oils and deep-frying oils; 5. A smoke point is the temperature at which oil starts burning.

4.
1. countries; 2. expansion; 3. production; 4. global; 5. traditional; 6. neighbouring; 7. cultivation; 8. varieties; 9. trend; 10. companies.

5.
1. c; 2. b; 3. a; 4. b; 5. d.

Unit 5.4 TEST 1 p. 228

1.
1. T; 2. F, The best known alcoholic drinks were whiskey and gin; 3. F, It was a dark coloured beer; 4. T; 5. F, It was much better than English beer; 6. T; 7. T; 8. F, In 1914 it was the largest stout brewery; 9. F, The Guinness breweries across the world must use an extract brewed in Dublin; 10. F, Ten million pints of Guinness are consumed every day.

2.
1. d; 2. a; 3. e; 4. b; 5. c.

3.
1. They are classified according to their grape variety, the presence or absence of dissolved carbon dioxide, the level of sweetness, the alcohol content, and ageing; 2. It consists in adding a product to the wine juice to draw the solids down to the bottom of the barrel; 3. In tanks, stainless steel vats or wooden barrels; 4. Because the microbial features of the country enable the spontaneous fermentation with wild yeast and bacteria; 5. Vintage, grape variety or place name.

4.
1. consumption; 2. health; 3. reductions; 4. wine; 5. benefits; 6. studies; 7. oxidative; 8. bitter; 9. metabolism; 10. effects.

5.
1. d; 2. c; 3. b; 4. d; 5. a.

Unit 5.4 TEST 2 p. 231

1.
1. T; 2. T; 3. F, Grapevines need warm, long and dry summers; 4. F, It will be beneficial for English wine; 5. T; 6. T; 7. F, Worldwide winegrowers will; 8. T; 9. T; 10. F, There is no scientific certainty.

2.
1. d; 2. c; 3. b; 4. e; 5. a.

3.
1. By gravity or pressing; 2. To make the beer appear bright and clean; 3. Any malt or hop particles are removed to leave a liquid to be cooled and fermented; 4. Yes, they can be warm, cool or wild; 5. Barley.

4.
1. water; 2. fermentation; 3. drink; 4. culture; 5. maize; 6. hops; 7. brewing; 8. family; 9. convents; 10. payment.

5.
1. a; 2. a; 3. c; 4. d; 5. b.

Unit 5.5 TEST 1 p. 234

1.
1. T; 2. F, It is soft; 3. F, The best cheese for grating is aged 18-24 months; 4. T; 5. T; 6. T; 7. F, It is difficult to find it; 8. T; 9. F, After 30 months of maturation, milk enzymes transform lactose into lactic acid; 10. F, It is good to be eaten on its own, accompanied by sweet wine and jams.

2.
1. e; 2. c; 3. a; 4. b; 5. d.

3.
1. At least 12 years; 2. It is used as a food dressing; 3. They lend a specific flavour to vinegar; 4. Because the resulting dough has a reduced ability to ferment and rise; 5. It is considered a merely evocative phenomenon, which refers to the "Italianness" of the product.

4.
1. variety; 2. hops; 3. oxygen; 4. preserve; 5. flavour; 6. vinegar; 7. pepper; 8. processes; 9. slow; 10. fermentation.

5.
1. d; 2. b; 3. a; 4. c; 5. a.

Unit 5.5 TEST 2 p. 237

1.
1. T; 2. F, All the EU citizens are allowed, and a minimum number of signatories is required from at least seven member states; 3. T; 4. T; 5. F, Certain foods have a compulsory origin labelling; 6. F, It has increased recently; 7. T; 8. F, Only the origin labelling provides complete information about place of cultivation and processing; 9. T; 10. T.

2.
1. d; 2. a; 3. b; 4. e; 5. c.

3.
1. It is a blend of cooked grape must, vinegar and caramel; 2. To the 11th century; 3. It has a serious impact on the Italian economy, damaging the image due to the spread of low-quality products; 4. The cheesy granules sink to the bottom of the cauldron forming a single mass; 5. Carbohydrates, protein and fibre, B and E vitamins, a wide range of minerals, carotenoids and excellent antioxidants.

4.
1. products; 2. bottles; 3. quality; 4. consortia; 5. ages; 6. label; 7. system; 8. cap; 9. years; 10. name.

5.
1. d; 2. c; 3. b; 4. a; 5. b.

Unit 6.1 TEST 1 p. 240

1.
1. T; 2. T; 3. F, The Shetland breed descends from the Scandinavian breed; 4. F, They have recently been exported to the British mainland and other countries; 5. F, Crossing is done for the production of market lambs; 6. F, It is light and fine; 7. T; 8. T; 9. T; 10. F, This characteristic is greatly appreciated.

2.
Sample answers
1. shelter, feed and healthcare; 2. removes some of the water from it; 3. food, manure and labour; 4. Italian indigenous breeds used in the meat market; 5. to eliminate noxious weeds.

3.
1. It is essential in meeting people's nutritional needs, increasing farmers' income and promoting farmers' development; 2. It contains millions of bacteria that promote fermentation and also microorganisms that synthesise B-complex vitamins and amino acids; 3. They are usually kept in a fenced-in field or paddock to prevent them from wandering away; 4. Cashmere and Angora breeds; 5. It aims at improving the form, genetics and function of sheep and goat breeds raised in Italy.

4.
1. digestive; 2. forage; 3. ability; 4. stomachs; 5. indigestible; 6. mouths; 7. bites; 8. parts; 9. feeders; 10. fibre.

5.
1. b; 2. a; 3. d; 4. a; 5. c.

Unit 6.1 TEST 2 p. 243

1.
1. F, It involves several different duties; 2. T; 3. T; 4. F, It is important to give balanced rations of feeding; 5. T; 6. F, They are mainly performed outdoors; 7. T; 8. F, Both wool and meat production; 9. T; 10. F, It is advantageous.

2.
Sample answers
1. the prominent hump on its shoulders; 2. digest certain foodstuffs high in roughage; 3. the two major exporters of goat meat; 4. their primary purpose: meat, milk or wool; 5. the production of milk.

3.
1. It refers to one or more domesticated animal raised to produce food, fibre or manure; 2. It contains millions of bacteria that promote fermentation and also microorganisms that synthesise B-complex vitamins and amino acids; 3. It should be equipped with barbed or electric

wire; 4. They can be classified according to their primary purpose, the type of hair, and the colour of their faces; 5. Grazers.

4.
1. breed; 2. quality; 3. cattle; 4. climate; 5. production; 6. grain-fed; 7. hormones; 8. grass; 9. complexity; 10. steaks.

5.
1. b; 2. c; 3. a; 4. c; 5. d.

Unit 6.2 TEST 1 p. 246

1.
1. T; 2. F, It is faster; 3. T; 4. T; 5. F, They can bear extreme conditions; 6. F, They cannot fly, they run; 7. F, It contains less cholesterol; 8. F, Ostrich skin is thick, durable and soft: one of the most luxurious leathers; 9. T; 10. T.

2.
1. b; 2. d; 3. e; 4. a; 5. c.

3.
1. They were raised for cockfighting and exhibitions; 2. It began in the early 20th century, when breeders began to raise poultry on a commercial scale; 3. They are mammals and omnivores; 4. Because it necessitates high input costs and control of pest, disease and feeding, and requires more management skills; 5. Because they reduce soil compaction and carbon emissions as they produce only a very small amount of greenhouse gas, no carbon dioxide and little methane.

4.
1. industry; 2. cage; 3. harm; 4. behaviour; 5. chickens; 6. hens; 7. nutrients; 8. eggs; 9. farms; 10. machines.

5.
1. b; 2. c; 3. c; 4. d; 5. a.

Unit 6.2 TEST 2 p. 249

1.
1. F, Pigs are highly social animals; 2. T; 3. F, They permit pregnant sows to be confined in cages; 4. T; 5. F, There is not enough space to move; 6. T; 7. F, They are physically and psychologically hurt; 8. T; 9. T; 10. F, Stalls may be responsible for skin abrasions and serious health problems.

2.
1. d; 2. e; 3. a; 4. c; 5. b.

3.
1. It lasts four months; 2. Because of the small size of the individual birds and because eggs are less perishable than meat and dairy products; 3. They need some protein foods such as whey or soya milk, meat meal, fish meal, cooked meat or fish, bean meal or high-protein grain; 4. Pigs can be marketed once they reach "market weight" (100-120 kilos), at between four and six months of age; 5. The breeding system depends on the climate, the availability of large flat areas and the commercial purpose.

4.
1. food; 2. chewing; 3. species; 4. movements; 5. mastication; 6. herbivores; 7. ruminate; 8. fragment; 9. cows; 10. digest.

5.
1. b; 2. d; 3. a; 4. b; 5. c.

Unit 6.3 TEST 1 p. 252

1.
1. It depends on the intensity of production, the species farmed and the farm location; 2. In South-East Asia; 3. The rapid, unnatural build-up of organic material; 4. The outbreaks of disease from local fisheries, which can spread quickly into wild fish populations; 5. By adding antibiotics to fish feed; 6. No, because of the effect of the drugs on local aquatic ecosystems as well as on consumers; 7. Transmission of disease, lack of control of predatory species and competition between different organisms; 8. By adding filter feeders such as shellfish; 9. They are generally free of environmental contaminants such as mercury and heavy metals; 10. They eat exclusively human-processed feed.

2.
1. c; 2. d; 3. e; 4. a; 5. b.

3.
1. Honeybees are social insects and can be more easily managed and manipulated; 2. Up to five years; 3. They are kicked out of the hive; 4. Inland-pond culture, recirculating system, open-net pen and cage system, flow-through/raceway; 5. They are farmed for human consumption and to be added to pet food.

4.
1. risks; 2. food; 3. globe; 4. range; 5. regulations; 6. crickets; 7. flours; 8. drinks; 9. hazardous; 10. attack.

5.
1. b; 2. d; 3. c; 4. a; 5. d.

Unit 6.3 TEST 2 p. 255

1.
1. He was a fisherman in Newfoundland; 2. Cod stocks had been heavily overfished in previous years; 3. It was successful until the hurricanes in 2011 and 2012; 4. They were not up-to-date and not enough to diversify his farming and raise multiple marine species; 5. A vertical approach; 6. Seaweeds, scallops, mussels, clams and oysters; 7. For fixing excess nitrogen; 8. For soaking up carbon dioxide; 9. In 2013; 10. A production model with restorative species that mitigate climate change and restore ocean ecosystems.

2.
1. d; 2. b; 3. c; 4. a; 5. e.

3.
1. They depend on geographic location, plant life, rainfall, soil condition, processing methods, storage conditions and harvest times; 2. Africa or Asia; 3. About 15 years ago; 4. Intensive, semi-intensive and extensive; 5. Only cochineals, cockroaches, waxworms, mealworms, buffalo worms and crickets have so far been authorised by the EU as human food.

4.
1. countryside; 2. pesticides; 3. flowers; 4. biodiversity; 5. limitations; 6. beehives; 7. quality; 8. honey; 9. pollination; 10. collapse.

5.
1. a; 2. c; 3. d; 4. b; 5. b.

Unit 6.4 TEST 1 p. 258

1.
1. T; 2. F, Nearly one fourth of the British population; 3. T; 4. F, The trend of the increase and decrease was unpredictable; 5. T; 6. F, It was the consequence of the practice of inbreeding; 7. T; 8. T; 9. F, Scientists keep on debating this topic; 10. F, It never disappeared.

2.
1. a; 2. c; 3. b; 4. e; 5. d.

3.
1. It has a great economical advantage, but it produces a lot of negative effects on animal health; 2. No, because these animals are best suited to digest the cellulose in grass; 3. Soil erosion decreases, while soil fertility is improved; 4. Their housing and bedding, transport conditions, stunning, castration of males, tail docking and slaughter methods; 5. They are raised in large facilities, such as broiler houses and laying houses, where feeding, watering and cleaning are mechanised, and animal density is high.

4.
1. c; 2. g; 3. i; 4. a; 5. f; 6. e; 7. j; 8. b; 9. h; 10. d.

5.
1. d; 2. a; 3. c; 4. c; 5. b.

Unit 6.4 TEST 2 p. 261

1.
1. F, Bees exhibit this behaviour after being parasitised; 2. F, Colony losses have been extensive across the United States; 3. T; 4. T; 5. T; 6. T; 7. F, Genetic analysis confirms they are infected by the same flies; 8. T; 9. F, They can just assume bees are parasitised while they are foraging; 10. F, They are not seen there.

2.
1. d; 2. e; 3. a; 4. c; 5. b.

3.
1. Because they are economically convenient and help bring animals to market weight faster as they are rich in proteins; 2. It can produce serious and sometimes fatal digestive tract problems; 3. Because of direct contact with infected poultry or equipment or water contaminated by their excrement; 4. Stunning decreases animals' stress, thus obtaining meat of higher quality; 5. Loose housing and conventional barns.

4.
1. f; 2. h; 3. c; 4. g; 5. i; 6. a; 7. e; 8. j; 9. b; 10. d.

5.
1. c; 2. d; 3. b; 4. d; 5. a.

MODULE TESTS

The following tests aim at verifying the knowledge, abilities and competences of students for each module of the text. Each test is available in two versions and is about 50 minutes long. The material is editable so that each teacher can adapt it easily to each of their classes and each of their students, even SEN students. Visit the publishing house website: www.edisco.it.

M 1 Agriculture

TEST 1

Name .....

Class ..... Date .....

MULTIPLE CHOICE

Choose the correct option.

1. Transgenics…
- **a.** creates genetically modified crops.
- **b.** does not involve cloning specific genes.
- **c.** relies on sexual recombination.
- **d.** compromises the integrity of the parental genotype.

2. A soil-less medium for hydroponics includes…
- **a.** vermiculite, pineapple fibre and gravel.
- **b.** rockwool, perlite and vermiculite.
- **c.** fish and root waste.
- **d.** fresh animal manure.

3. The main principles of biodynamic farming are based on…
- **a.** the use of conventional fertilisers.
- **b.** monocropping.
- **c.** herbal preparations and use of special manure.
- **d.** transgenic procedures.

4. What statement is false about robotic technology?
- **a.** It lowers operating costs.
- **b.** It reduces the need for labour.
- **c.** It decreases farm efficiency.
- **d.** It increases yields.

5. Which statement is false about drones?
- **a.** They can constantly and efficiently monitor crops.
- **b.** They can check livestock conditions by air.
- **c.** They can gather real-time data.
- **d.** They are allowed to fly anywhere.

6. GMOs are used in…
- **a.** biodynamic farming.
- **b.** conventional farming.
- **c.** organic farming.
- **d.** sustainable farming.

7. Aeroponics is particularly suitable for…
- **a.** growing vegetables in small spaces.
- **b.** growing plants in large spaces mainly outdoors.
- **c.** reducing equipment and maintenance costs.
- **d.** slowing down plant growth.

8. The influence of cosmic forces is particularly important in…
- **a.** biodynamic farming.
- **b.** conventional farming.
- **c.** genetic engineering.
- **d.** hydroponic farming.

 Name ..... Class ..... Date .....

9. A cableless tractor is equipped with…
- **a.** a long curved blade with a long wooden handle.
- **b.** GPS and sensors.
- **c.** a Robotic Milking System.
- **d.** a long handle with three metal points.

10. Which statement is false about farm robots?
- **a.** They are used for crop monitoring.
- **b.** They are used for milking and feeding livestock.
- **c.** They reduce the need for labour.
- **d.** They are particularly inexpensive.

11. Organic farmers…
- **a.** adopt manufactured fertilisers.
- **b.** favour growth regulators.
- **c.** choose green manure.
- **d.** avoid biological pest control.

12. What is used by organic farmers to enrich the soil?
- **a.** Fertilisers.
- **b.** Pesticides.
- **c.** Antibiotics.
- **d.** Animal manure.

13. Crop rotation is used by organic farmers…
- **a.** to preserve soil qualities.
- **b.** to replace mineral manure.
- **c.** to raise soil temperature.
- **d.** to increase weeds.

14. Organic farmers cannot use…
- **a.** chemical fertilisers.
- **b.** pesticides.
- **c.** antibiotics.
- **d.** all of the above.

15. The key principles of organic farming are…
- **a.** biological pest control.
- **b.** crop rotation.
- **c.** respect for natural life cycle.
- **d.** all of the above.

16. The intensive use of chemicals in agriculture was responsible for…
- **a.** the loss of soil fertility.
- **b.** the reduced duration of seed germination.
- **c.** the decrement of animal reproduction.
- **d.** all of the above.

17. The milk quota…
- **a.** was imposed to limit livestock raising.
- **b.** was imposed to limit surplus in milk production.
- **c.** is a recent EU regulation.
- **d.** is a fine for poor quality milk production.

18. The 2014-2020 CAP rewarded farmers through…
- **a.** direct payments.
- **b.** farmland.
- **c.** training courses.
- **d.** farming equipment.

19. To face agribusiness risks farmers should…
- **a.** not care about market opportunities.
- **b.** diversify production.
- **c.** avoid the use of financial instruments.
- **d.** all of the above.

20. Financial support by 2014-2020 CAP did not imply meeting standards about…
- **a.** farm hygiene.
- **b.** farmer's age limit.
- **c.** biodiversity conservation.
- **d.** animal welfare.

21. Which statement is false?
- **a.** Bioeconomy discourages dependency on fossil fuel resources.
- **b.** Bioeconomy encourages the use of renewable resources.
- **c.** Bioeconomy opposes markets in food and bio-based products.
- **d.** Bioeconomy contributes to reduce price volatility.

22. Price volatility…
- **a.** represents price fluctuations of a product.
- **b.** is not affected by political situations.
- **c.** is an index of product shortage.
- **d.** has no negative effects on the agricultural market.

23. The new CAP (2023-2027)…
- **a.** does not care about agriculture and forestry.
- **b.** shares the same objectives as the European Green Deal.
- **c.** neglects environmental goals.
- **d.** discourages generational renewal.

24. Which statement is false?
- **a.** The European Green Deal aims to limit global warming.
- **b.** The European Green Deal aims to reduce greenhouse gas emissions.
- **c.** The European Green Deal aims to reduce financial supports to farmers.
- **d.** The European Green Deal aims to make Europe a climate-neutral continent.

25. Agricultural trade contributes to the prosperity of…
- **a.** farmers.
- **b.** industries.
- **c.** consumers.
- **d.** all of the above.

Total score ...../50

M1 **Agriculture**

TEST 2

Name .....

Class ..... Date .....

CLOZE TEST

Complete the sentences with the phrases given below.

a. GMOs
b. bioeconomy
c. farm diversification
d. price volatility
e. conventional farming
f. precision agriculture
g. Mendel
h. agricultural markets
i. aeroponics
j. CAP
k. gardening
l. sustainability
m. aquaponics
n. modern agriculture
o. IFOAM
p. sustainable farming
q. Steiner
r. GPS
s. drones
t. hydroponics
u. genetic modification
v. seed drill
w. farm robots
x. cameras
y. organic farming

1. ..... uses specific techniques to maximise crop yields, disregarding environmental health and biodiversity.

2. ..... must not use manufactured fertilisers or pesticides.

3. The ..... is an international organisation which defined organic farming and its standards.

4. ..... does not exclude artificial fertilisers but tries to optimise their use.

5. ..... implies the fact of having the least negative effect on the environment.

6. ..... proposed the first theory about the units of inheritance.

7. ..... consists in direct human manipulation of DNA in laboratory.

8. The main advantage of ..... is to increase agricultural productivity.

9. In ..... plant roots have no contact with any media since the growing medium is primarily air.

10. ..... allows indoor cultivation in a soil-less medium.

11. The combination of aquaculture and hydroponics in a symbiotic environment is called .....

12. ..... laid the foundations of biodynamic farming.

13. ..... hand tools include rakes, hoes, spades, fork and shovel.

14. The ..... is a piece of machinery which sows every kind of grain seeds on the row.

15. ..... relies upon specialised equipment, software and IT services.

16. The ..... allows farmers to navigate to specific locations in the field, to collect soil samples or monitor crop conditions.

 Name ..... Class ..... Date .....

17. ..... are able to operate independently, reducing the need for labour and increasing farm efficiency.

18. Farming machines can be equipped with infrared sensors, satellite and .....

19. ..... are flying robots that can be remotely controlled or fly autonomously through software.

20. The analysis of ..... is based on economic and environmental policies, climatic conditions and international market developments.

21. The substantial change in the prices of agricultural products is a phenomenon known as .....

22. ..... includes many activities such as forestry, bee keeping, fruit cultivation, poultry, and dairy farming.

23. The aim of ..... is to guarantee an improved management of renewable resources.

24. The first objectives of the ..... were to improve agricultural productivity and stabilise agricultural markets.

25. ..... helps farmers to improve the profitability of the farm and make better use of the farm physical resources.

Total score ...../50

M2 Ecology and forestry

TEST 1

Name .....

Class ..... Date .....

MULTIPLE CHOICE

Choose the correct option.

1. Several insecticides and pesticides…
- **a.** are biodegradable pollutants.
- **b.** are responsible for stress-related illnesses.
- **c.** can be classified as PS or NPS.
- **d.** are non-biodegradable pollutants.

2. Carbon dioxide and nitrous oxides…
- **a.** are responsible for the greenhouse effect.
- **b.** are produced by improper management of radioactive material.
- **c.** are radioactive waste.
- **d.** can cause abnormal cell growth and cancer.

3. Which of these items is responsible for environmental pollution?
- **a.** Microorganisms.
- **b.** Ultraviolet rays.
- **c.** Temperature reduction.
- **d.** Rapid industrialisation.

4. EMF means…
- **a.** European Modern Farming.
- **b.** Electromagnetic Field.
- **c.** Environmental modification field.
- **d.** European Monetary Fund.

5. Climate-smart farming techniques can…
- **a.** reduce deforestation.
- **b.** decrease agricultural yield.
- **c.** reduce reforestation.
- **d.** increase the agricultural expansion into natural habitat.

6. Nuclear energy…
- **a.** has no disadvantages.
- **b.** produces waste which is dangerous to deal with.
- **c.** is less efficient at producing energy than traditional fossil fuels.
- **d.** produces toxic gases.

7. Hydrogen is…
- **a.** a polluting fuel.
- **b.** used more than fossil fuels.
- **c.** difficult to store and distribute.
- **d.** not good for vehicles.

8. Which of the following gases is not a greenhouse gas?
- **a.** Carbon dioxide.
- **b.** Oxygen.
- **c.** Methane.
- **d.** Nitrogen.

9. Which statement is correct about geothermal energy?
- **a.** There are no applications in agriculture.
- **b.** It recycles industrial waste.
- **c.** It has little impact on the environment.
- **d.** It is obtained by burning agricultural waste.

10. What term is used to refer to the management of resources in a way that ensures they will be around for future generations to use?
- **a.** Renewable.
- **b.** Sustainable.
- **c.** Finite.
- **d.** Potential.

11. What deals with the distribution and relationship of organisms and their interaction with the environment?
- **a.** A biome.
- **b.** Ecology.
- **c.** An ecosystem.
- **d.** Conservation biology.

12. What is the name given to the source of energy created by the burning of decaying plant or animal waste?
- **a.** Coal.
- **b.** Geothermal.
- **c.** Nuclear.
- **d.** Biomass.

13. What agreement was drawn up by international leaders and commits most governments in the world to reduce greenhouse gas emissions?
- **a.** The World Social Forum.
- **b.** The Paris Agreement.
- **c.** The Stockholm Agreement.
- **d.** The G8.

14. The Earth Summit…
- **a.** was signed only by European countries.
- **b.** expired in 2011.
- **c.** aimed to reduce greenhouse gas emissions.
- **d.** was held in Rio de Janeiro in 1992.

15. Brown economy is a form of economy…
- **a.** only based on coal, petroleum and natural gas.
- **b.** based on renewable resources.
- **c.** that involves sharing, reusing, repairing and recycling existing material.
- **d.** based on wood exploitation.

16. Softwood…
- **a.** is used for decorative woodwork.
- **b.** is always softer than hardwood.
- **c.** comes from broad-leaved deciduous trees.
- **d.** is used for construction work.

 Name ..... Class ..... Date .....

17. In coppicing forests, trees regenerate…
- **a.** from seeds.
- **b.** from transplanted seedlings.
- **c.** from stumps.
- **d.** artificially with new planting.

18. Which protected areas are characterised by peatlands?
- **a.** National parks.
- **b.** Marine parks.
- **c.** Wetlands.
- **d.** Nature reserves.

19. The symbol of the Abruzzo National Park is…
- **a.** the Apennine chamois.
- **b.** the ibex.
- **c.** the marmot.
- **d.** the Marsican bear.

20. Gran Paradiso National Park was established to ensure the survival of…
- **a.** the ibex.
- **b.** the deer.
- **c.** the chamois.
- **d.** the wolf.

21. To regenerate forests and restore degraded lands, priority should be given to…
- **a.** alien species.
- **b.** native species.
- **c.** evergreen species.
- **d.** broadleaved species.

22. The exchange of genetic inheritance between species is favoured by…
- **a.** the fragmentation of natural forest areas.
- **b.** ecological corridors.
- **c.** dead wood.
- **d.** biodiversity reduction.

23. The function of dead wood is not…
- **a.** being home to saproxylic species.
- **b.** improving microhabitats.
- **c.** preventing the extinction of species.
- **d.** creating ecological corridors.

24. IFPs are…
- **a.** International Forest Protections.
- **b.** Intensive Forest Pathogens.
- **c.** Invasive Forest Pathogens.
- **d.** Impact of Forest Processionaries.

25. Most annual deforestation occurs in…
- **a.** tropical regions.
- **b.** Europe.
- **c.** China.
- **d.** North America.

Total score ...../50

M2 Ecology and forestry

TEST 2

Name .....

Class ..... Date .....

CLOZE TEST

Complete the sentences with the phrases given below.

a. biotic and abiotic factors
b. breaking of large, contiguous
c. brings benefits
d. capable of decaying
e. cut by 45%
f. deforestation are the loss
g. does not release
h. ecological corridors
i. hydro, geothermal and biomass
j. interacting with each other
k. lost trees by cutting or fire
l. major forms of fossil fuels
m. natural habitat
n. never run out
o. pollutant substance
p. promoted climate actions
q. put the survival
r. remains of living organisms
s. renewed forests
t. reuse and regeneration
u. shortwood harvesting
v. sustainable tourism policies
w. the same amount of power
x. short-term changes
y. used as an example

1. Afforestation means replanting trees on land that has .....
2. A biodegradable substance is ..... through the action of living micro-organisms.
3. A ..... or energy has undesired effects on the environment.
4. Solar, wind, ... are the most common sources of energy.
5. Reduction of pollution ..... to our health.
6. Renewable energy sources are unlikely to guarantee ..... as fossil fuels.
7. The term ecosystem refers to all living organisms in an area ..... and their physical environment.
8. The removal of old trees and dead wood can ..... of several species at risk.
9. Some of the most serious consequences of ..... of biodiversity and the increase of the greenhouse effect.
10. Naturally ..... offer a wide range of microhabitats.
11. Solar energy is an unlimited resource and ..... greenhouse gases.
12. The three ..... are oil, coal, and natural gas.
13. The Climate Action Summit in 2019 ..... to implement the goals of the 2030 Agenda.
14. Climate is the average weather for a particular region in a long period of time whereas weather consists of ..... in the atmosphere.
15. Forest fragmentation is the ..... forested areas into smaller portions.
16. A specimen is an individual animal or plant ..... of its species.

 Name ..... Class ..... Date .....

17. Fossil fuel is any combustible organic material formed from the .....

18. Renewable energy is generated from sources that naturally replenish themselves and .....

19. The viability and stability of wood can be damaged by .....

20. ..... allow animals and plants to move from one habitat to another.

21. Forests provide the ..... for many species, contributing to the conservation of biodiversity.

22. According to COP26, CO_2 emissions will have to be ..... by 2030.

23. Circular economy is based on the ..... of materials or products, aiming at minimising waste.

24. In ....., trees are completely processed at the felling site.

25. Biodiversity conservation in protected areas needs .....

Total score ...../50

M3 Soil, water and plants

TEST 1

Name .....

Class ..... Date .....

MULTIPLE CHOICE

Choose the correct option.

1. What may mitigate soil degradation?
- **a.** Deforestation.
- **b.** Conventional tillage.
- **c.** Groundcover.
- **d.** Overgrazing.

2. What characterises sandy soils?
- **a.** They contain the largest particles.
- **b.** They have good drainage.
- **c.** They are rather infertile.
- **d.** All of the above.

3. Clay…
- **a.** has a low water-holding capacity.
- **b.** is a very good nutrient holder.
- **c.** allows water to drain.
- **d.** does not have the ability to hold many nutrients.

4. Crop rotation aims at…
- **a.** increasing weeds.
- **b.** reducing plant diseases and pests.
- **c.** developing soil deficiencies.
- **d.** changing the ploughing sense.

5. What is unsuccessful in weed control?
- **a.** A weed remover.
- **b.** Tillage.
- **c.** Natural enemies.
- **d.** Monocropping.

6. Which statement is false about the multiple cropping system?
- **a.** It increases the productivity.
- **b.** It increases local biodiversity.
- **c.** It reduces the negative impact of climate change.
- **d.** It reduces soil fertility.

7. Sepals…
- **a.** are little leaves.
- **b.** contain the stigma.
- **c.** receive the pollen during fertilisation.
- **d.** contain the anther.

8. The shoot system…
- **a.** is absent in angiosperms.
- **b.** includes the reproductive structures.
- **c.** holds the plant in place.
- **d.** is not essential for photosynthesis.

9. Which statement about flowering plants is correct?
- **a.** The stamen is the female part of the flower and comprises the filament and the anther.
- **b.** The stamen is the male part of the flower and comprises the filament and the anther.
- **c.** The pistil is the female part of the flower and comprises the ovary and the filament.
- **d.** The stigma is the male reproductive cell.

10. During photosynthesis…
- **a.** light is not essential.
- **b.** chlorophyll is removed.
- **c.** oxygen is absorbed.
- **d.** oxygen is produced.

11. Which statement is false?
- **a.** Green plants prepare their food by using two raw materials, oxygen and water.
- **b.** Chlorophyll enables the plants to use light energy.
- **c.** The free oxygen in the atmospheric air is the result of photosynthesis.
- **d.** Photosynthesis occurs only in chlorophyll-containing parts of the plant.

12. The basic requirements for the photosynthesis process are…
- **a.** light, water, mineral salts, chlorophyll and carbon dioxide.
- **b.** glucose, starches and cellulose.
- **c.** oxygen, water and sunlight.
- **d.** light, water, mineral salts, chlorophyll and oxygen.

13. Surface irrigation…
- **a.** has high installation costs.
- **b.** can increase fungal diseases to foliage.
- **c.** is used where water is abundant.
- **d.** is used where water is scarce.

14. Which statement about drainage is false?
- **a.** It eliminates soil nitrogen.
- **b.** It improves soil aeration.
- **c.** It provides a better environment for plants.
- **d.** It reduces soil erosion.

15. If a field is well drained, …
- **a.** waterlogging is avoided.
- **b.** irrigation is avoided.
- **c.** drainage is necessary.
- **d.** eutrophication is reduced.

16. Soil contains….
- **a.** water.
- **b.** air.
- **c.** both water and air.
- **d.** neither water nor air.

17. In recent years, about … of the degradation of productive land has been due to agriculture.
- **a.** 30%
- **b.** 50%
- **c.** 70%
- **d.** 90%

 Name ..... Class ..... Date .....

18. Carbohydrates are stored by plants in the form of…
- **a.** vitamins.
- **b.** proteins.
- **c.** fats.
- **d.** glucose.

19. Stomata are present on the surface of…
- **a.** leaves.
- **b.** roots.
- **c.** stems.
- **d.** flower petals.

20. Which of the following is the immediate end product of photosynthesis?
- **a.** Fructose.
- **b.** Glucose.
- **c.** Cellulose.
- **d.** Lactose.

21. What is released during respiration?
- **a.** Oxygen.
- **b.** Carbon dioxide.
- **c.** Hydrogen.
- **d.** Nitrogen.

22. Minimum tillage is a farming practice which…
- **a.** increases soil erosion.
- **b.** increases the release of greenhouse gases.
- **c.** reduces soil disturbance.
- **d.** accelerates surface runoff.

23. Chemical fertilisers…
- **a.** are rich in essential nutrients in equal proportion.
- **b.** contain essential nutrients in unequal proportions.
- **c.** derive from by-products of natural organisms.
- **d.** help the soil retain moisture.

24. The Global Seed Vault…
- **a.** is characterised by a high temperature.
- **b.** is characterised by high moisture levels.
- **c.** is characterised by a low temperature.
- **d.** guarantees high metabolic activity of the seeds.

25. What is false about the farmers' seed system?
- **a.** It promotes the free distribution of seeds and knowledge among peoples.
- **b.** It is closely related to chemical enterprises.
- **c.** It supports the genetic seed diversity.
- **d.** It helps to improve crop resistance to pests and diseases.

Total score ...../50

M3 Soil, water and plants

TEST 2

Name .....

Class ..... Date .....

CLOZE TEST

Complete the sentences with the phrases given below.

a. a deep surface layer
b. canals, ditches and pipes
c. changes in temperature, snowmelt,
d. especially vulnerable
e. glucose to power
f. one after the other
g. organic fertilisers
h. petals, sepals,
i. rain and wind
j. flower, fruit, and seed
k. save, use, exchange,
l. small openings called stomata
m. excess water
n. the production / the absorption
o. the roots, stems and leaves
p. the spread of diseases
q. the transfer of energy
r. Through photosynthesis,
s. to decompose water
t. turning carbon dioxide
u. water from irrigation
v. water, air and living organisms
w. water, light, soil nutrients,
x. water-holding capacity
y. zero tillage farming,

1. Soil food webs describe ..... between species in an ecosystem.

2. The basic parts of a plant include .....

3. Irrigation water is distributed by means of .....

4. A drainage system removes ..... from fields.

5. Materials needed by the plant pass in and out of the leaf through .....

6. The flower consists of ..... male parts and female parts.

7. Soil is made up of many different components: mineral material, organic matter, ...

8. A highly fertile soil is often characterised by ..... containing high amounts of organic matter.

9. The reproductive structure of a plant consists of .....

10. Plants hold the soil in place, preventing erosion due to .....

11. Water availability is affected by ..... and precipitation patterns.

12. When rainfall is not sufficient, plants must receive additional .....

13. Weeds reduce crop yield by competing for ..... and space.

14. The most important role of plants is ..... of oxygen and ..... of carbon dioxide.

15. Young plants are ..... to extreme weather conditions.

16. ..... plants take energy from the sun, carbon dioxide from the air, and water and minerals from the soil.

17. Light energy is required ..... into oxygen and hydrogen.

Name ..... Class ..... Date .....

18. The process of ..... in the atmosphere into a usable form of energy is called carbon fixation.

19. Respiration uses oxygen and ..... the activities of the cell.

20. Clay soils are very fertile and have a high .....

21. Climate change and extreme weather events may favour ..... and the attack of pests.

22. A sequential cropping system consists in growing two crops in the same field, ... in the same year.

23. Because of the commodity seed system, farmers are not allowed to freely ..... and sell seeds.

24. The most effective soil conservation system is ..... in which the soil is left undisturbed.

25. Cottonseed meal, blood meal, fish emulsion, and farmyard manure are examples of .....

Total score ...../50

M4 Cultivation

TEST 1

Name .....

Class ..... Date .....

MULTIPLE CHOICE

Choose the correct option.

1. Grain legumes…
- **a.** cannot replace animal proteins.
- **b.** are rich in amino acids.
- **c.** are rich in dietary fibre.
- **d.** are not recommended due to the presence of saturated fats.

2. Strawberries are…
- **a.** multiple fruits.
- **b.** aggregate fruits.
- **c.** simple fruits.
- **d.** false fruits.

3. False fruits are formed from…
- **a.** the ovary.
- **b.** the gynoecium.
- **c.** the calyx.
- **d.** the pistil.

4. What is not true? Mushrooms are…
- **a.** low in calories.
- **b.** rich in fats.
- **c.** rich in vitamins.
- **d.** rich in minerals.

5. Which statement is false?
- **a.** Rice is a drought-resistant plant.
- **b.** Unrefined cereals are rich in fibres, vitamins, proteins and fats.
- **c.** Oats are grown mainly for animal feed.
- **d.** Barley grains are used for making flour and whiskey.

6. Potatoes contain…
- **a.** a lot of cholesterol.
- **b.** a low amount of fibre.
- **c.** vitamins and minerals.
- **d.** a great amount of fats.

7. Olive fungal diseases are favoured by…
- **a.** high temperatures.
- **b.** dry weather conditions.
- **c.** humidity.
- **d.** drought.

8. Copra is the kernel of the fruit of the…
- **a.** canola.
- **b.** coconut palm.
- **c.** rapeseed.
- **d.** oil palm.

 Name ..... Class ..... Date .....

9. Which statement about *Xylella fastidiosa* is false?
- **a.** It is harmful to humans.
- **b.** It causes rapid desiccation of olive trees.
- **c.** It can be transmitted through vector insects.
- **d.** It can kill thousands of olive trees in a few days.

10. A soya bean is…
- **a.** a nightshade.
- **b.** a vegetable.
- **c.** an oil crop.
- **d.** a cereal.

11. Oilseed is mainly produced in…
- **a.** tropical areas.
- **b.** cool regions in the northern hemisphere.
- **c.** temperate areas.
- **d.** the rainforest.

12. The most common training system in the case of warm, dry climates is…
- **a.** a pergola.
- **b.** guyot.
- **c.** a cordon spur.
- **d.** gobelet.

13. The primary species used in the global wine industry in Europe is…
- **a.** *Vitis labrusca*.
- **b.** *Vitis riparia.*
- **c.** *Vitis vinifera.*
- **d.** *Vitis rotundifolia.*

14. Which statement is false?
- **a.** There is no device to contrast red spider mites.
- **b.** Flowers become sterile in the case of heavy infestation with grape thrips.
- **c.** Natural insecticides and predators may be useful in the case of grape thrips infestation.
- **d.** Natural insecticides and predators cannot provide adequate control of grape *phylloxera*.

15. Pruning is necessary...
- **a.** to remove shoot tips.
- **b.** to regulate both vegetative growth and fruit production.
- **c.** to limit the spread of pathogens.
- **d.** to reduce foliage production.

16. Pinching back is carried out…
- **a.** from mid-June or early July.
- **b.** by the end of May.
- **c.** from early September until early November.
- **d.** from April to September.

17. Symptoms of downy mildew are…
- **a.** soft rot on fruit and leaves.
- **b.** yellow circular spots on the leaves.
- **c.** white dusty coating on the leaves and fruits.
- **d.** galls on roots.

 Name ..... Class ..... Date .....

18. What parameter does not influence the classification of ornamental plants?
- **a.** Growth.
- **b.** Life cycle.
- **c.** Growing season.
- **d.** Leaf colour.

19. What category do plants with corms belong to?
- **a.** Herbaceous.
- **b.** Permanent.
- **c.** Evergreen.
- **d.** Bulbous.

20. Permanent plants grown in a garden include...
- **a.** herbaceous plants.
- **b.** bulbous plants.
- **c.** shrubs and bushes.
- **d.** flowers.

21. Which sentence about green roofs and green walls is false?
- **a.** They are beneficial to biodiversity.
- **b.** They are cheap to install.
- **c.** They contribute to clean the air in polluted cities.
- **d.** They provide thermal insulation.

22. A plant losing its leaves annually is called...
- **a.** deciduous.
- **b.** evergreen.
- **c.** annual.
- **d.** perennial.

23. Which of the following cannot be defined as cultural landscape?
- **a.** The Sahara.
- **b.** The coastline of the Netherlands.
- **c.** A cattle ranch in Argentina.
- **d.** The urban landscape of Tokyo.

24. The Italian garden style...
- **a.** rejected strict geometric and symmetric layouts.
- **b.** was inspired by classical ideals of order and beauty.
- **c.** was inspired by the Romantic movement.
- **d.** promoted a more informal mixture of native and exotic plants.

25. The olive tree...
- **a.** is a very delicate species.
- **b.** is affected by unfavourable pedological and climatic conditions.
- **c.** can easily resist water stagnation.
- **d.** needs nitrogen, phosphorus and potassium during the growing season.

Total score ...../50

M4 Cultivation

TEST 2

Name .....

Class ..... Date .....

CLOZE TEST

Complete the sentences with the phrases given below.

a. alpine climatic conditions
b. be removed
c. cooking oils
d. drainage, slope,
e. fruit and leaves
f. improved
g. in dry climates
h. multiple and aggregate
i. NPK compounds
j. olive fly
k. production, marketing, export and research
l. profusion of flowers,
m. reduces plant vigour
n. roots of fruit trees
o. same agricultural year
p. soils, and natural vegetation
q. spore dispersal
r. terroir and vine variety
s. the region of southern Peru
t. the sub-Arctic to the sub-tropical
u. topiaries,
v. urban heat island effect
w. vegetable crops,
x. warm dry summers
y. white dusty coating

1. Barley has been adapted to the widest variety of climates, from .....

2. The potato originated in .....

3. In soggy, poorly drained soil, the ..... will rot.

4. Sorghum is drought tolerant and can be grown .....

5. By eating truffles, animals act as a means of .....

6. Fruits are classified as simple, ... fruits.

7. Mild winters and ..... are suitable to grow olive trees.

8. Olive oil acidity can be compromised by the ..... infestation.

9. Soil fertility in olive orchards can be ..... by cover crops.

10. Olive trees are mainly fertilised with .....

11. Waste ..... can be turned into biodiesel fuel.

12. Temporary crops are both sown and harvested during the .....

13. The pergola training system is particularly suitable for .....

14. Grey mould infects ..... of vine plants already damaged.

15. The powdery mildew infection is recognised by a ..... on leaves, buds, young shoots, fruits and flowers.

16. Vine cultivation is affected by soil composition, ... and microclimate.

17. All vines infected by grape *phylloxera* must .....

 Name ..... Class ..... Date .....

18. Leaf infection by powdery mildew is dangerous because it .....

19. A vine training system is chosen according to the specific climate, ...

20. A natural landscape is made up of different landforms, such as mountains, hills, plains and highlands, lakes, streams, ...

21. Floriculture represents a great opportunity to farmers in terms of possible careers in .....

22. In formal gardens, evergreens and conifers were cut into ..... usually balls and cubes.

23. The modern informal garden was characterised by ..... borders of hardy perennial plants and climbers.

24. Horticulture is the branch of agriculture concerned with fruit crops, ... medicinal crops, flowers and other ornamental crops.

25. Green roofs and green walls can help hinder the .....

Total score ...../50

M5 Food processing

TEST 1

Name .....

Class ..... Date .....

MULTIPLE CHOICE

Choose the correct option.

1. What characterises industrial food?
- **a.** Being produced in small batches.
- **b.** Using only local ingredients.
- **c.** Being produced through standardised continuous processes.
- **d.** Preservatives, colourants, sweeteners, or chemicals are forbidden.

2. Chemical preservation methods include…
- **a.** irradiation.
- **b.** thermal processing.
- **c.** use of food additives and preservatives.
- **d.** control of water availability.

3. Which of the following is not a step in the olive oil making process?
- **a.** Grinding.
- **b.** Fermentation.
- **c.** Malaxation.
- **d.** Pressing.

4. Which is not a feature of extra virgin olive oil?
- **a.** It is the most digestible of all the edible fats.
- **b.** Its acid level must not exceed 0.8%.
- **c.** Its acid level must not exceed 2%.
- **d.** It has a rich and fruity flavour.

5. The best oils for frying are those that…
- **a.** have a high smoke point.
- **b.** have a low smoke point.
- **c.** are high in monounsaturated fats.
- **d.** are high in polyunsaturated fats.

6. Which is false about refined oils?
- **a.** They are free from rancidity.
- **b.** They are extracted from clean oilseed.
- **c.** They have little nutritional value.
- **d.** They oxidise easily.

7. Canola oil is made from…
- **a.** the hybrid rapeseed.
- **b.** the germ of the corn kernel.
- **c.** the by-product of winemaking.
- **d.** the seeds of the flax plant.

8. Which is not a basic component of milk?
- **a.** Macronutrients.
- **b.** Vitamins.
- **c.** Minerals.
- **d.** *Lactobacillus bulgaricus*.

 Name ..... Class ..... Date .....

9. What is casein?
- **a.** It is a preservative.
- **b.** It is a protein found in milk.
- **c.** It is a fat-soluble vitamin.
- **d.** It is a whey protein.

10. The shelf life of pasteurised milk is…
- **a.** 6 days.
- **b.** 3 months.
- **c.** 45 days.
- **d.** 2-3 days.

11. Which additive is not allowed in Parmigiano Reggiano making?
- **a.** Calf rennet.
- **b.** Fermented whey.
- **c.** Salt.
- **d.** Vegetable rennet.

12. Buttermilk is…
- **a.** the liquid left after the formation of curd.
- **b.** a yoghurt starter culture.
- **c.** the liquid left after churning butter.
- **d.** a milk with high fat content.

13. Where is Lambic beer produced?
- **a.** In the Netherlands.
- **b.** In France.
- **c.** In several regions of Germany.
- **d.** In Belgium.

14. Hops are used in brewing beer…
- **a.** to enhance alcohol content.
- **b.** as flavouring agents.
- **c.** as sweeteners.
- **d.** to dissolve starch.

15. In winemaking, ethyl alcohol and carbon dioxide are produced during the phase of…
- **a.** crushing.
- **b.** ageing.
- **c.** fermentation.
- **d.** mashing.

16. Which element is not used for wine classification?
- **a.** Grape variety.
- **b.** Level of sweetness.
- **c.** Alcohol content.
- **d.** Price.

17. In which country are bottles labelled DOC?
- **a.** Italy.
- **b.** France.
- **c.** US.
- **d.** Germany.

18. Which barrel for wine ageing provides a neutral vinification environment?
- **a.** Oak barrels.
- **b.** Concrete barrels.
- **c.** Stainless steel barrels.
- **d.** Clay barrels.

19. A refractometer…
- **a.** measures dissolved sugar in a small juice sample already in the vineyard.
- **b.** measures specific gravity, sugar and alcohol content.
- **c.** determines alcohol content in dry wines.
- **d.** allows the wine to be cleared of sediment.

20. Which statement is false?
- **a.** Liquors are brewed alcoholic drinks.
- **b.** Specific flavoured liquors are spirits.
- **c.** Liquors contain ethanol.
- **d.** Liquors are made by fermenting grain, fruit, or vegetables.

21. Which statement is true?
- **a.** Liquors and liqueurs are synonyms.
- **b.** Spirits are sweeter than liquors.
- **c.** Sugar is usually added to spirits.
- **d.** Liqueurs are a combination of spirit, fruits, herbs, and spices.

22. Balsamic vinegar without the seal of the Consortium is…
- **a.** a blend of white Trebbiano and red Lambrusco.
- **b.** enriched with wine vinegar and caramel.
- **c.** a modern version of the traditional Balsamic Vinegar.
- **d.** made of cooked grape must.

23. The minimum ageing period of authentic balsamic vinegar is…
- **a.** 12 years.
- **b.** 12 months.
- **c.** 25 years.
- **d.** 60 days.

24. Durum wheat semolina is particularly suitable for…
- **a.** making bread.
- **b.** making pasta.
- **c.** making pizza.
- **d.** making cookery.

25. Italian Sounding…
- **a.** enhances the prestige of Italian food and beverages.
- **b.** guarantees the authenticity of Italian products.
- **c.** protects the rights of consumers.
- **d.** refers to the “Italianness” of a fake product.

Total score ...../50

M5 Food processing

TEST 2

Name .....

Class ..... Date .....

CLOZE TEST

Complete the sentences with the phrases given below.

a. after pressing olives
b. alcohol by volume
c. calcium, phosphorus, proteins,
d. Clarifying agents
e. converting sugar into alcohol
f. crushing the olives
g. first most cultivated
h. flavouring for cold food
i. frozen and then placed in a vacuum chamber.
j. proteins, fat and lactose
k. remaining solids are removed
l. remains fit for consumption
m. removing liquid material
n. solution of vinegar
o. storing wine
p. the alcohol content in dry wines
q. The curd of Parmigiano Reggiano
r. the curd size
s. the degree of ripeness of the fruit,
t. the dried cones of a climbing plant
u. the ingredients and the ageing
v. the sweet infusion of ground malt
w. to high temperatures
x. vegetable water, and pomace
y. A winery is an establishment

1. Pickling consists in preserving and flavouring food in a ....., often spiced.

2. Vacuum-drying consists in ..... from a food under reduced air pressure.

3. Food preserved by freeze-drying is first .....

4. Shelf life is the length of time for which an item .....

5. The macronutrients of cow milk are .....

6. Cheese hardness depends on .....

7. Cheese is one of the most nutritious foods because it contains ..... fat, fat-soluble vitamins and B vitamins.

8. ..... is broken down into minuscule granules using the traditional “spino”.

9. During the oil pressing stage, the juices are separated into oil, ...

10. Pomace is the pulpy matter remaining ..... to extract the oil.

11. The quality of olive oil depends on ..... on harvesting and pressing methods, on the storage time and condition.

12. The process for making olive oil involves ..... to release the oil trapped inside.

13. Nut and seed oils are generally used as a ..... or added to hot dishes at the last minute.

14. A high smoke point means that oils can be heated ..... before they burn.

15. Hops are ..... used in brewing.

16. Yeast is a microscopic fungus capable of ..... and carbon dioxide.

Name ..... Class ..... Date .....

17. ..... make beer appear bright and clean.

18. Wort is ..... before fermentation, used to produce beer.

19. ..... where wine is made.

20. Cellar is a room below ground level often used for .....

21. Fining is the winemaking step when any .....

22. Spirits contain minimum 20% ..... and no added sugar.

23. The basic differences between authentic and unauthentic balsamic vinegar are .....

24. *Triticum aestivum* is the ..... species of wheat.

25. Comparing the difference in boiling points of water and wine, an ebulliometer determines .....

Total score ...../50

M6 Livestock

TEST 1

Name .....

Class ..... Date .....

MULTIPLE CHOICE

Choose the correct option.

1. A goat is an animal which…
- **a.** eats any kind of vegetal and animal food.
- **b.** prefers the tips of woody shrubs and trees.
- **c.** doesn't like weeds.
- **d.** prefers short, tender grasses and clover.

2. A lamb is…
- **a.** a crossbreeding between a sheep and a goat.
- **b.** young cattle.
- **c.** a young goat.
- **d.** a young male sheep.

3. The digestive system of ruminants consists of…
- **a.** one stomach chamber.
- **b.** omasum, abomasum and reticulum.
- **c.** proventriculus and gizzard.
- **d.** rumen, reticulum, omasum and abomasum.

4. Which statement is true?
- **a.** The omasum is a small pouch on the side of the rumen.
- **b.** The reticulum processes foreign materials.
- **c.** The gizzard secretes enzymes.
- **d.** The abomasum is a chamber in monogastric animals.

5. Most of the officially controlled milk is produced by…
- **a.** Piemontese cattle.
- **b.** Chianina cattle.
- **c.** Friesian/Holstein cattle.
- **d.** Podolica cattle.

6. Sheep wool…
- **a.** is mainly imported from Australia and New Zealand.
- **b.** is mainly produced in Canada.
- **c.** production is a new trend in economy.
- **d.** is mainly imported from Italy.

7. Poultry meat…
- **a.** contains a small amount of minerals.
- **b.** contains few proteins.
- **c.** is rich in B-complex vitamins.
- **d.** has a high fat content.

8. Which statement is false about equines?
- **a.** They cannot be raised in the wild.
- **b.** They are raised for milk production.
- **c.** They are used for leisure.
- **d.** They help improve disabled people's balance.

 Name ..... Class ..... Date .....

9. Why do pigs lie around in mud?
- **a.** Because they love wet places.
- **b.** To keep cool.
- **c.** To protect their sweat glands.
- **d.** Because they prefer dirty places.

10. A boar is…
- **a.** an uncastrated domestic male pig.
- **b.** a razorback.
- **c.** an adult castrated male pig.
- **d.** a steer.

11. In free-range farming poultry are…
- **a.** never housed in sheds.
- **b.** crammed inside to lay eggs.
- **c.** allowed to move outdoors freely during the day.
- **d.** raised in a battery cage system.

12. Intensive housing confinement systems for pigs…
- **a.** are very expensive.
- **b.** are quite cheap.
- **c.** require few management skills.
- **d.** need low pest and disease control.

13. A queen bee lays up eggs…
- **a.** all through the year.
- **b.** in winter.
- **c.** in spring.
- **d.** in summer.

14. What is not a main task of worker bees?
- **a.** Supplying food.
- **b.** Mating with the queen.
- **c.** Building and protecting the hive.
- **d.** Performing the waggle dance.

15. Drones bees are…
- **a.** male bees.
- **b.** female bees.
- **c.** sexually mature female bees.
- **d.** either male or female bees.

16. Royal jelly…
- **a.** is a highly nutritious substance secreted by the worker bees.
- **b.** is produced by the drone bees to fertilise the queen bee.
- **c.** is secreted by the queen bee.
- **d.** has low nutritional value.

17. The aquaculture system often found offshore is…
- **a.** a recirculating system.
- **b.** a flow-through/raceway system.
- **c.** an open-net pen and cage system.
- **d.** an inland pond culture system.

18. Aquatic organisms raised in coldwater aquaculture are…
- **a.** ornamental fish.
- **b.** catfish.
- **c.** crayfish.
- **d.** salmon and trout.

19. Which statement about insects is false? They…
- **a.** grow and reproduce faster than other livestock.
- **b.** cause more greenhouse gas emissions than cattle farming.
- **c.** contain high amounts of proteins.
- **d.** carry less disease risks.

20. Corn and soy…
- **a.** are the most suitable diet for cows.
- **b.** may be responsible for serious digestive tract problems.
- **c.** are easier to digest than cellulose in grass.
- **d.** are poor in protein.

21. What happens to animals affected by BSE, scrapie and avian influenza?
- **a.** They are quarantined and cured.
- **b.** They are slaughtered and their meat is sold.
- **c.** They are quarantined, slaughtered and their carcasses are destroyed.
- **d.** They are burnt.

22. Which factor/s do/es not impact on animal welfare?
- **a.** Transport conditions.
- **b.** Castration of males.
- **c.** Tail docking.
- **d.** The size of the free-range livestock herd.

23. Contagious animal diseases are mostly caused by…
- **a.** nutrient deficiency or excess.
- **b.** poisonous plants or animals.
- **c.** ingestion of foreign material.
- **d.** bacteria and viruses.

24. Safety of meat supply is guaranteed by…
- **a.** antemortem and postmortem meat inspection.
- **b.** only antemortem meat inspection.
- **c.** only postmortem meat inspection.
- **d.** acquaintance with the breeder.

25. Which statement is true?
- **a.** The same rules about slaughtering methods are imposed worldwide.
- **b.** Kosher and halal methods are forbidden in Europe.
- **c.** The EU states have adopted various solutions for religious rites.
- **d.** There is no relationship between the slaughtering method used and meat price.

Total score ...../50

M6 Livestock

TEST 2

Name .....

Class ..... Date .....

CLOZE TEST

Complete the sentences with the phrases given below.

a. accurate labelling of the meat supply
b. animal bone and muscle
c. barbed or electric wire
d. Browsers
e. compartments of a ruminant's stomach
f. Dairy cows
g. damage to crops
h. develop muscular tremors and convulsions
i. direct contact with infected poultry
j. fast-growing poultry
k. Grazers
l. highly nutritious
m. in fresh or marine waters
n. fewer greenhouse gases
o. mentally and physically
p. progressive degeneration
q. puffing smoke on the hive
r. roasting, grilling or barbecuing
s. some colonies of bees
t. stress levels
u. the breeding and care
v. the woolly covering
w. to be ready to fertilise
x. to pasture outdoors
y. trout farmed in raceways

1. Goat-proofed fences need to be equipped with additional strands of .....

2. Animal husbandry deals with ..... of animals.

3. The rumen, reticulum, omasum and abomasum are the four .....

4. ..... must be milked twice a day.

5. ..... prefer short, tender grasses and clover.

6. ..... prefer longer herbs, weeds and the tips of woody shrubs and trees.

7. Fleece is ..... of a sheep or goat.

8. If pigs are allowed to range free, they can cause .....

9. The use of ..... breeds can contribute to painful conditions, such as heart defects.

10. Poultry meat and eggs are ..... and less rich in fat than beef and pork.

11. A broiler is a young chicken suitable for .....

12. Hippotherapy stimulates disabled people .....

13. The reason why ..... have been collapsing is still unknown.

14. The main task of drone bees is ..... a receptive queen.

15. Honey harvesting steps consist in ..... removing the bees from the hive and extracting the honey.

16. Italian freshwater farming is mainly based on .....

17. Aquaculture is the farming of aquatic organisms ..... for human consumption.

Name ..... Class ..... Date .....

18. Insect farming is believed to produce ..... than cattle farming.

19. After slaughtering, meat must be inspected to assure safety and .....

20. In a grazing system, cattle are free ..... for about eight hours a day.

21. Sheep infected by scrapie cannot control their leg movements, and .....

22. High ..... can lead to health problems for animals.

23. Livestock affected by BSE has a ..... of the brain.

24. Bird flu is spread through ..... or contaminated equipment or water.

25. Overconcentration of livestock results in ..... weakening.

Total score ...../50

KEYS • MODULE TESTS

Module 1 TEST 1 p. 282

1. a; 2. b; 3. c; 4. c; 5. d; 6. b; 7. a; 8. a; 9. b; 10. d; 11. c; 12.d; 13. a; 14. d; 15. d; 16. d; 17. b; 18. a; 19. b; 20. b; 21. c; 22. a; 23. b; 24. c; 25. d.

Module 1 TEST 2 p. 285

1. e; 2. y; 3. o; 4. p; 5. l; 6. g; 7. u; 8. a; 9. i; 10. t; 11. m; 12. q; 13. k; 14. v; 15. f; 16. r; 17. w; 18. x; 19. s; 20. h; 21. d; 22. n; 23. b; 24. j; 25. c.

Module 2 TEST 1 p. 287

1. d; 2. a; 3. d; 4. b, 5. a; 6. b; 7. c; 8. b; 9. c; 10. b; 11. b; 12. d; 13. b; 14. d; 15. a; 16. d; 17. c; 18. c; 19. d; 20. a; 21. b; 22. b; 23. d; 24. c; 25. a.

Module 2 TEST 2 p. 290

1. k; 2. d; 3. o; 4. i; 5. c; 6. w; 7. j; 8. q; 9. f; 10. s; 11. g; 12. l; 13. p; 14. x; 15. b; 16. y; 17. r; 18. n; 19. a; 20. h; 21. m; 22. e; 23. t; 24. u; 25. v.

Module 3 TEST 1 p. 292

1. c; 2. d; 3. b; 4. b; 5. d; 6. d; 7. a; 8. b; 9. b; 10. d; 11. a; 12. a; 13. c; 14. a; 15. a; 16. c; 17. d; 18. d; 19. a; 20. b; 21. b; 22. c; 23. a; 24. c; 25. b.

Module 3 TEST 2 p. 295

1. q; 2. o; 3. b; 4. m; 5. l; 6. h; 7. v; 8. a; 9. j; 10. i; 11. c; 12. u; 13. w; 14. n; 15. d; 16. r; 17. s; 18. t; 19. e; 20. x; 21. p; 22. f; 23. k; 24. y; 25. g.

Module 4 TEST 1 p. 297

1. c; 2. b; 3. c; 4. b; 5. a; 6. c; 7. c; 8. b; 9. a; 10. c; 11. c; 12. d; 13. c; 14. a; 15. b; 16. a; 17. b; 18. d; 19. d; 20. c; 21. b; 22. a; 23. a; 24. b; 25. d.

Module 4 TEST 2 p. 300

1. t; 2. s; 3. n; 4. g; 5. q; 6. h; 7. x; 8. j; 9. f; 10. i; 11. c; 12. o; 13. a; 14. e; 15. y; 16. d; 17. b; 18. m; 19. r; 20. p; 21. k; 22. u; 23. l; 24. w; 25. v.

Module 5 TEST 1 p. 302

1. c; 2. c; 3. b; 4. c; 5. a; 6. d; 7. a; 8. d; 9. b; 10. a; 11. d; 12. c; 13. d; 14. b; 15. c; 16. d; 17. a; 18. c; 19. a; 20. a; 21. d; 22. b; 23. a; 24. b; 25. d.

Module 5 TEST 2 p. 305

1. n; 2. m; 3. i; 4. l; 5. j; 6. r; 7. c; 8. q; 9. x; 10. a; 11. s; 12. f; 13. h; 14. w; 15. t; 16. e; 17. d; 18. v; 19. y; 20. o; 21. k; 22. b; 23. u; 24. g; 25. p.

Module 6 TEST 1 p. 307

1. b; 2. d; 3. d; 4. b; 5. c; 6. a; 7. c; 8. a; 9. b; 10. a; 11. c; 12. a; 13. d; 14. b; 15. a; 16. a; 17. c; 18. d; 19. b; 20. b; 21. c; 22. d; 23. d; 24. a; 25. c.

Module 6 TEST 2 p. 310

1. c; 2. u; 3. e; 4. f; 5. k; 6. d; 7. v; 8. g; 9. j; 10. l; 11. r; 12. o; 13. s; 14. w; 15. q; 16. y; 17. m; 18. n; 19. a; 20. x; 21. h; 22. t; 23. p; 24. i; 25. b.

STUDENT'S BOOK
ANSWER KEYS, AUDIOSCRIPTS, AND TEACHER'S NOTES

Unit 1.1 Trends in agriculture

Pages 12-13

1.
1. a; 2. d; 3. c; 4. b.

2.
1. global; 2. prosperity; 3. protecting; 4. social; 5. pillars; 6. economic; 7. renewable; 8. innovation; 9. quality; 10. harming.

3. 2

Ending Hunger
For decades, the number of hungry people had been declining. This isn't true anymore. Today, achieving the Zero Hunger goal by 2030 is becoming more challenging. More than 820 million people still do not have enough to eat. Hunger is increasing in many countries where economic growth is slowing down, particularly in middle-income countries. Rising unemployment and declining wages and incomes are compromising people's access to nutritious foods and essential services such as health care. Income inequality is rising in many of the countries where hunger is on the rise, making it even more difficult for the poor to cope with economic decline. Conflicts and climate change are also driving hunger. Unless greater investments and more targeted efforts are made to address these drivers, we will not meet the goal of ending hunger. The Zero Hunger goal is not simply to eradicate hunger, but to ensure that all people have access to safe, nutritious and sufficient food and to end all forms of malnutrition.

Critical conditions	Causes	Goals	How to achieve these goals
1. Not enough to eat 2. Compromised access to nutritious foods 3. Compromised access to essential services such as health care	1. Economic growth is slowing down 2. Rising unemployment 3. Declining wages and incomes 4. Income inequality 5. Economic decline 6. Conflicts 7. Climate change	1. Eradicate hunger 2. Ensure that all people have access to safe, nutritious and sufficient food 3. End all forms of malnutrition	1. Greater investment 2. More targeted efforts to address investments

Pages 14-15

Find out what company is the world leader in the genetic modification of seeds.

Sample answer
Since the 1980s, Monsanto has been the world leader in the genetic modification of seeds and has won 674 biotechnology patents, more than any other company, according to US Department of Agriculture data.

4.
1. weed; 2. pollution; 3. loss; 4. enhance; 5. tiny; 6. reduced; 7. supplier; 8. invulnerable.

5.
1. Yes, it is still used in almost all developed countries; 2. They are used to increase growth and exploit the crops; 3. The cons are the risks of environmental pollution and damages to human and animal health; 4. Groundwater is polluted because of the excessive application of synthetic fertilisers; 5. Because of the presence of insecticides; 6. Because they can negatively affect livestock and human health; 7. They use antibiotics to manage the problems of diseases and infections; 8. The practice of monocropping decreases soil fertility and makes crops susceptible to pathogens.

6.
1. living; 2. improvement; 3. growing; 4. conventional; 5. dangerous; 6. health; 7. deaths; 8. contaminants.

Pages 16-17

What are the most destructive practices of conventional intensive farming?

Sample answer
Massive use of pesticides, soil depletion, genetic homogenisation of crops.

7.
1. d; 2. a; 3. g; 4. c; 5. h; 6. e; 7. f; 8. b.

8.
1. The main aim of organic farming is to produce high quality food respecting the natural life-cycle; 2. It is an international umbrella organisation which, in 1972, defined organic agriculture and its standards; 3. They use farming techniques such as crop rotation, compost and animal manure; 4. They are controlled through crop rotation and the insertion of natural predators; 5. Because they are becoming aware of the serious problems to the environment and human health deriving from pesticides and fertilisers; 6. SARD stands for Sustainable Agriculture and Rural Development; 7. Sustainability is the basic principle according to which we must use present resources without compromising the ability of future generations to meet their own needs; 8. The main aim of sustainable agriculture is to minimise the harmful impact on the environment and protect natural resources to meet future needs; 9. Yes, it does but it tries to optimise their use in such a way that causes no risk to man, animals or the environm+ent; 10. It includes crop rotation, pest control strategies and the use of animal and green manure.

9.
1. social; 2. ecological; 3. economic; 4. circle; 5. equitable; 6. viable; 7. bearable; 8. sustainable.

1. d; 2. c; 3. b; 4. a.

Pages 18-19

Can you think of other side-effects of transgenic procedure?

Sample answer
Other side-effects can be the emergence of super pests, the loss of biodiversity, the interference of GMO-pollen with natural crops and the creation of new diseases.

10.
1. to domesticate plants; 2. to provide; 3. loss; 4. to keep up with; 5. inheritance; 6. food chain.

11.
Sample answers
1. Why did farmers start crossbreeding?; 2. What did Mendel develop?; 3. What generates a hybrid?; 4. What does genetic engineering involve?; 5. What are GMOs?; 6. What are the possible disadvantages of transgenics?

12.
1. genetic; 2. way; 3. combinations; 4. like; 5. production; 6. consumers; 7. resistant; 8. world; 9. specific; 10. raised.

13.
Personal answers

Pagine 20-21

14.
1. d; 2. a; 3. b; 4. f; 5. c; 6. e.

15.
1. A; 2. D; 3. A; 4. D; 5. D; 6. A; 7. D; 8. A.

16. Hydroponic Gardening – Grow Organic Plants Fast *posted by Hydroponicsystems*

Mary Ellen Taylor sells her produce at weekend farmers' markets near Washington DC. The heads of lettuce still attached to their roots are popular and she has many regular customers like Betsy Kulik. "The lettuce just tastes fabulous, so we can come year-round; even in January, February and March her lettuce is very green and tastes just as good then as it does in the summer." Taylor grows the lettuce and other salad greens on her family farm in Loudoun County Virginia, about 80 km from Washington. "Isn't this beautiful? I mean it is so clean, no sand or soil or pests down in there. It is just like a perfectly formed green rose that's edible." Taylor harvests 4,000 of those in her two hydroponic greenhouses, each week all year round. That's why she named her farm 'endless summer harvest'. She has a dozen part-time employees and frequent visitors from around the world.
"Several weeks ago, an investor group from Botswana came to visit with us. We have had farmers from Afghanistan here that were visiting because this would be an ideal controlled environment to bring to Afghanistan where the climate is so harsh".
The hydroponic crops here are protected from the harsh elements, from planting to harvest. After they germinate, these little plants stay in the nursery for two weeks, then they're moved to a greenhouse and placed into gutters where they'll grow to market size. They are nourished sustainably using recycled water. "That tank has 600 gallons of water with the nutrients. It continuously flows in and out of that tank after it has gone through the system and all of the plants' roots."
Taylor says the two greenhouses take up a little over 1,000 square metres of land but produce the equivalent of a conventional five-hectare farm. "We've established that it's so productive on small pieces of land, so they can be closer to

major metropolitan areas." So, besides farmers' markets, Taylor can sell her fresh produce to speciality grocery stores and local restaurants. Chef Antony Lombardo uses the hydroponic lettuces in his signature salads. "People are so into buying local food. 90% of Americans eat lettuce every day and our business, while other businesses are tanking, is just exploding. We are a retail farm phenomenon here in America." Taylor says she enjoys being known as the lettuce lady and is planning to double her farm size this year.

1. Hydroponics and how you can grow crops fast and easily; 2. Lettuce; 3. Yes, because it looks like a green rose which is clean, without sand, soil or pests; 4. A dozen part time employees; 5. From Botswana; 6. For two weeks; 7. Using recycled water with the nutrients; 8. 600 gallons; 9. A little over 1,000 square metres; 10. She sells her lettuce to private customers at weekend farmers' markets as well as to grocery stores and local restaurants; 11. 90% of Americans; 12. It's exploding.

Pages 22-23

Find out if interest in biodynamic farming is growing in Italy.

Sample answer
There has been an increasing interest in these practices because they reduce some harmful effects caused by chemical-dependent agriculture.

17.

1. aquaponics; 2. biodynamic agriculture; 3. hydroponics; 4. aeroponics; 5. aeroponics; 6. hydroponics; 7. aeroponics; 8. biodynamic agriculture; 9. aquaponics; 10. hydroponics.

18.

1. F, Plants use nutrients from fish waste; 2. F, It saves water and re-uses nutrients; 3. F, He was an Austrian researcher; 4. T; 5. T; 6. F, It allows a variety of plants to grow.

19. 8

Biodynamic Preparations

Biodynamic preparations do not replace any rational farming practice. Through their use, one mainly influences the soil and plants; their vegetative and/or productive phases are enhanced, and their quantity and quality are reinforced. Preparations are either sprayed on the field or used in compost heaps.

Typical spray preparations are 500 and 501. Preparation 500, or horn manure preparation, is made exclusively with fresh cow's manure without straw, which is placed in cow's horns, composted in fertile soil during a specific season of the year, then sprayed on the crop. It influences the connection processes of roots and their development with soil and water. Preparation 501, or horn silica preparation, is made exclusively with quartz powder, finely ground and mixed with rainwater. The quartz powder is placed in cow's horns and buried in a sunny place from April to October. Its use stimulates photosynthetic activity and benefits the ripening processes, vegetative balance and increases fruit quality. Compost preparations are made from six medicinal plants: yarrow, chamomile, stinging nettle, oak, dandelion and valerian. They are stored in animal organs which serve as catalysts to enhance specific processes during fermentation. Their activity is similar to a starter that is used to activate particular enzymatic vital processes.

Adapted from: *https://www.agricolaforadori.com/wp-content/uploads/2019/10/Rudolf-Steiner-and-the-biodynamic-farming.pdf*

1. plants; 2. quantity; 3. sprayed; 4. 500; 5. silica; 6. April; 7. six: yarrow, chamomile, stinging nettle, oak, dandelion and valerian; 8. fermentation.

Unit 1.2 Technology, automation and robotics

Pages 26-27

Can you think of some sophisticated machinery which can be used in agriculture?

Sample answer
GPS and self-guided tractor, robotic fruit harvester, robot vineyard pruner.

1.

1. T; 2. T; 3. F, No, because it has a long handle; 4. F, A shovel is used to move snow; 5. T; 6. F, They are used for cutting plant stems; 7. T: 8. F, It has three short tines.

2.

1. g; 2. c; 3. f; 4. h; 5. b; 6. a; 7. d; 8. e; 9. j; 10 i.

3. 10

Useful Gardening Tools

There are a lot of agricultural tools which allow gardeners to perform their tasks: hand rakes,

gardening shears, garden hoes, garden trowels, sprayers and wheelbarrows. A hand rake is similar to a rake, but it is shorter. It has three tines and requires a person to bend down to the ground to use it. It is ideal for cleaning up dead leaves and plant materials in garden beds. Gardening shears are a tool looking like large scissors; they are used to prune hedges or bushes. A garden hoe may be a relatively simple tool but it's ideal for removing unwanted weeds. It can also be used to clear fallen leaves and neat beds and borders. Sprayers are used to apply liquid treatments to plants such as fertilisers and pesticides. All sprayers have a tank holding the substance. Some sprayers can be carried on the gardener's back, while much larger sprayers can be mounted on a tractor. A wheelbarrow is a small single-wheeled vehicle fitted with handles by which it can be pushed and guided. It is used for carrying small loads.

1. wheelbarrow; 2. hand rake; 3. shears; 4. garden hoe; 5. sprayer; 6. trowel.

Pagine 28-29

Go online and find some Lidar applications in agriculture.

Sample answer

Some of the main Lidar applications in agriculture are:

- checking farmland and forestry;
- mapping woods by measuring the vertical structures of the canopy and its density;
- monitoring soil type and soil loss to determine the suitability of crop production and what fertiliser should be applied;
- controlling the overall crop yield and the need for specific maintenance;
- understanding where water sources are located or where to avoid irrigating the land;
- knowing how a severe storm, drought, or other issue has affected your crops.

4.

1. e; 2. h; 3. g; 4. b; 5. d; 6. a; 7. f; 8. c.

5.

1. thresher; 2. combine; 3. rotary cultivator; 4. seed drill; 5. tractor; 6. steel plough; 7. grain reaper; 8. McCormick reaper.

6.

Sample answer

This bar chart shows the worldwide projected growth of the wireless device market for M2M communication in farming over a period of seven years. Globally, we can see an even upward trend in these years, without any significant ups and downs. The trend is positive up to 2022, followed by slightly less rising values from 2022 to 2023 and again by a better market situation for the following years. In fact, as we can see from the last three columns, the market is projected to grow at a faster pace from 2023 to 2025. Comparing the first with the last column, the overall market rise can be estimated at about 50%, while the annual growth is expected to grow at a rate of around 8% in the forecast period.

Pages 30-31

7.

Sample answers

1. What can farming machines be equipped with?; 2. How will robots with human vision and computer learning operate?; 3. What are the possible advantages of robotic farming?; 4. Why do robots reduce farmers' dependence on seasonal labour?; 5. Are identical machines used for all kinds of harvesting?; 6. What is RMS?

8.

Sample answer

Sales agent: Grease and Brinks Automated Machinery. May I help you?

Farmer: Yes, please. I'm the owner of a large orange farm in Central Valley, California. Every year I have to spend a lot to hire crews of migrant workers for fruit picking. I've heard of an automated harvester manufactured by your company, but I'd like some more information, please.

SA: Of course.

F: What crop is it for?

SA: Well, it's suitable for different kinds of orchards as the robot's arms can perform many different tasks and its application software can be customised according to your needs. It's perfect in the case of a large estate.

F: I see. But… how does it work?

SA: It is equipped with GPS to navigate through the orchard and a vision system to create a virtual 3D image of the entire tree. The robot only picks fruit of the correct size and shape, discarding defective fruit. It can also communicate the quantity, size and quality of fruit as it is being picked, as well as receive instructions from the farmer on what to pick.

F: Amazing! And how much does it cost?

SA: Well, it ranges from $30,000 to $60,000, depending on the model, but it's not so expensive if you consider that this robotised system can increase labour productivity by 5 to 15 times and reduce unit harvesting cost by 50% or more.

F: Can you please send me a brochure of your

products? My email address is tom.jones@aol.com.
SA: Certainly. Thank you. Goodbye.
F: Bye.

9. 13

Do Computers Save Time and Money?

Today, agriculture has become high-tech. Tractors can be equipped with a receiver and a computer that integrate data from a satellite. They have air-conditioning, a phone, GPS, and sophisticated sensors. The use of advanced technology can improve quality and maximise crop yields and profits. Computers and LIDAR devices are valuable tools for the modern farmer to get information about soil type, soil pH, nutrient levels, land features and crop damage, to control the application of fertilisers, herbicides and pesticides, to handle water irrigation systems, to look for changes in the environment that could compromise farming, to check weather forecasts, to buy and sell products online, or to use individual farm websites. The number of farmers surfing the net and using digital gadgets has increased, changing the way farmers do business.

Farm operators can be subdivided into two groups: those who use the Internet and those who do not. Those who use the Internet have higher levels of income, higher farm sales and higher levels of education. Farmers who do not use the Internet are older and less educated. The factors influencing computer use depend on the farmers' background, environment and personality and the complexity of the farm. One of the main objections to using a computer is the time necessary to learn and configure the system. In fact, farmers usually consider computer-based activities a waste of time, because they distract them from important outdoor farming activities and may reduce profits.

1. F, It can; 2. T; 3. T; 4. F, It has increased; 5. F, They can be subdivided into two groups; 6. F, Farmers who do not use the Internet are less educated; 7. T; 8. T.

Pages 32-33

How is precision farming profitable?

Sample answer
It uses available resources efficiently and reduces costs, which means there are higher potential profits.

10.
1. livestock monitoring; 2. irrigation; 3. soil and field analysis; 4. crop spraying; 5. health assessment; 6. planting; 7. crop monitoring; 8. terrain mapping.

11. Living lab – Atlantic: Precision Agriculture
posted by Agriculture and Agri-Food Canada

Welcome to Spring Valley. I'm Stephanie Arnold with the University of Prince Edward Island, Climate Research Lab. I'm using precision agriculture with PA farmers, collecting thermal imagery with drones like this as part of the Agriculture and Agri-Food Canada Living Lab – Atlantic Initiative.

Precision agriculture uses technology to help farmers pinpoint what their crops need across their fields, so that they can do the right thing in the right place at the right time. The thermal imagery we collect is used to map drought stress in the crops before they display visible symptoms from the ground. This helps the farmers to anticipate what areas need more or less water for the crops to thrive. More importantly, this helps to conserve water so that the farmers can precisely determine when, where, and how much to irrigate. The added benefit is that it also improves the harvest and quality of the potatoes they produce.

1. Canada; 2. thermal; 3. water; 4. potatoes; 5. crops; 6. place; 7. time; 8. stress; 9. symptoms; 10. conserve; 11. where; 12. quality.

12.
1. tools; 2. precision; 3. maps; 4. navigate; 5. crop; 6. irrigation; 7. disease; 8. chemicals.

Pagine 34-35

Do you know how IoT can help protect endangered wildlife?

Sample answer
Wildlife rangers and conservationists use collars to keep an eye on animals and study their behaviour in order to gain insight into their natural environment.

13.
1. trend; 2. remotely; 3. network; 4. platform; 5. cloud; 6. to achieve; 7. prosperity; 8. flooding; 9. drought; 10. to detect.

14.
1. Connectivity and IoT; 2. The ability to remotely collect, use, and exchange data; 3. Using the same language despite technical differences and without human intervention; 4. For improving crop development conditions, while saving both time and money; 5. It could transmit data to a platform in order to remotely control all the necessary parameters for better cultivation; 6. It could detect threats linked to poaching, overfishing (or illegal fishing) and deforestation.

15.

Teacher's note
Before having the students watch the video, consider teaching the following expressions:
breakthrough: *passi avanti*
data-driven: *guidato dai dati*
Intelligent Edge: *tecnologia che genera, analizza, interpreta e indirizza i dati*
to keep pace with: *stare al passo con*
TV whitespace: *spazio TV buffer*

▶ IoT for Earth: helping farmers grow a brighter future for us all *posted by Microsoft IoT*

It started with a seed. The seed of an idea that we could help the world's food production keep pace with population growth and do this sustainably in a climate that is changing rapidly. That every farmer should have access to the breakthroughs in data-driven agriculture. Low-cost sensors that take the pulse of the soil in real time, communicating at broadband speeds across unused TV whitespace. Affordable drones that create detailed visual heat maps, identifying areas of the farm that need attention and monitor livestock health, movements, and food supplies. It's the Intelligent Edge, powered by machine learning and the Intelligent Cloud. Empowering farmers at all levels to know exactly where, when, and how to plant and nurture their crops. Maximising yield while minimising expense and environmental impact. It's about making farms more productive, big, small, independent, and affiliated. Because it's time to rethink how we work the land and how the land works for us. Meeting the challenges of the future as a global community. This is IOT for the Earth. A.I. that augments our own human knowledge. Helping farmers grow a brighter future for us all.

1. F, It should keep pace with population growth; 2. T; 3. F, Low-cost sensors; 4. F, The costs should be reduced as much as possible; 5. T; 6. T.

Unit 1.3 Not only agriculture

Pages 38-39

1.

1. Because it provides the main source of food, income, and employment to their rural populations; 2. Economic and environmental policies, climatic conditions, and international market developments; 3. The substantial changes in the prices of their agricultural products, i.e. price volatility; 4. They are compensated through direct payments provided by the EU; 5. The production of basic crops, as well as forestry, beekeeping, fruit cultivation, poultry, and even dairy farming; 6. The production, consumption, processing, storage, recycling, and disposal of biological resources; 7. It is a science which refers to the production, use and conservation of biological resources in order to provide information, products, processes and services across all economic sectors; 8. The aim of a sustainable economy is to guarantee an improved management of renewable resources, a reduced dependency on fossil fuel resources, and the opening of new and diversified markets in food and bio-based products.

2. 17

Why Food Prices are Rising

Since the beginning of the 21st century, food prices have risen by about 2-3% a year on average. Grocery store prices have risen by 2.0% while restaurant food has increased by 2.8%. A lot of factors affect food prices, making them volatile. These include supply and demand, weather, outbreaks of disease, war, and natural disasters, but some other forces influence prices too, and they are: high oil prices, climate change, more meat consumption, and pandemics.

First. High oil prices raise shipping costs for food transport. They also affect farming because oil by-products are a significant component of fertilisers.

Second. Climate change creates more extreme weather, causes greenhouse gas emissions and increases air temperature. It rains less, water from lakes and rivers evaporates, and the land dries up, thus damaging crops.

Third. People around the world are eating more meat, especially pork and this means more grain is needed to feed the animals. Higher demand for meat means higher grain prices.

Fourth. Pandemics impact highly on the economy. For example, over the last few years, the COVID-19 pandemic has sent food prices up. Most of this phenomenon was driven by a considerable price increase in meat, fish, poultry, and eggs, but dairy products were also a substantial contributor to the rise. When the governments declared national emergencies, in fact, a lot of people stocked up on groceries and began cooking at home instead of eating out at restaurants. This escalated demand for food-at-home. Exports and imports became chaotic as countries closed their borders to stop the spread of the virus and food supply chains were limited, leading to lower supply.

Adapted from: *https://www.thebalance.com/why-are-food-prices-rising-causes-of-food-price-inflation-3306099*

1. F, Food prices have risen between by about 2% and 3%; 2. T; 3. F, High oil prices raise shipping

costs for food transport; 4. T; 5. T; 6. F, Most people used to eat at home.

3.

1. restaurant; 2. demand; 3. meat; 4. fertilisers; 5. evaporates; 6. pork; 7. poultry; 8. emergencies; 9. imports; 10. virus.

Pages 40-41

Watch a video about the European Green Deal to find out more.

Frontier research for the European Green Deal *posted by* European Research Council

4.

1. h; 2. g; 3. b; 4. e; 5. a; 6. d; 7. c; 8. f.

5.

1. In the late 1950s; 2. It aimed to improve agricultural productivity, stabilise agricultural markets, avoid excessive price fluctuations, reduce customs duties and ensure reasonable prices; 3. To limit production and reduce surpluses; 4. They have to meet standards on farm hygiene, food safety, animal health and welfare, biodiversity, and landscape protection; 5. The European Commission; 6. Its main aim is to limit global warming and ensure that greenhouse gas emissions are significantly reduced; 7. Because it is the key to securing the future of agriculture and forestry, as well as achieving the objectives of the European Green Deal; 8. There are ten key objectives, focused on social, environmental, and economic goals.

6.

Sample answer

In the last two decades of the twentieth century farmers had to face various challenges. As they were producing too much, creating surpluses, reforms were launched to balance supply and demand. In the 90's, food quality, food safety and livestock welfare became a primary concern. For their part, farmers became more aware of their own responsibilities, like protecting the environment and using natural resources in a sustainable way. To reward farmers for their service to society, the EU provides them with income support.

7.

EU Agriculture – CAP – Keep Countryside Alive *posted by* European Commission

Did you know that around half of Europe's 500 million citizens live in rural areas, which make up over 77% of EU territory? And that the farming and agri-food sectors together provide around 46 million jobs? Europe's rural communities and regions are a valuable part of our heritage and vital to our economy. Through the reformed Common Agricultural Policy or CAP, the EU helps farmers keep the countryside alive and preserve the diversity of European agriculture. It does this by the supply of regional foods, stimulating employment, entrepreneurship and by supporting rural business with funding. It invests in research and innovation to enable farmers to modernise and be more efficient. And it provides extra support to help young people move into farming, a career choice that offers many opportunities. All these actions help make European agriculture more competitive and sustainable. Farming is not only about food, it's about our countryside and its precious natural resources. Without farms and farmers there would be little to keep rural communities alive. The new CAP supports farmers and protects Europe's countryside and its communities for today, tomorrow and for future generations. Europe's Common Agricultural Policy, taking care of our roots.

European citizens living in rural areas	500 million
Jobs provided by the agricultural sector	Around 46 million
What is preserved by the CAP	The diversity of European agriculture
What supports rural business	Funding
Who is given support to start a farming career	Young people
Farming is about:	1. Food 2. The countryside 3. Natural resources

Pages 42-43

What elements of the product can be taken into account in marketing wine?

Sample answer

The elements that should be considered include product variety (different varietals within a single brand name), quality of the wine, design (artwork on labels and casing), features (seal type), brand name (logo, colours), packaging (types of casing, bottle or box shapes), sizes (of bottle), and services (order options, interaction).

8.

1. They are land, labour, capital and entrepreneurship; 2. Capital refers to machinery, tools, buildings, equipment and anything necessary for producing goods, pay workers' salaries, and re-invest in the farm; 3. An entrepreneur is a person who combines the other factors of production – land, labour, and capital – to earn a profit; 4. It can be kept with a balance sheet, which lists the assets and liabilities at a certain date; 5. Because agricultural products have a relatively short shelf life and can easily result in waste; 6. It includes a detailed description of the business, its services and/or products, and sets the future objectives and the strategies for achieving them; 7. They allow the entrepreneur to establish pricing, distribution and promotional strategies; 8. The 4 Ps of marketing: product, price, place and promotion; 9. Price will impact profit margins, supply, demand and marketing strategy; 10. A promotional strategy deals with advertising, packaging, events, personal selling, public relations and e-commerce.

9.

1. families; 2. areas; 3. smallholder; 4. markets; 5. land; 6. population; 7. activities; 8. sustainable; 9. food; 10. natural; 11. supports; 12. solve; 13. development; 14. advocacy; 15. agriculture.

10. 20

Why Use Agricultural Marketing?

Centuries ago, you ate what was grown locally. You ate what you or your close neighbours grew – provided the rains came, the harvest was good, and there were no natural disasters to sweep it away. Then came the modern agricultural revolution, and suddenly a greater variety of foods was available from around the world. Improvements in technology and transportation produced food surpluses and enabled people to obtain food from the most distant places of the globe. This is excellent news for the consumer, but a challenge for the farmer, who now must compete in a global market instead of a local one. Hence, it is of basic importance to use an agricultural marketing programme, which takes into consideration many elements. First of all, farmers should consider that agricultural products are perishable and, if they fail to sell on time, they will have to bear only costs. Then the prices are very changeable depending on weather and harvest trends in any far places of the world. For these reasons every agribusiness, including small farms, cooperative farms, large farms, distributors, farm equipment manufacturers or feed and seed sellers, have to use agricultural marketing techniques. Effective agricultural marketing requires the ability to analyse complex market data, use that data to identify changes in demand, and develop persuasive arguments for multiple audiences in order to increase demand.

Adapted from: *www.marketing-schools.org*

1. grown locally; 2. around the world; 3. technology and transportation; 4. the most distant places of the globe; 5. a global market; 6. important elements; 7. perishable; 8. weather and harvest trends; 9. agricultural marketing techniques; 10. market data, in demand, arguments.

Pages 44-45

11.

Sample answers

1. of income and expenditure for a set period of time; 2. given by the government; 3. income, variable costs, and fixed costs; 4. cash leases, insurance and taxes on machinery; 5. income; 6. used or become obsolete.

12.

Sample answers

1. Why must farmers decide which and how much of a crop to produce?; 2. What are budgets necessary for?; 3. What is sales revenue?; 4. What are the three main parts of a company budget?; 5. What is the difference between variable and fixed costs?; 6. What do variable cash costs refer to?; 7. What does depreciation mean?; 8. Why do production goods deteriorate?

13.

1. c; 2. b; 3. g; 4. f; 5. e; 6. h; 7. a; 8. d.

Pages 46-47

Why is it important to wear protective clothing in farming?

Sample answer

Outdoor work and work inside many agricultural buildings may expose workers' eyes, lungs and skin to a potentially hostile environment and work-related health problems.

14.

1. Those concerning production, marketing, financial, legal and human resources; 2. Climate variability and change; 3. The fact that stock levels of goods and demand trends affect price fluctuation; 4. The firm's ability to have enough assets to cover its liabilities; 5. Legal risks; 6. Firstly, being aware of them and assessing their probability, then taking specific action to minimise them, e.g. by diversifying production, using financial instruments, protecting the property, taking all safety measures and maintaining equipment regularly.

15.

Sample answers

1. with high frequency in agriculture; 2. the number of natural catastrophes; 3. often fluctuate greatly from year to year; 4. improper safety procedures on the farm; 5. taking out health and disability insurance; 6. can better face climate risks.

16.

1. T; 2. F, It is more difficult to make a decision in this case; 3. T; 4. T; 5. F, They are those who try to avoid risks; 6. F, They are keen on taking risks; 7. T; 8. T.

Pagine 48-49

Find out what pharmaceutical plants are and give some examples.

Sample answer

Pharmaceutical crops are cultivated species used for the extraction or preparation of therapeutic substances. The most widely grown are borage, hemp, ginger, vegetable oils, beets and various herbs, such as chamomile, calendula, holy basil, turmeric, and lavender.

17.

Sample answer

Consultant: Good morning, Mrs Roger, how can I help you?

Farmer: Good morning, Mr Parker. I was wondering whether I'm ready to add new livestock activities to my traditional farming. Am I guaranteed to boost my business?

C: Well, you can't be sure of being successful as farm diversification can be a complex process, but also very rewarding. What is your current business mainly based on?

F: Our estate is quite large and, having a lot of acres of grazing land at our disposal, we rear cattle. In addition, we have about one hundred sheep for milk production. But the risk of BSE and scrapie is always lurking.

C: I see. You'd like to diversify through less traditional livestock options. Have you ever thought about birds or fowl for eggs and/or meat: I mean ducks, quail, geese, guinea fowl and/or ostriches. What about deer for venison? Or worms, both for compost and bait?

F: Actually, I was thinking about certain species of goat for mohair or cashmere or camelids, such as llamas, alpacas or guanacos for their pelts or wool.

C: Whatever species you're going to rear, remember regulations will differ depending on the species you wish to raise. Your animals may occasionally need to be tested for possible disease in order to prevent infections. You may also have to consider new health, safety, and employment issues that do not currently affect you.

18.

1. Farm diversification is the practice of producing a variety of crops or animals, or both, to integrate agricultural production with marketing or processing activities; 2. The goal is to exploit the farm resources and to increase the income of the rural community, in such a difficult economic context; 3. Anyway, before remodelling your business, do a market survey and check costs, profitability and legal requirements; 4. There is a great variety of opportunities, but choose products which best suit your farming conditions.

19.

Sample answer

Agricultural opportunities	Non-agricultural opportunities
• Alternative crops • Alternative livestock • Food drying, processing and preservation • Preparation and marketing of dairy products • Production of vegetables, aromatic and medicinal plants, flowers, indoor plants and fruit tree nurseries • Mushroom cultivation • Silkworm breeding • Beekeeping	• Selling natural resources • Agritourism • Didactic farm • On-farm wedding venue • Selling handicrafts

20. 24

1. c; 2. e; 3. f; 4. d; 5. a; 6. g; 7. b; 8. h.

Converting a Farming Business

Creek Farm began as a hobby. Mary and David Pinter never thought they would make a living from the farm, but by diversifying they have been able to do just that. The couple bought the property in 1992. "We only had 38 acres and spent the first five years turning it into woodland and pasture, so we could rear Highland cattle and angora goats," says Mary. "The first llama, Henry, was bought as a guard dog to protect the goats." Three years later, the llama herd had grown to 11 and they started offering adventure treks through the woods. You can't ride the llamas, but these pack animals will carry your rucksack while you enjoy the scenery. When foot-and-mouth infectious disease struck in 2001, the couple took the opportunity to re-evaluate the business. Llamas now looked like a

good alternative. So, the Pinters sold their cattle and goats to give them more grazing land and expanded into breeding llamas. Half of their income is now generated by selling trained llamas and the other half is created by the trekking and tourism activities. As the business grew, the Pinters opened a visitor centre that now houses Mary's workshop, where they sell knitted garments made from llama wool.

Adapted from: *http://www.countryfile.com/news/farming-diversification*

1. F, It was just a hobby; 2. F, In 1992; 3. T; 4. F, Cows and goats; 5. F, They used llamas; 6. F, After three years they had 11 llamas; 7. T; 8. T; 9. F, Only a half does; 10. T.

Pagine 52-53

VOCABULARY

1.

1. biodynamics; 2. organic farming; 3. conventional farming; 4. hydroponics; 5. aeroponics; 6. aquaponics; 7. thresher; 8. rotavator; 9. seed drill; 10. scythe; 11. secateurs; 12. hedge shears.

2.

1. CAP; 2. productivity; 3. environment; 4. friendly; 5. practices; 6. standards; 7. herbicides, pesticides; 8. growing medium; 9. holistic; 10. monitoring, reduction; 11. reforms; 12. infrared.

3.

C	R	O	P	R	O	T	A	T	I	O	N	H	K	S
N	W	N	B	I	O	D	Y	N	A	M	I	C	S	Y
A	E	H	L	V	M	E	V	M	I	A	O	I	M	N
T	G	E	E	W	Z	U	M	A	H	T	T	O	U	G
S	X	O	K	E	L	P	M	M	S	I	N	X	K	A
W	P	K	E	M	L	U	N	E	O	O	I	I	P	S
A	C	R	E	A	Y	B	V	O	C	X	M	V	E	E
S	C	D	W	N	F	I	A	E	A	P	R	G	S	M
A	R	M	T	U	L	V	O	R	T	O	A	O	T	I
C	J	O	Q	R	N	I	T	F	R	T	J	E	I	S
G	H	K	L	E	B	U	P	F	R	O	Q	B	C	S
B	A	C	T	E	R	I	A	O	A	Y	W	Z	I	I
V	H	E	D	G	E	S	H	E	A	R	S	N	D	O
R	Z	V	K	S	X	S	G	E	N	E	S	B	E	N
H	Y	D	R	O	P	O	N	I	C	S	V	T	S	S

1. hedge shears; 2. bioeconomy; 3. shortage; 4. wheelbarrow; 5. hydroponics; 6. biodynamics; 7. pesticides; 8. bacteria; 9. genes; 10. gas emissions; 11. manure; 12. ten; 13. livestock; 14. crop rotation.

Page 54

REAL-LIFE SKILLS

4.

Sample answer

Seller: Hello, this is XYZ Enterprise, Mark Gordon speaking. How can I help you?

Customer: Good morning. This is Peter Parker from Warwickshire. I've called you for a couple of tips about your tractors. You know, it's such a large investment that I want to know exactly what I need for my property.

S: Well, first of all we have to consider your property size and future needs: how many acres is it?

C: It's about 10 acres but I'm going to expand my business. So, I need a vehicle which could be suitable even for harvesting, mowing, and baling.

S: That's not a problem as our tractors are extremely versatile and can be attached to a wide range of implements.

C: Aren't there any bargains in used tractors?

S: Personally, I wouldn't suggest any used tractors to you as the new ones are safer and more fuel efficient. We have got such a great variety of configurations that fit almost every need.

C: I see, so could you send me a catalogue with the prices of your products?

S: Of course. In addition, I'll send you a form you should fill in with all your data and specific requirements. This way, we will be able to suggest you which equipment is best for you. What's your email address, please?

C: p-p-a-r-k-e-r@gmail.com. Thanks, and goodbye for now.

S: Goodbye and many thanks for calling.

5.

Personal answer

6.

Personal answer

Page 55

CASE STUDY

7.

1. Since the late 1970s; 2. In 1983; 3. Aircraft provided more efficiency and precision, increased crop output and income, guaranteed time saving and protection from exposure to harmful chemicals, eased the physical burden, reduced the migration of the young to urban areas, was cheaper and well adapted to the small-scale land use typical of Japan; 4. Yes, the government has promoted a campaign to offer drone and robotics courses.

Pages 56-57

CLIP **DOCUMENTARY: Food, inc.**

8.

1. *Personal answer*; 2. *Personal answer*; 3. *Sample answer*. Large industries pay farmers to mass produce animals in a shorter time, while making them bigger; 4. *Sample answer*. As corn is the main constituent of animal feed today, humans also ingest forms of corn through meat. The severity of overdosing on corn produces immunity to certain antibiotics, and potentially increases the risk of certain allergies.

9.

When Monsanto soybeans first came on the market, I just really never switched over. I was getting pretty good yield with the conventional soybeans I'd been using, so I thought, well, I'll just stay where I'm at.

My neighbours all around me are all GMOs. If the pollen blows in, if the seed moves in, I am still held accountable. When you genetically modify a crop, you own it. We've never had this in agriculture. It used to be that your land-granted universities, they developed what was called public seed. The vast majority of the plant breeding was actually done in these public institutions. Monsanto's very much like Microsoft. The same way Microsoft owns the intellectual property behind most computers in America, they set out to own the intellectual property behind most of the food in America. Public plant breeding is a thing of the past. There virtually are no public seeds anymore. There's only like 4 or 5 varieties that I can actually plant. Now I have some of the last soybeans coming out of the state of Illinois.

Teacher's note

A land-grant university is an institution that receives federal money to provide research-based programs and resources for residents within their state.

1. came on the market; 2. conventional; 3. seed moves in; 4. genetically; 5. public; 6. public institutions; 7. Microsoft; 8. intellectual property; 9. plant breeding; 10. seeds; 11. varieties; 12. Illinois.

10.

1. F, All are GMO crops; 2. T; 3. F, They were produced by universities; 4. T; 5. T; 6. F, There are less than a dozen varieties of public seeds.

11.

1. 93%; 2. Because Monsanto wanted to increase its market share; 3. They declined to comment; 4. He thinks he should have reacted to the film to mitigate its impact; 5. Monsanto is doing something good because the company is helping to create commodity crops to feed today's population and the 2 billion more people who might occupy the planet by 2030; 6. Because they were the first to have a patented genetically modified plant on the market.

Page 58

DEBATE TIME

12.

Personal answers

Unit 2.1 Ecology, climate and pollution

Pages 60-61

Do you know which science studies ecosystems?

Sample answer
It is the ecosystem science which studies the inter-relationships among living organisms, physical features, biochemical processes, natural phenomena, and human activities in ecological communities. It has close links with other disciplines, such as landscape ecology, human ecology, biogeochemistry, aquatic ecology, soil science, hydrology, ecological economics and conservation biology.

1.
1. c; 2. d; 3. b; 4. f; 5. g; 6. h; 7. a; 8. e.

2.
1. Literally, "study of a house, household or family"; in the wider, modern sense, "the scientific study of the relationships between living organisms and their natural environment"; 2. Environment means the surroundings of an organism, it can change and does not imply any ecological relationship between members; ecosystem means a distinct ecological unit of living and non-living components functioning together as a system; 3. As the complex of abiotic and biotic factors acting on an organism or ecological community; 4. The non-living components: chemical and geological features (water, soil, rocks and minerals) as well as physical components (temperature and weather); 5. All living things: plants, animals, fungi and bacteria; 6. Because they are interdependent and a small change to either can affect the whole system; 7. There are three ecosystems: terrestrial, freshwater and marine; 8. A specialised ecosystem, a geographically defined area with similar communities of plants, animals, and soil organisms.

3.
What is the Biosphere – More Grades 9-12 Science on the Learning Videos Channel
posted by Harmony Square

https://youtu.be/YDuvysc_UbI

In this programme, we're going to learn about the term biosphere. The biosphere is the space on or near the Earth's surface that contains and supports living organisms and ecosystems. The term 'biosphere' was first coined by Austrian geologist Eduard Suess in 1875. Physical geographers divide the biosphere into three different spheres. From their point of view, the biosphere is the global ecological system; it integrates all living organisms and the relationships to the abiotic or non-living components of Earth. The first sphere is called the lithosphere. The lithosphere is comprised of the Earth's crust, which is comprised of solid soil and rock. There are many aquatic environments on Earth such as oceans, lakes and rivers. Scientists refer to these liquid environments as the hydrosphere. Surrounding the Earth is a gaseous mass called the atmosphere. The atmosphere envelops the planet. The lithosphere, hydrosphere and atmosphere work together to create the biosphere. The biosphere is ever-evolving and is the result of the interaction of Earth's physical, chemical and biological processes. The biosphere is affected by factors such as the distance between the Sun and the Earth. Other factors, such as earthquakes and volcanoes, act on the biosphere as well. Even daily weather and climate affect the biosphere. The activities of some of the smallest organisms on Earth such as decomposers that break down organic materials, impact the environment and the biosphere. Human activities impact the biosphere, too: industrialisation, deforestation, irresponsible mining and an ever-increasing human population impact the land, air and water. The results of these activities in turn affect people and every other living organism on Earth.

1. T; 2. F, In 1875; 3. T; 4. F, The lithosphere is comprised of the Earth's crust; 5. T; 6. F, The lithosphere, hydrosphere and atmosphere work together to create the biosphere; 7. F, The biosphere is affected by factors such as the distance between the Sun and the Earth; 8. F, The biosphere is ever-evolving; 9. T; 10. T.

Pages 62-63

Besides weather and climate, what other elements affect farming?

Sample answer
Since plants interact with the environment, some physical elements affect farming:
- Topography/Relief: it can also affect water drainage, impacting irrigation, the types of crop growth and farming methods used.
- Altitude: this affects temperature and, consequently, farming;
- Soil: it influences crop cultivation because different crops prefer different soils;
- Slope: the angle of slope affects the type, depth and moisture content of soil, as well as the rate of soil erosion.

4.
1. T; 2. F, Over a long period of time, usually 30 years or more; 3. F, Winters are cold; 4. T; 5. T; 6. F, If winds are moderate, they promote pollination and gas exchanges in crops.

5.
1. short summers; 2. rain and snow; 3. long, cold winters; 4. mild winters; 5. hot, windy summers; 6. long, cold and snowy winters; 7. rainy autumns; 8. short, mild winters; 9. long, hot summers; 10. little rain; 11. cool, rainy winters; 12. dry, hot summers; 13. muggy summers; 14. cold winters.

Pages 64-65

What is the difference between a hurricane, a typhoon and a cyclone?

Sample answer
They are the same thing just with different names depending on the region they are in. Atlantic/Northeast Pacific = a hurricane; Northwest Pacific = a typhoon; Southern Hemisphere = a cyclone.

6.
1. hurricane; 2. drought; 3. wildfire; 4. hailstorm; 5. firebreak; 6. mudslide.

7.
1. rising; 2. since; 3. than; 4. hot; 5. fire; 6. meaningful; 7. shores; 8. frequent.

8.
Sample answer
Reporter: Here's Paolo Rossi from RAI1 news in one of the most seriously damaged areas of South Tyrol. Mr Baumann is here to describe the situation of the local farmers. Good morning, Mr Baumann. Could you tell us what happened two days ago?
Farmer: Good morning. As you can see, the landscape around here is a waste land. I hardly recognise my orchard. I was in the orchard when the hailstorm started hitting our crops. I could barely stand up. I had to flee, looking for shelter as the hailstones were as big as tennis balls.
R: Had it been a favourable season up until then?
F: Well, I wouldn't say that. After late snow and frost at the end of February, heavy rain in spring threatened the apple tree blooming. In June, a long period of high temperatures and drought struck the Venosta valley. Then, on 29th July, this last calamity. Our harvest is lost.
R: What are you going to do?
F: I'm going to turn to The European Union Solidarity Fund, asking for assistance and financial support.
R: Individually?
F: We're a farmers' co-op, sustained by The Committee for Rural Development, so we're working on it together.
R: Goodbye, Mr Baumann and many thanks. I wish you better luck for the future.
F: Thank you for making people aware of our critical situation. Bye.

Pages 66-67

9.
1. F, They have different meanings; 2. F, They carry the most responsibility; 3. T; 4. T; 5. T; 6. F, It refers to long-term changes.

10. Climate 101: Cause and Effect of Climate Change *posted by* National Geographic

Human activities, from pollution to overpopulation, are driving up the Earth's temperature and fundamentally changing the world around us. The main cause is a phenomenon known as the greenhouse effect: gases in the atmosphere, such as water vapour, carbon dioxide, methane, nitrous oxide and chlorofluorocarbons, let the sun's light in but keep some of the heat from escaping, like the glass walls of a greenhouse. The more greenhouse gases in the atmosphere, the more heat gets trapped, strengthening the greenhouse effect and increasing the Earth's temperature. Human activities, like the burning of fossil fuels, have increased the amount of CO_2 in the atmosphere by more than a third since the Industrial Revolution. The rapid increase in greenhouse gases in the atmosphere has warmed the planet at an alarming rate. While Earth's climate has fluctuated in the past, atmospheric carbon dioxide hasn't reached today's levels in hundreds of thousands of years. Climate change has consequences for our oceans, our weather, our food sources and our health. Ice sheets, such as Greenland and Antarctica are melting. The extra water that was once held in glaciers causes sea levels to rise and spills out of the oceans, flooding coastal regions. Warmer temperatures also make weather more extreme. This means not only more intense storms, floods and heavy snowfall, but also longer and more frequent droughts. These changes in weather pose challenges: growing crops becomes more difficult, the areas where plants and animals can live shift, and water supplies are diminished. In addition to creating new agricultural challenges, climate change can directly affect people's physical health. In urban areas the warmer atmosphere creates an environment that traps and increases the amount of smog. This is because smog contains

ozone particles, which increase rapidly at higher temperatures. Exposure to higher levels of smog can cause health problems such as asthma, heart disease and lung cancer. While the rapid rate of climate change is caused by humans, humans are also the ones who can combat it. If we work to replace fossil fuels with renewable energy sources, like solar and wind, which don't produce greenhouse gas emissions, we might still be able to prevent some of the worst effects of climate change.

1. greenhouse effect; 2. heat; 3. Industrial Revolution; 4. has warmed; 5. oceans, weather, health; 6. Antarctica, sea levels, coastal regions; 7. plants and animals; 8. amount of smog.

11.

1. c; 2. e; 3. f; 4. a; 5. d; 6. b.

Pages 68-69

12.

Sample answers

1. How does agriculture influence climate?; 2. How does climate affect agriculture?; 3. What are the major sources of GHGs?; 4. What do agroecological systems imply?; 5. What are the main aims of CSA?; 6. How can the impact of livestock farming on climate change be reduced?

13.

1. tropical; 2. converting, land; 3. remains; 4. burned, heat; 5. rise; 6. precipitation, time.

14. 30

FAO's Strategic Framework

Climate-smart agriculture (CSA) is an approach that helps guide actions to transform agri-food systems towards green and climate resilient practices. CSA supports reaching internationally agreed goals such as the sustainable development goals (SDGs) and the Paris Agreement. It aims to tackle three main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions where possible.

CSA supports the FAO Strategic Framework 2022-2031 based on the Four Betters: better production, better nutrition, a better environment and a better life for all, leaving no one behind. What constitutes a CSA practice is context-specific, depending on local socio-economic, environmental and climate change factors. FAO recommends the approach is implemented through five actions points: expanding the evidence base for CSA, supporting enabling policy frameworks, strengthening national and local institutions, enhancing funding and financing options, and implementing CSA practices at field level.

1. approach; 2. green; 3. goals; 4. three; 5. productivity; 6. change; 7. emissions; 8. nutrition; 9. behind; 10. climate; 11. policy; 12. options.

15.

Sample answer

Major sources of GHGs:

- **Nitrogen fertilisers**. Nitrous oxide emissions account for about 60% of total agricultural sector emission, and this is due to the large increase in the use of nitrogen fertiliser for the production of high nitrogen-consuming crops like maize;
- **Enteric fermentation**. During digestion, microbes in the animal's digestive system ferment feed and produce methane, a powerful greenhouse gas, as a by-product. Cows and other ruminants have higher methane emissions than pigs and poultry because of their unique digestive systems;
- **Manure management.** Methane is also produced by the anaerobic decomposition of manure. When manure is handled as a solid or deposited naturally on grassland, it decomposes aerobically (with oxygen) and creates few methane emissions. However, manure stored as a liquid or slurry in ponds, tanks or pits decomposes anaerobically and creates methane emissions;
- **CO_2 from fossil fuel consumption**. These emissions derive from the combustion of petrol and diesel used for farm equipment (tractors, combines, irrigation pumps, etc.), but also include emissions related to the production of fertilisers, pesticides and herbicides, which are mainly derived from fossil fuels;
- **Rice cultivation**. Rice is usually grown in flooded paddies. The flooding means that the manure, soils and other organic matter on the fields are in an anaerobic environment, and decomposition of these materials results in methane being produced and released into the atmosphere.

Mitigating greenhouse gas emission and, consequently, climate change, comes from everybody. Here are some suggestions.

- Drive less, use public transportation, carpool, walk, or ride a bike.
- Fly less – airplanes produce huge amounts of greenhouse gas emissions.
- Reduce, reuse, and recycle.
- Use energy-efficient smart devices.
- Use less electricity.
- Use energy-saving light bulbs.

· Install rooftop solar panels.
· Support alternative energy sources that don't burn fossil fuels.
· Plant trees which can absorb carbon dioxide.
· Eat less meat – cows are one of the biggest methane producers.
· Eat seasonal and locally grown food.

Pages 70-71

What is the ozone layer? Use the net to find information.

Sample answer
It is the part of the atmosphere which protects the Earth against dangerous ultraviolet rays from the Sun.

16.
1. It is the contamination of the natural environment as a consequence of human activities; 2. There are two kinds of pollutants: biodegradable and non-biodegradable. The former are broken down by micro-organisms, the latter cannot be degraded, such as plastics and chemical or radioactive waste; 3. Traditional forms are air, water and soil pollution; more recent and dangerous pollutions are caused by light, noise, EMF and radioactive waste; 4. Pollutants produced by industry and motor vehicles; 5. It can be contaminated directly or indirectly by human actions; 6. It is certified as point source when it comes from a single source, and nonpoint source when it comes from widespread sources; 7. Heavy metals derived from agriculture and industry; 8. Light, noise and radioactive pollution because they may be responsible for high blood pressure, depression, diabetes, speech interference, loss of hearing, disruption of sleep, cancer, DNA mutation and cardiovascular disease.

17.
1. noise pollution; 2. pollutants; 3. carbon dioxide; 4. ozone layer; 5. chemicals; 6. pesticides; 7. dust; 8. radioactive waste.

18. 32
Non-environmentally-friendly suggestions:
· *Drink bottled water.*
· *Put non-recyclable items in the recycling bin.*
· *Use leaded petrol in motor vehicles.*
· *Print single-sided documents.*
· *Throw plastic bags away after using them.*
· *Buy single-use items.*

2, 4, 5, 8, 9, 12.

Unit 2.2 Energy sources

Pages 74-75

What kind of products does the petrochemical industry produce from refining crude oil?

Sample answer
It produces plastic, paints, synthetic rubber, fertilisers, synthetic detergents, drugs, synthetic fibres and explosives.

1.
1. Non-renewable resources cannot naturally replenish themselves, are limited in supply and cannot be used sustainably; 2. Fossil fuels formed within the Earth from dead plants and animals 400 million years ago; pressure and heat worked together to transform the plant and animal remains into crude oil, coal, and natural gas; 3. Crude oil can be extracted through drilling; 4. The main component is methane; 5. Natural gas is used for producing electricity, cooking and heating buildings, and as fuel for natural gas vehicles; 6. Coal is extracted by mining; 7. Burning fossil fuels results in the production of carbon dioxide and other greenhouse gases which cause global warming; 8. There may be oil spills and gas leaks; 9. Saudi Arabia, Russia, the United States, Iran and China are the countries that produce most oil in the world; 10. By the 2050s.

2.
1. petrol; 2. petrochemical; 3. mining; 4. greenhouse gases; 5. crude oil; 6. consumption; 7. oil spill; 8. power station.

3. 34
How Environmentally Sound Is the Petrochemical Industry?
The petrochemical industry's impact on the environment is substantial since it accounts for 18% of the global total of carbon dioxide emissions. It produces huge amounts of waste, including masses of discarded plastic.
Petrochemical production also involves major use of water, adding to increased demand and shortages in certain parts of the world. However, the petrochemical market is also growing substantially. Petrochemicals are crucial in many leading industries, including automotive and telecommunications. Also, they contribute to those industries regarded as leading the way in environmentally-friendly energy generation. This includes solar panels and wind turbines. The IEA (International Energy Agency) says that

demand for petrochemical products is surging, especially for plastics. They are becoming the main driving force of global oil demand. This, then, is the chief dilemma the industry faces. It must continue to meet rising demand while finding ways to mitigate its environmental impact and develop new strategies to become more environmentally sound.

Adapted from: *https://elmelin.com/petrochemical-industry-and-the-environment*

1. global/total; 2. waste; 3. water; 4. automotive; 5. solar panels; 6. plastics; 7. global oil; 8. new strategies.

Pages 76-77

What do you know about the fission process?

Sample answer

When the atom is split, it becomes two smaller, lighter atoms. Because energy doesn't just disappear, the "lost" mass is converted into heat, which is used to produce electricity. Nuclear power plants simply provide a controlled environment for these reactions to occur. Nuclear fission was discovered in December 1938 by the German physicists Lise Meitner and Otto Frisch.

4.

1. Because it can be reprocessed; 2. It can be found underground. It is a finite energy source, but it will not run out as quickly as oil or coal; 3. It does not produce polluting gases and the amount of energy produced is very efficient; 4. Nuclear energy is generated by the fission of atoms of uranium; 5. Nuclear power generates a lot of opposition because of safety concerns about the disposal of radioactive waste and the radioactivity released during accidents at nuclear plants; 6. They pushed to gradually eliminate nuclear power plants; 7. Energy demand from emerging markets and climate change; 8. Because its carbon footprint is very low.

5. 36

The Dangers of Nuclear Energy

Nuclear energy has no place in a safe, clean, sustainable future. Nuclear energy is both expensive and dangerous, and just because nuclear pollution is invisible does not mean it is clean. Meltdowns like the ones in Fukushima or Chernobyl released enormous amounts of radiation into the surrounding communities, forcing hundreds of thousands of people to evacuate. Many of them may never come back. If the industry's current track record is any indication, we can expect a major meltdown about once per decade. The possibility of a catastrophic accident at a nuclear plant cannot be dismissed.

There is still no safe, reliable solution for dealing with the radioactive waste produced by nuclear plants. Every waste dump leaks radiation into the environment, and nuclear plants themselves are running out of ways to store highly radioactive waste on site. The site selected to store the U.S.'s radioactive waste (Yucca Mountain in Nevada) is both volcanically and seismically active.

Beyond the risks associated with nuclear power and radioactive waste, the threat of nuclear weapons is real. The spread of nuclear technology and nuclear weapons is a threat for national security and the safety of the entire planet.

1. place; 2. expensive; 3. invisible; 4. released; 5. hundreds; 6. back; 7. meltdown; 8. nuclear; 9. solution; 10. radiation; 11. store; 12. waste; 13. beyond; 14. technology; 15. planet.

6.

1. F, It is dangerous for human health and the environment; 2. F, They caused the evacuation of a lot of people because of the release of radiation; 3. T; 4. F, The improper management of radioactive waste is always dangerous; 5. T; 6. T.

Pages 78-79

How was wind energy exploited in the past?

Sample answer

Wind energy has been used for centuries thanks to windmills to pump water and grind cereals. The industrial breakthrough for the generation of electricity came in the 1980s.

7.

1. solar radiation; 2. equipment; 3. photovoltaic panel; 4. solar farm; 5. wind farm; 6. flowing water; 7. hydropower plant; 8. reservoir.

8.

1. Renewable energy derives from natural sources, which are replenished at a higher rate than they are consumed; 2. Flowing water creates energy that can be captured and turned into electricity; 3. The function of a dam is to store water in a reservoir; 4. A dam can create the loss of land and the damage to the local ecosystem; it can also affect the local population who have to change homes; 5. It is the process

by which wind is used to generate electricity; 6. Yes, there are small hydroelectric plants that can be installed on farms with a good source of water with a constant flow; 7. Wind farms can be built on land or out in the oceans, the so-called off-shore farms; 8. Wind energy is a threat to wildlife and creates annoying noise; wind turbines are not aesthetically pleasing and are suitable in limited locations such as coastal areas, top of hills and open plains, essentially anywhere with strong, reliable wind; 9. Solar radiation is directly converted into an electric current thanks to photovoltaic panels, usually installed on the roofs of private houses, public buildings and solar farms; 10. The equipment needed for collecting and using solar energy is expensive; moreover, the photovoltaic cells installed on large areas of land cause a disruptive landscape impact.

9.
1. b; 2. c; 3. a; 4. d; 5. a; 6. a; 7. b; 8. b.

Pages 80-81

What do tides depend on? Where can the highest tidal range be found?

Sample answer
Tides are caused by the gravitational pull of the moon and sun on the ocean. The difference between high tide and low tide is called the tidal range. The biggest tidal range is found in the Bay of Fundy, Canada where the sea level rises and falls as much as 16 m in just over 6 hours.

In your opinion, which alternative energy source may solve the problem of global warming?

Sample answer
No alternative source will solve the problems of global warming. Together with more investment and better technology, the solution could come from a combination of non-renewable and renewable sources.

10.

Energy source	Where it is from	Pros	Cons
Hydroelectric	· Rivers, lakes and dams	· Creates water reserves as well as energy supplies	· Costly to build · Loss of land · Damages to local ecosystem
Wind	· Wind converted into electricity by turbines	· Potentially infinite energy supply	· Costly to build · Spoils the landscape · Affect wildlife
Solar	· Sunlight captured by solar panels	· Potentially infinite energy supply · Well exploited in countries with significant sun exposition	· Spoils the landscape
Geothermal	· Reservoirs of steam, hot water, and hot dry rocks underground	· Potentially infinite energy supply	· Installing equipment can be expensive and time-consuming
Tidal	· Turbines driven by the movement of tides/seawater	· Ideal for an island · Very predictable · Potentially infinite energy supply	· Costly to build · Location limits · Negative impact on aquatic and coastline ecosystems
Biomass	· Waste from agricultural processes, organic components of urban and industrial waste	· Cheap · Readily available source of energy	· Emission of atmospheric pollutants, when burned · Risk of deforestation
Green Hydrogen	· Electrolysis of water	· Efficient energy source for vehicles	· Serious questions on its production, storage and distribution

11. 39

How to Produce Green Hydrogen

About 95% of global hydrogen production relies on fossil fuels. The shift towards renewable energy sources is essential to the energy transition and a key factor in producing green hydrogen. Powered 100% by renewables, primarily from wind or solar power, the process of electrolysis splits the water molecules to create green hydrogen and oxygen. When voltage is applied, hydrogen is produced at the cathode and oxygen at the anode. This means hydrogen can be stored and transported by truck or train to power maritime cargo ships or fuel cell vehicles on land such as buses, cars and trucks. In the future, hydrogen will be able to replace fossil fuels for all transport.

1. fossil; 2. transition; 3. solar; 4. hydrogen; 5. oxygen; 6. transported; 7. vehicles; 8. replace.

12.

Sample answer

This line graph represents the worldwide consumption of various energy sources. It compares world energy consumption over 50 years, taking into consideration both real values from the survey in the past years and making a forecast up to 2040.

As regards liquids, natural gas and renewables, it can be seen that the trend of their curves shows an almost steady rise upwards, with slight negative peaks. Liquids and renewables have similar trends. However, it is remarkable that the green curve is the most constant between 2010 and 2040, which means renewables are expected to be the fastest-growing energy sources over the coming years.

A completely different trend can be observed for coal: after a period of a moderately constant trend below 100 quadrillion British thermal units (Btu), the curve has an uneven upwards trend till 2018. After that, the coal consumption is quite stable, even if high, a little above 160 quadrillion. Compared to the other energy sources, nuclear use remains essentially flat in EIA's international projection: its curve increases moderately from 1990 to 2008, decreases slightly up to 2012. Finally, it settles around 48 quadrillion, which is far below the other energy sources.

Pages 82-83

13.

1. f; 2. a; 3. d; 4. c; 5. e; 6. b.

14. 41

Earth Overshoot Day

Today, humanity uses the equivalent of 1.5 planets to provide the resources we use and to absorb our waste. This means it now takes the Earth one year and six months to regenerate what we use in a year. If current population and consumption trends continue, by the 2030s we will need the equivalent of two Earths to support us. And, of course, we only have one. Turning resources into waste faster than waste can be turned back into resources, puts us in global ecological overshoot, depleting the very resources on which human life and biodiversity depend. The result is collapsing fisheries, diminishing forest cover, depletion of freshwater systems, and the building up of carbon dioxide emissions, which creates problems like global climate change. Overshoot also contributes to conflicts and wars, mass migration, famine, disease and other human tragedies, and tends to have a disproportionate impact on the poor, who cannot buy their way out of the problem by getting resources from somewhere else. Individuals and institutions worldwide must begin to recognise ecological limits, make them central to our decision-making and use human intelligence to find new ways to live within the Earth's bounds. Since 1971 the Earth Overshoot Day has been celebrated. It marks the date when humanity has used all the biological resources that Earth regenerates during an entire year.

1. resources, waste; 2. regenerate; 3. two Earths; 4. waste, waste; 5. resources; 6. fisheries, forest, freshwater systems, carbon dioxide; 7. change, conflicts, migration, disease, tragedies; 8. limits, decision-making, new ways.

Teacher's note

Extra Activity

GROUP WORK. Here are some famous people who are/were activists and speak/spoke out for the environment. Surf the Internet and find out information about them.

1. David Attenborough; 2. Greta Thunberg; 3. Chico Mendes; 4. Leonardo Di Caprio; 5. Al Gore; 6. Henry Thoreau; 7. Wangari Maathai; 8. Rosalie Edge.

Sample answer

1. David Attenborough (1926), British naturalist, documentary maker and prominent environmental activist; 2. Greta Thunberg (2003), young Swedish activist known around the world for her protest speeches

against climate change; 3. Chico Mendes (1944-1988), Brazilian labour leader who defended the interests of seringueiros, or rubber tree tappers, in the Amazonian state of Acre, calling for land reform and preservation of the Amazon Rainforest; 4. Leonardo Di Caprio (1974), American actor, environmentalist and philanthropist; 5. Al Gore (1948), politician and environmental activist, ex vice-president of the USA, he discussed global warming in the 2006 documentary *An Inconvenient Truth*; 6. Henry Thoreau (1817-1862), 19th century American philosopher, writer and naturalist, one of the first ecologists; 7. Wangari Maathai (1940–2011), a Kenyan scholar and an environmental and human rights activist. In 1977, she founded the Green Belt Movement, a non-governmental organisation, which encourages women to plant trees to combat deforestation and environmental degradation; 8. Rosalie Edge (1877-1962), one of the most active and effective American conservationists of the 20th century, with a particular interest in protecting wild birds from mass killings by agricultural and industrial interests.

Pages 84-85

15.

1. b; 2. d; 3. f; 4. e; 5. a; 6. c.

16.

Sample answers

1. Form of economy based only on coal, petroleum and natural gas; 2. Environmental devastation and climate change; 3. A sustainable economy with zero emissions where all energy is derived from renewable resources which are naturally replenished; 4. Model of production and consumption which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible; 5. Produce energy using low carbon methods and resources that will not run out, minimise waste, and provide locally grown food; 6. New jobs in environmental fields to protect the future of our planet.

17.

Circular Economy *posted by* European Environment Agency

Life is a circle. All that grows returns to where it began: the earth. And from there it grows again, forming a perfect cycle. But we have broken that cycle. Our economy is growing unsustainably at the expense of nature. We have created a linear economic model: make – use – dispose. We extract millions of tons of natural resources every year and turn them into materials that we use and consume, and then we simply throw them away. But what if we designed products that we can reuse, refurbish and repair, and only extract new resources when we really need them? We would use less new materials and energy and protect our natural wealth. Inspired by nature, a circular approach would boost the European economy contributing to innovation and job growth, as well as reducing pollution and helping the environment by preserving our precious natural resources. Carpooling, recycling materials, repairing and reusing, using green energy… many things we already do are part of going circular. A circular economy is possible and brings new opportunities. And it isn't just good for nature and the economy, it's good for our quality of life and our health. A circular economy is a good way of living well within the limits of our planet.

Linear economic model: effects	Make materials, use and consume materials, throw materials away
Circular economic model: effects	Reuse, refurbish and repair products
Effects on the European economy	Innovation, job growth, pollution reduction, preservation of natural resources
Actions which can be considered circular	Carpooling, recycling, repairing, reusing green energy
What a circular economy is good for	Nature, economy, human health and quality of life

Unit 2.3 Forestry

Pages 88-89

Why are forests important for life on Earth?

Sample answer

Forests are important for life on Earth because they constitute one of the most important aspects of the biosphere, providing habitats and nutrients for organisms, modulating hydrologic flow, and helping conserve soil resources.

Does forest management mean cutting down trees?

Sample answer
It does not necessarily mean cutting down trees, in fact even a forest reserve where the trees are allowed to grow naturally can be considered a particular form of management.

1.

1. woodland; 2. stability; 3. dissemination; 4. sucker; 5. deciduous; 6. seedling; 7. niche; 8. stump; 9. timber; 10. evergreen.

2.

1. They are tropical, temperate and boreal forests; 2. Silviculture; 3. The creation, management, use and conservation of woodlands in a sustainable manner, guaranteeing the conservation and balance of the forest ecosystem; 4. Coppicing; 5. An increase in animal biodiversity; 6. Because they are similar to natural woodlands and offer a wide range of microhabitats; 7. Cutting the trees to ground level; 8. No, individual seedlings are produced naturally by spontaneous dissemination, or artificially with new planting.

3.

Sample answer

Type of forest	Location	Tree characteristics	Climate
Tropical rainforest	Tropical regions (South America, Congo, Southeast Asia, etc)	Broadleaf evergreen trees	Hot, humid climate
Temperate forest	Europe, eastern North America	Needle-leaved evergreen trees (conifers), broad-leaved deciduous trees	Cool climate, moderate temperature and rainfall with cold winter
Boreal forest (taiga)	North America, Eurasia	Needle-leaved conifers (spruce, fir, pine) and deciduous (larch, birch, alder)	Sub-arctic and cold continental climate

Pages 90-91

What is poplar wood used for?

Sample answer
Poplar wood is a species of wood most commonly used in the making of furniture, cabinets, wooden toys, and plywood.

4.

1. The yearly growth of each tree is added inseparably to pre-existing growth until it is possible to harvest the entire tree; 2. It depends on the intended use of the wood, from 2-3 years up to 100 years; 3. They are: marking the trees to be removed, felling and processing of trees, transportation of the wood from the felling site to a storage site; 4. Processing includes top removal (topping), delimbing, crosscutting into logs, debarking, and sometimes chipping of undesirable trees or logging residues; 5. They are shortwood harvesting, longwood harvesting and whole-tree system; 6. No, they aren't. Some hardwoods are softer than some softwoods.

5.

Type of wood	Type of tree	Examples	Characteristics	Uses
Hardwood	Trees with large leaves (deciduous)	Ash, beech, birch, mahogany, maple, oak, teak, walnut	Lovely, attractive grains	Fine furniture and decorative woodwork
Softwood	Evergreen trees (coniferous)	Cedar, cypress, fir, pine, spruce, redwood	Origin: from tall, straight trees	Construction work

6. 45

Bark, its Nature and Uses

Bark is the term that is often applied to the outer covering of tree stems and other woody plants. It protects a tree from water loss, insect attack, infection by bacteria and fungi, and any physical damage by fire, animals or rock fall.

The nature of bark is immensely variable. In some trees, the bark is extremely rough, corrugated and thick. In others it is thinner and appears to peel off in strips. Redwoods are noted for having an extremely thick bark, for example. Their bark is very fibrous and can be up to three feet thick. It provides not only protection against fire, but also rock fall, both of which are hazards in their home habitat. In the cork oak (Quercus suber), the cork layer of the bark is so thick that it can be harvested periodically without damaging the trees. The bark of birch exfoliates, it can be removed in long strips. These strips can be used for the covering of canoes, roofing material and even shoe making. The inner bark of birch is also edible and can be used in making bark bread.

Bark is known for its medicinal and pharmaceutical value, too. In historical times, bark obtained from the Cinchona tree, which contains quinine, was used in the treatment of malaria. Also, the bark of willows produces a sap which is rich in salicylic acid, which has long been used as a remedy for aches and fevers.

Other barks can provide colourings and flavourings, for example cinnamon. This spice is obtained from the inner bark of several tree species from the genus Cinnamomum. It is used in a variety of cuisines, some sweet, some savoury.

A different bark product is rubber. Natural rubber is harvested in the form of latex from the Amazonian rubber tree. The latex is a sticky, milky exudate which drains from incisions made in the bark. It is later refined into rubber for commercial use.

Adapted from: *https://www.woodlands.co.uk/blog/flora-and-fauna/bark-its-nature-and-uses*

1. T; 2. F, Some barks are rough and thick, others are thin; 3. T; 4. F, The cork layer of the bark is very thick and can be harvested at regular intervals without damaging the tree; 5. F, The inner bark is edible; 6. T; 7. F, The bark of the Cinchona tree is riche in quinine; 8. T.

Pages 92-93

Do you know any protected areas in your region?

Personal answer.

7.

Sample answers

1. What does Natura 2000 deal with?; 2. What are the various levels of protection in Italy?; 3. What type of exploitation of natural resources is allowed in protected areas?; 4. Is there any overall management plan for tourism?

8.

1. d; 2. c; 3. b; 4. a.

Pages 94-95

9.

1. i; 2. j; 3. g; 4. b; 5. c; 6. a; 7. h; 8. d; 9. e; 10. f.

10. 48

Abruzzo National Park

At the end of the 19th century, only a few Marsican brown bears and Apennine chamois survived in the Abruzzo mountains. To stop the slaughtering and the full extinction of these species, King Victor Emanuel II established the king's hunting reserve, which, however, closed after a few years due to high maintenance costs.

In 1922, a territory of 12,000 hectares became the Abruzzo National Park, the first protected area in Italy. The park, besides being the oldest national park in Italy, is also the richest in biodiversity. Here lives one of the rarest world species, the Marsican brown bear, which is the symbol of the park. It is a subspecies, which is genetically different from alpine bears, and is thus endemic to Central Italy. Recent scientific research has estimated a population of about 40 individuals within the park territory and surrounding areas. The brown bears feed on what nature offers: fruits, berries, grass, insects, honey, plants, roots and other animals.

The endemic Apennine Chamois, the Apennine wolf, the red deer, the roe deer, the wild boar, the golden eagle and the white-backed woodpecker also live in the park and together with many other species, make up an exceptional biodiversity.

The dominating vegetal landscape consists of beech tree forests: the scientific name of this species, Fagus sylvatica*, recalls its spontaneous origin on the mountains of the Italian Apennines, where the presence of beech trees dates back to dozens of centuries ago. As a matter of fact, the beech tree is the most common tree in the park and generally grows at an altitude between 900 and 1,800 metres. The beech tree woods cover more than 60% of the whole area of the park, creating a landscape rich in colours, which vary according to the season.*

Adapted from: *http://www.parcoabruzzo.it/page.php?id=251*

1. F, He established the hunting reserve to stop the extinction of these species; 2. T; 3. T; 4. F, It is the Marsican brown bear; 5. F, It is genetically different; 6. F, They feed on fruits, berries, grass, insects, honey, plants, roots and other animals; 7. T; 8. F, It is a spontaneous tree of the Apennines; 9. T; 10. F, It grows at an altitude above 900 metres and up to 1,800 metres.

11.

Sample answer

Italian forests are a common good, linked to the history and culture of our territory. The future of our country depends on how we perceive, protect and manage this heritage, which represents 35% of Italian territory. Forests and the manner in which we manage this resource represent the main tool in limiting hydrogeological risk, fighting climate change, safeguarding biodiversity and landscape, and purifying and regulating waters.

Unit 2.4 Forest biodiversity

Pages 98-99

Can you give some examples of human dependency upon biodiversity?

Sample answer

Humans depend upon biodiversity in many ways:

- pollinators such as birds, bees and other insects are estimated to be responsible for a third of the world's crop production. Without pollinators we would not have apples, cherries, blueberries, almonds and many other foods we eat.
- invertebrates are essential in agriculture because they help maintain the health of the crop soil;
- microbes in the soil liberate nutrients that plants need to grow;
- trees, bushes, wetlands and wild grasslands naturally slow down water and help soil to absorb rainfall;
- trees and other plants clean the air by absorbing carbon dioxide;
- coral reefs and mangrove forests act as natural defences protecting coastlines from waves and storms;
- life from the oceans provides the main source of animal protein for many people.

1.

1. Because they play a significant role in the cycle of nutrients and are important components of wildlife habitats; 2. They are useful for providing habitats or food for pollinators and seed dispersers; 3. Native tree species; 4. Because small fragments are more likely to increase the extinction of a population; 5. These natural habitats allow the movement of wildlife; 6. It facilitates re-colonisation and avoids local extinctions.

2.

What to do	Why
Leave some key habitats as they are, including mature trees, snags and decomposing logs.	*These elements contribute positively to the cycle of nutrients and to wildlife habitats.*
Maintain populations of keystone species.	These species provide habitats and food for pollinators and seed dispersers.
Avoid introducing alien species.	Non-native species can have various effects on the local ecosystem.
Minimise the fragmentation of natural forest areas which creates small, isolated areas.	To avoid the extinction of a population and facilitate colonisation
Preserve ecological corridors and avoid simultaneous logging of wide extensions of a particular forest type.	To allow the movement of wildlife and the exchange of genetic inheritance between species, subspecies or varieties, thus avoiding local extinctions.

3. 50

How Wildlife Habitat is Protected in Canada

In Canada, we take the conservation and protection of our forests seriously. We have more forested area than nearly any other country in the world, and forests are central to our heritage, culture, environment, and economy. We ensure conservation and protection through sustainable forest management practices and strict national laws. As regards forest conservation, it refers to a range of activities, tools, and approaches to achieve forest health and biodiversity objectives, including managed forests even where harvesting occurs. Conservation efforts may take the form of provincial guidelines that forest companies operating on the land must follow, such as:

1. *retain trees used by wildlife during harvesting;*
2. *create a mix of tree species, types, and ages;*
3. *ensure that sections of forest remain connected to meet wildlife habitat needs.*

As regards forest protection, it refers to the creation of parks and other areas to legally protect

them from industrial activity and to help preserve healthy ecosystems. Some examples include:

1. *networks of protected areas that enable wildlife movement;*
2. *habitats for vulnerable plant species;*
3. *protected marine environments;*
4. *national historic sites or national parks.*

Protected areas are a major component of Canada's national forest conservation strategy. In these legally defined areas, some activities are restricted in order to preserve natural ecosystems. For example, industrial activities such as harvesting, mining and hydroelectric development are banned in nearly 95% of Canada's protected forests. All of Canada's protected area designations, strategies and forest management plans are grounded in science. Scientific research supports development of the best management practices, and governments and industries incorporate new scientific knowledge into forest legislation and management plans. Canadian forest land outside formal protected areas is safeguarded by the laws, regulations and policies that all provinces, territories and the federal government have developed to enforce sustainable forest management across the country.

Adapted from: *http://www.nrcan.gc.ca/forests/canada/conservation-protection/17501*

1. a; 2. b; 3. b; 4. a; 5. a; 6. b; 7. a; 8. b; 9. a; 10. a.

Pages 100-101

What is a coppice?

Sample answer

It is a woodland area cut back to ground level periodically to stimulate the growth of new shoots.

Do you know of any other Italian primeval lowland forest?

Sample answer

La Mandria Park in North-West Italy is one of the largest and most important environmental reserves where several animal species live in a natural state. Declared a "Site of Community Importance" by the Natura 2000 network, it is rich in biodiversity, provides habitats for species under threat of extinction and uses dead trees to feed on saproxylic invertebrates (the rare *Cerambyx cerdo* and *Osmoderma eremita*).

4.

1. h; 2. c; 3. i; 4. f; 5. a; 6. d; 7. e; 8. j; 9. b; 10. g.

5.

Sample answer

The presence of decaying wood, with dry and rotting parts colonised by numerous "minor" species, plays an important role in the life cycle of the forest, and allows the continuance of significant biodiversity. Small mammals and birds are the main vertebrates which take advantage of this important ecological niche.

6. 52

A Thousand-year-old Forest

La Mandria parkland is one of the last examples of the lowland forest of oak-hornbeams that covered the entire Po valley for thousands of years. The dominant tree once present on this land was the pedunculate oak (Quercus robur), now rarely seen in Italy. Today, the trees found in the park are the hornbeam, ash, lime, elm and sessile oak (Quercus petraea). At the end of the 19th century, La Mandria, used as a royal hunting reserve, still housed 2,000 hectares of the original forest; now the surface is reduced and fragmented mainly because of deforestation in the 1920s and 1950s. Irrational forest management, the spread of alien species and the use of the area for cattle grazing helped to modify its original natural condition. The forest structure is also being seriously damaged by the high density of ungulates (especially deer) that prevent woodland renewal and drastically limit the development of the shrub layer. In recent years, a phenomenon of decay and die-off of trees (mainly oaks) has begun to spread in the area. The rapid progress of these phenomena is causing concern for the safety of the paths open to the public, although it is considered impossible to make them perfectly safe by eliminating all the arboreal vegetation present along the routes. On the other hand, the Park Authority is taking steps to increase maintenance activities along the routes in order to reduce these risks, because the park is a natural area in which management policies must comply with the dynamics of nature.

1. a; 2. c; 3. b; 4. b; 5. a; 6. b.

Pages 102-103

7.

1. They are invasive forest pathogens which can cause serious damage to forest trees; 2. The strong increase in the movement of people and goods at an international level favoured by the consolidation of emerging production areas on the world market, the speed of transport, the removal of customs barriers, international tourism, and the decentralisation of production; 3. They can cause

high economic losses and strong negative impacts in forest ecosystems; 4. The larvae of this moth defoliate the trees; 5. Indigenous to China, ACGW was introduced first in Japan and then North America; 6. By pruning and destroying the infested shoots of chestnut trees and also using a natural parasitoid (*Torymus sinensis*); 7. It digs intricate tunnels under the bark that interrupt the flow of sap; 8. When the beetles are killed before they attempt to bore into the bark to lay eggs.

8. Chalara ash dieback – winter symptoms
posted by Forestry Commission UK

It's best to pick a dry day as it's easier to see the symptoms. Also concentrate your search at eye level because it's difficult to see ash dieback in the crown of mature trees, even with binoculars. Obviously, it's winter so there are no leaves, so you need to make sure you're looking at ash. It has a smooth grey bark which is olive green in younger trees and thick black buds. The first symptom to look for is brown or black retained leaf stalks or rachis on the stem which you wouldn't normally see in a healthy ash. The symptom you're most likely to see is stem discolouration, moving from this healthy olive green through to these distinctive purple and browns, showing ash dieback. This is very distinctive of chalara: a section of dieback sandwiched between healthy stem, here and here. Finally, we have the diamond-shaped lesions. You won't always see them but, where they are present, they are very distinctive. You can find out more about chalara and its symptoms on the Forestry Commission website.

1. easier; 2. difficult; 3. need; 4. green; 5. symptom; 6. ash; 7. healthy; 8. dieback; 9. lesions; 10. chalara; 11. discolouration; 12. stem; 13. bud; 14. crown; 15. leaf stalk; 16. smooth bark.

9.

Sample answer

Interviewer: Good evening Mr Cerutti, could you tell our listeners about the situation of the Italian chestnut orchards?

Mr Cerutti: Good evening. I'm very pleased to announce that we have finally overcome the most critical situation we have ever tackled. Over the last decades, insect and pathogen invasions have rapidly increased in Europe, damaging forests and other ecosystems.

I: Were our orchards at risk?

Mr C: As well as "chestnut cancer" and "ink disease", a new enemy appeared in 2002: the chestnut gall wasp from Asia.

I: How did that happen?

Mr C: The introduction of a non-native microorganism may in fact alter the equilibrium of natural ecosystems. Plant trade is one of the major pathways of introduction for many fungal pathogens and insect pests.

I: How did it affect the farming economy?

Mr C: The chestnut forests in Italy represent one of the most important forestry aspects in the country, covering almost one-quarter of the total forestry surface. And chestnut cultivation has two main purposes: fruit and wood. The consequence was a sharp fall in production volume, which led to the gradual increase in imports from other countries, and a major decrease in Italian exports.

I: Was the impact of the disease the same in all the chestnut production centres in Italy?

Mr C: Chestnut is produced in almost every Italian region. Therefore, significant losses have occurred in the whole country.

I: What countermeasures did the Government implement to fight the disease?

Mr C: After years of research, the agronomists and the authorities have opted for a successful biological control strategy. Thanks to the natural parasitoid *Torymus sinensis,* nowadays there is a drastic reduction in gall wasp infestation.

I: Thank you for your good news, Mr Cerutti.

Mr C: Thank you.

Pages 104-105

10.

Sample answers

1. were cleared or damaged; 2. needed open land for farming or fuel; 3. fragmentation, atmospheric pollution, degradation, and forest fires; 4. root system fragility and reduces stability in the event of storms; 5. wildfire to spread quickly over woodland; 6. need to be carefully designed to reduce the risk of wildfire; 7. they have learned to improve their quality; 8. locating superior specimens of the species; 9. they are grafted on rootstocks in nurseries; 10. are planted.

11. 55

Deforestation in the Amazon

In many tropical countries, most of the deforestation is done by cultivators who need land for their livelihoods. However, in Brazil, only about one third of recent deforestation can be attributed to farmers. A large portion of deforestation in the Amazon forest in Brazil is due to land clearing for pastureland, mistaken government policies, and commercial exploitation of forest resources.

Large areas of forest are cleared and sometimes planted with African savannah grasses for cattle feeding. In many cases, especially during periods of high inflation, land is simply cleared for investment purposes. When pastureland prices

are higher than forest land prices, forest clearing is a good incentive in order to increase the value of the land.
Now, a new set of maps of roads, fires, agriculture, cities, and other threats to the Brazilian rainforest show that human impact affects about 50% of the forest, far more than the amount deforested. A study published in Nature predicted that 40% of the Amazon will be deforested by 2050 if the present trend continues. Deforestation will not only affect biodiversity, but will even change the climate. In fact, rainforest trees recycle water back to the atmosphere, where it generally forms clouds and more rain, so cutting down trees could reduce rainfall and cause less water to reach the ocean through the rivers.

1. F, It is also due to mistaken government policies, commercial exploitation of forest resources and clearing for pastureland; 2. T; 3. T; 4. F, They are lower; 5. F, They have increased deforestation; 6. T; 7. T; 8. F, It reduces rainfall.

12.

Sample answers
1. Good morning; 2. Certainly; 3. The Woodland Trust is the country's largest woodland conservation charity in the UK, aiming at protecting forests and restoring ancient woodland for the benefit of wildlife and people; 4. It means detecting, investigating, preventing and avoiding damage to forests; 5. Fire, floods, wind and storms and the harmful harvesting of the forests by humans; 6. Learning to practise better harvesting techniques; 7. Certainly, people can improve the quality of the trees they plant by selecting seeds with the best characteristics; 8. Goodbye.

Pages 108-109

VOCABULARY

1.

1. Asian chestnut gall wasp; 2. pine processionary moth; 3. European spruce bark beetle; 4. tidal energy; 5. nuclear energy; 6. geothermal energy; 7. boreal forest; 8. tropical forest; 9. temperate forest; 10. air pollution; 11. water pollution; 12. light pollution.

2.

1. spruce: it is an evergreen while oak and larch are deciduous species; 2. coal: it is a non-renewable energy; 3. bacteria: they are biotic factors; 4. cold summers: they are not typical of a dry climate zone; 5. sewage: it is a biodegradable pollutant; 6. IFPs: they are not human hazards; 7. boreal forest: it is not a form of woodland management; 8. cedar: it is not classified as hardwood.

3.

1. chestnut; 2. hurricane; 3. wildfires; 4. short; 5. climate; 6. pedunculate; 7. coppicing; 8. greenhouse; 9. biome; 10. alien; 11. geothermal; 12. biodiversity.

Page 110

REAL-LIFE SKILLS

4.

Sample answer
1. How do you usually get around?; 2. What power resources produce your electricity?; 3. Do you eat more fresh or convenience food?; 4. How much domestic waste do you produce on average?; 5. Do you recycle your domestic waste?

Score - Your ecological footprint
11 - 15: Your ecological footprint is 9.5 global hectares. If everyone in the world lived like you, we would need 6 Earths to support global consumption.
9 - 11: Your ecological footprint is 3.4 global hectares. If everyone in the world lived like you, we would need 2.3 Earths to support global consumption.
1 - 9: Your ecological footprint is 2.2 global hectares. If everyone in the world lived like you, we would need 1.4 Earths to support global consumption.

5.

Personal answer

6.

Sample answer
Subject: Adverse weather conditions for farming in Northern Italy

Dear Sirs,

As representatives of The Farmers' Committee, we would like to point out a very critical situation in our countryside.

This year started with late snow in February and floods in March, which then gave way to an extreme heatwave in June and hailstorms in July. These adverse weather conditions have already compromised the crop yield in our northern regions, in particular in Veneto and Trentino, where fruit trees (especially apple trees), olive groves near Lake Garda, vineyards and cereal crops have all been seriously hit. Livestock is suffering from the lack of grass in the fields, too. What is more, 80% of the regions affected were hit by drought last year.

Farmers wonder whether the Commission is aware of our critical situation and of the economic repercussions on rural communities.

We hope the Commission will proceed with the payment of CAP subsidies to farmers in order to alleviate their financial problems and help them with the next sowing season and insurance.

We are looking forward to your reply.

Yours faithfully,
The Farmers Committee

Page 111

CASE STUDY

7.

Sample answer
The main disadvantages of this high-tech farming application concern:

- the shade cast by the panels, as this can affect some crop productivity, forcing more resistant plants to be chosen;
- limited latitudes where agrivoltaics works best, as in cooler areas, where sunlight intensity levels vary throughout the year, profitability can suffer;
- high initial investment required;
- deeper steel foundations, which are required for the PVs to provide stability and resilience in adverse weather conditions;
- impact on the landscape.

Pages 112-113

CLIP **DOCUMENTARY: Before the flood**

8.

1. Coal, oil, natural gas; 2. For decades, over half a century; 3. Nearly 775 million people; 4. *Personal answer.*

9.

[Lindsey Allen, Executive Director, Rainforest Action Network] We're taking away the ecosystems that normally help us to restabilise the climate. Like oceans, rainforests absorb carbon from our atmosphere. Decades and decades of the forest breeding in the carbon, storing it in the trunks of the leaves, in the organic matter.
So, those carbon emissions are being held safe for us until we clear them and light them on fire. It acts like a carbon bomb and releases massive carbon emissions back into the atmosphere.

[...]

Farwiza Farhan, Chairperson, Yayasan HAkA
There are three big tropical rainforest areas left in the world: the Amazon in South America, the Congo Basin in Africa, and the South-East Asian rainforest, which spans Indonesia.
In Indonesia we're seeing fires being intentionally set in order to create palm oil plantations, which grow the cheapest vegetable oil in the world. It's in cooking oils and processed foods, in your cosmetics, in your detergents. This really cheap commodity is making companies tremendous profits.

1. ecosystems; 2. rainforests; 3. trunks; 4. safe; 5. releases; 6. tropical; 7. palm; 8. cosmetics.

Teacher's note
Forest, Nature and Environment Aceh Foundation, also known as HAkA, is a non-profit organisation based in Aceh, Sumatra, Indonesia.

10.

1. T; 2. F, Oceans and rainforests absorb carbon from the atmosphere; 3. T; 4. T; 5. F, The South-East Asian rainforest extends over Indonesia; 6. F, It is used in cooking oils and processed foods; 7. F, They are intentionally destroyed to create palm oil plantations; 8. F, It is a really cheap commodity.

11.

Personal answer

Page 114

DEBATE TIME

12.

Personal answer

Unit 3.1 Soil

Pages 116-117

Do you think soil composition is basically the same in any location?

Sample answer
Topography affects soil composition. Soil at the top of a hill, for example, can experience considerable loss of nutrients; on the other hand, if soil is located in a basin area, it can benefit from the vitamins and minerals lost from a higher elevation. Moreover, in mountainous areas, the organic material which is vital for plant life accounts for only 1% to 6% of the soil composition, while in wet lowland regions it may constitute 90% of the soil content thanks to erosion, which brings soil, water, and organic material from highlands to lowlands.

1.
1. It is composed of many different materials: minerals, organic matter, water and air; 2. Many of the micro-organisms that live in the soil need air to carry out the biological processes that release additional nutrients into the soil; 3. It is the community of living micro-organisms and organisms that live out below ground level; 4. By emitting and absorbing gases and dust; 5. Because soils can process recycled nutrients; 6. Because these qualities are essential for producing most of our food, and for maintaining environmental functions, managing water quality, sustaining our primary industries and supporting rural and urban communities.

2.

What	Role of soils
1. Plants	Necessary for the growth of all kinds of plants.
2. Atmosphere	Modifying the atmosphere by emitting and absorbing gases (carbon dioxide, methane, water vapour) and dust.
3. Animals	Providing habitat.
4. Water	Absorbing, holding, releasing and purifying the water of the terrestrial system.
5. Nutrients	Processing recycled nutrients.

3. 57

Principles of Soil Health
Soil is not an inert growing medium – it is a living and life-giving natural resource. It is populated with billions of bacteria, fungi, and other microbes that are the foundation of an elegant symbiotic ecosystem.
Soil health is defined as the continued capacity of soil to function as a vital living ecosystem that sustains plants, animals, and humans. Healthy soil gives us clean air and water, bountiful crops and forests, productive grazing lands, diverse wildlife, and beautiful landscapes.
Soil health research has determined how to manage soil in a way that improves its function. Here are the principles to manage soil for health: firstly, minimise any disturbance of machinery, then maximise the presence of living roots, soil cover and biodiversity.
As world population and food production demands rise, keeping our soil healthy and productive is of paramount importance. By farming using soil health principles and systems that include no-till, cover cropping, and diverse rotations, more and more farmers are increasing their soil's organic matter and improving microbial activity. As a result, farmers are sequestering more carbon, increasing water infiltration, improving wildlife and pollinator habitats, all while harvesting better profits and often better yields.

1. T; 2. F, It is a system with billions of organisms; 3. T; 4. F, Soil management can improve soil function; 5. F, The disturbance of machinery should be minimised; 6. F, It must be maximised; 7. T; 8. T; 9. F, They increase it; 10. T.

Pages 118-119

4.
1. a; 2. f; 3. b; 4. e; 5. c; 6. d.

5.
Sample answers
1. What does a soil section look like?; 2. How can we evaluate soil fertility?; 3. What factors affect soil formation?; 4. How many layers are there in a soil profile?; 5. What are the basic types of soil?; 6. What is Horizon A like?; 7. What does Horizon B consist of?; 8. Where can you find the parent rock?

6.

	Size	Characteristics
Sand	The largest	Good drainage but not very fertile.

Silt	Intermediate	Typical of waterways, wetlands and floodplains, moderate drainage and nutrients.
Clay	The smallest	Very high water-holding capacity, very good nutrient holder.
Loam	Mixed size	Best farming soil, a balanced mixture of minerals and organic matter.

Pages 120-121

7.

1. F, It is called tillage; 2. T; 3. T; 4. F, Conventional tillage is an intensive practice which increases soil erosion; 5. F, Tillage can negatively impact almost every one of the characteristics of soil quality; 6. T; 7. F, Crop residue helps soften the impact of pounding raindrops; 8. F, It has reduced.

8.

1. implement; 2. seedbed; 3. cover crop; 4. waterway; 5. soil pores; 6. disking.

9.

Side-By-Side Comparison: Till vs No-Till (Vlieger 3/7) *posted by* USDA NRCS South Dakota

In this video we find Kent in a classic across the road situation. I'm gonna let you talk about it, Kent!

Okay, so we've got two soils that we're comparing here and they're literally right across the road from each other. One has been a very long term no-till, 15 years plus, and the other one is, actually, this is its first year of no-till; pretty heavy tillage, very little residue prior to 2020 and there's a pretty stark contrast in the soil structure, when you're looking at this. One of them, the no-till one, is nice and crumbly just like that cottage cheese that we like to talk about, falls apart nice in your hand, there's no obvious layers of compaction, just crumbles all the way down. Now, the field next to it, that's been a tillage system for quite some time. You can find the compaction layer, you go down six inches and it's right here. It's very blocky: it just comes apart in plates, just kind of in sheets. And why does that matter to a producer? Because when you've got that compaction layer, the roots have got to spin energy to go through there. You'll notice this root here it's growing actually horizontal it's not going down. Uhm, this one all the roots are vertical, going up and down there's no energy being expended to get down deep into... deeper into the soil profile to access the nutrients and moisture that's down there. So just a good comparison of what you can do and find, just by sticking your spade in the soil and looking at your, looking at your soil.

No tillage for...	Consequences
Soil 1 - 15 year/s	Soil structure: crumbly, it falls apart Compaction soil layer: No compaction layers Roots: grow vertically and get down deeper into the soil profile
Soil 2 - 1 year/s	Soil structure: blocky, it comes apart in plates or sheets Compaction soil layer: down to 6 inches Roots: need energy to go through and grow horizontally

Pages 122-123

Do you know what the process which turns productive land into non-productive land is called?

Sample answer

It is called desertification. Erosion will remove the top-soil first and, once this nutrient-rich layer of soil is gone, few plants will grow in the soil again. Without soil and plants – and, consequently, without organic matter – the land becomes desert-like and unable to support life. It is very difficult, and often impossible, to restore desertified land.

10.

1. Human activity; 2. The degradation process can take the form of hydraulic erosion, wind erosion, changes in the soil composition or physical degradation; 3. It depends on soil type, infiltration, and ground cover; 4. Strong winds or quick water runoffs during heavy rainfalls; 5. They are irresponsible farm management or deforestation for urban area expansion, tourism development and road construction; 6. Because not only earth particles, but nutrients too are taken away from bare fields; 7. They slow down water as it flows over the land and their roots hold the soil in position by preventing it from being washed away; 8. They should adopt preventive countermeasures.

11.

1. erosion; 2. ploughed; 3. humus; 4. matter; 5. particles; 6. preventing; 7. croplands; 8. indigenous; 9. planting; 10. diversity.

12. 61

Why Sustainable Land Management?

Finding ways for people to live sustainably on Earth is becoming more crucial every year. With the world population projected to reach 9 billion by 2050, there will be more pressure on natural resources to provide food and energy for a growing, hungry world. In addition to health and food benefits, several studies have demonstrated the great economic benefits of sustainable land conservation. Land resources are used for a variety of purposes which may include organic farming, reforestation, water resource management and eco-tourism projects. In many countries, there are national or local land trusts that help people to respect and save the territory where they live. To reach these goals, it is necessary to consider different elements. Firstly, the natural characteristics of a place, but also the socio-economic and cultural characteristics of the people who live in a specific territory are important. Sustainable land management is decisive to minimising land degradation and ensuring the best use of land resources for the benefit of present and future generations.

1. T; 2. T; 3. F, Several studies have demonstrated the great economic benefits of sustainable land conservation; 4. F, Land resources are used for a variety of purposes such as organic agriculture, reforestation, water resource management and eco-tourism projects; 5. T; 6. F, Also its socio-economic and cultural characteristics.

Unit 3.2 Water

Pages 126-127

1.

1. It is mainly saline; 2. They are compromising water quality, quantity, accessibility and availability; 3. Because it is recycled in reasonably short periods of time; 4. Deaths from diseases directly attributable to unsafe water, inadequate sanitation and poor hygiene practices; 5. Because it is being used at a much larger rate than it can be replenished; 6. The consequences will be rising temperatures, increasingly dry land, drinking-water shortage, food shortage and famine.

2.

1. vineyard; 2. purified; 3. sanitation; 4. renewable; 5. rate; 6. famine.

3. This water harvester can turn desert air into drinkable water *posted by* UC Berkeley

In our latest work, we have the next generation water harvester. This can work out in the desert where there's no supply of energy aside from sunlight. What it does is that it collects water from the atmosphere to very dry conditions and then releases it so we can harvest it as a liquid water by using only energy of sunlight. The key component of this device is this powder. We call it Metal-Organic Framework. It is composed of organic molecules and metals. We leave it overnight because, during the night, we have a lot of water content in the atmosphere, so these water molecules get inside the framework and stay there. You can imagine it's like a sponge. We're going to put a lid on the top of the box to make sure none of the water vapours coming out from the powder can escape from the box. We put the shade on top of the lid to direct the sunlight right on top of the MOF to heat the MOF. When this powder heats up, the water molecules come out of the framework, and we can collect them as liquid water. We can get about one third of a cup of fresh and drinkable water, and it's always possible to get more water using more amount of MOF powder, or a bigger box. We were trying to come up with the material with our Metal-Organic Framework which won't leave any traces of organic or inorganic material behind. After we collect water, the bottom of the device, it's absolutely clean. It's hundred percent pure and you can drink it right away. Cheers. Our studies in the desert uncovered many different things concerning the box, the configuration of the box, the size of the box, the way the MOF is placed in the box, that affect how much water is harvested. This new Berkeley device is reconfigured as to be suitable for the desert anywhere in the world. Almost one third of the world is water-stressed. To be able to deliver liquid water is quite powerful. We are already working on the next generation MOF material. This is an aluminium based MOF that will be cheaper and more economical to scale up than the one we've already reported. So, this is a tremendous boost to commercialisation of our water harvester.

1. sunlight; 2. powder; 3. night; 4. box; 5. framework; 6. water; 7. desert; 8. aluminium.

Pagine 128-129

The term “water use” often fails to adequately describe what happens to water. The term is often used for ‘water withdrawals’ or ‘water consumption’: do you know the difference?

Sample answer
Water withdrawal describes the total amount of water withdrawn from a surface water or groundwater source. Measurements of this withdrawn water help evaluate demands from domestic, industrial and agricultural users.
Water consumption is the portion of the withdrawn water permanently lost from its source. This water is no longer available because it evaporated, got transpired or used by plants, or was consumed by people or livestock.

4.
1. F, Precipitation patterns have an impact on water availability; 2. T; 3. T; 4. F, The timing of stream flow is affected by temperature increase; 5. F, The amount and duration of snow cover affect stream flow and, consequently, irrigation management; 6. T; 7. F, Water quality is greatly affected by these factors.

5.
1. water storage in ice and snow; 2. water storage in the atmosphere; 3. condensation; 4. precipitation; 5. transpiration; 6. snowmelt runoff to streams; 7. surface runoff; 8. evaporation; 9. streamflow; 10. spring; 11. freshwater storage; 12. water storage in oceans; 13. groundwater storage.

Pages 130-131

Do you know what crops these methods are usually used for?

Sample answer
Furrow irrigation is usually used for crops grown in rows, such as cotton and vegetables; border irrigation is frequently used for tree crops and for crops such as alfalfa; flood irrigation is used for close-grown crops, such as rice, where fields are level and water is abundant; basin irrigation is usually adopted in orchards, where basins are built around trees and filled with water.

6.

Method of irrigation	Crops it is used for	Functioning	Pros	Cons
Surface Irrigation	Maize, vegetables, trees, alfalfa, rice, orchards	8	1, 6	5
Sprinkler Irrigation	Maize, vegetables, sugar beets	2	3, 9	4, 11
Drip Irrigation	Vegetables, berries, olive groves	7	9, 10	12

7.
Sample answer
A: Good morning. I’m Salvatore Carrera.
B: Good morning, Mr Carrera. How can I help you?
A: I’m setting up an olive grove of two acres but, as regards the irrigation plant, I’ve got no idea what to do. Well, actually, I’ve heard something about sprinkler and drip irrigation, but I need some agricultural advice.
B: I see. One should take into account some important factors when determining which irrigation method is most suitable. As you know, it is not possible to give specific guidelines leading to a single best solution: each option has its advantages and disadvantages.
A: I suppose you need some details about my property.
B: Of course. Firstly, I need to know the geographical position of your land and the soil type.
A: The land is in the south of Italy, close to the sea, on a rough levelled soil, which is mostly sandy.
B: Soil type is a significant variable: a tree planted in sand is obviously going to need more regular watering than a tree in clay, because of the fast draining nature of sand. And what about water availability?
A: This is not a rainy area and it’s usually very hot.
B: A sprinkler is not recommended where water is a limitation, taking into account the annual rainfall and the fact that your trees are planted in an area which receives so many days of sunshine per year.
A: So, would you suggest drip irrigation?
B: Definitely. I would say it will be the most efficient means of irrigation for you since it sends the water directly to the roots of the plants, so water is not lost through evaporation.
A: Compared to other methods of irrigation, is it expensive?
B: Definitely not: it’s cheaper!
A: And is it easy to install and use?
B: Well, drip installation requires additional and more complex equipment than a typical sprinkler

system and must be constantly monitored, but you'll have other advantages, such as reduced weed growth, efficient fertilising and precise water control. Moreover, you can move the drip line as the trees develop and you won't damage the system during harvesting. It must be remembered however, that the only real enemy of olives is too much water, so keep a good eye on the moisture levels around the trees.
A: Any other suggestions?
B: One more question: have you ever tested the water quality in your area?
A: No, never.
B: Take a water sample in a clean plastic litre bottle, fill the bottle to the top, screw the lid on tightly and take it to a laboratory for analysis as soon as possible. Ask the lab to test the pH, and the major ions such as calcium, sodium, chlorine, and also the presence of iron, etc. Iron can be a major problem contributing to blockages and needs special attention.
A: Thank you very much for your help.
B: I will send you a list of the main suppliers of drip irrigation plants in your region. They should be able to put in an estimate and give you all the specifics, such as, gallons per minute needed for a certain footage of irrigation line, pressure reducers needed, filters needed, distance between drip holes, etc.

Pages 132-133

8.

Sample answers
1. What does drainage mean?; 2. What are the surface drainage techniques?; 3. How is water drained from the subsoil?; 4. What are the beneficial effects of good drainage?; 5. Can the disposal of drainage water interfere with ecosystems?; 6. What is nitrogen responsible for?

9.

What Is Eutrophication | Agriculture | Biology | FuseSchool *posted by* FuseSchool – Global Education

Eutrophication is a process that can happen in a water body like a river or lake when too many nutrients are added to the system. Eutrophication starts when fertilisers, which are rich in nutrients like nitrate and phosphate, are washed into the river or lake system. This leads to an increase in nutrient concentrations in the water. The nutrients are food for algae and the algae grow and reproduce quickly, forming a thick green bloom in the water. This algal bloom will absorb sunlight shining on the water. So the sunlight can't reach the bottom. Plants who need this light to photosynthesise will die. The algae will also start to die when they eat up all of the nutrients and run out of food. Next, bacteria start to break down the dead plants and algae, and that releases more nutrients back into the water, continuing the algal bloom cycle. The bacteria with a continuing supply of food reproduce into much larger numbers, consuming oxygen as they grow and respire. There's not much oxygen in the water to begin with. So, when the bacteria consume it quickly, it might run out completely. Water without oxygen is called anoxic. If the water turns anoxic, all non-bacterial life in the water including fish and other animals will die. So, eutrophication happens when nutrients are added to water, which causes an algae bloom, cutting off sunlight and feeding bacteria. The bacteria use up oxygen in the water, which becomes anoxic, causing everything living in the water to die. Eutrophication is one reason why we need to be careful with fertilisers when we're growing crops.

1. F, It happens when too many nutrients are added to the system; 2. T; 3. T; 4. T; 5. T; 6. T; 7. F, In the case of lack of oxygen; 8. F, Fish will die if the water turns anoxic.

10.

Across: 1. topography; 4. pesticides; 5. waterlogging; 6. investment; 9. surface; 10. plastic; 11. aeration.
Down: 1. tile; 2. nitrogen; 3. mitigating; 5. waterways; 7. erosion; 8. salts.

Unit 3.3 Plants

Pages 136-137

Do you know what differences in leaves, stems, roots and flowers are present in monocots and dicots?

Sample answer
Monocots: fibrous roots web off in many directions; the stem arranges the vascular tissue (the circulatory system of the plant) sporadically; leaves are characterised by their parallel veins; flowers usually form in threes.
Dicots: there is one main root called taproot; organised fashion that arranges the tissue into a doughnut-shaped structure; leaves form branching veins; flowers occur in groups of four or five.

1.

1. They have chloroplasts containing chlorophyll and carotenoid pigments, and the ability to convert light, minerals and carbon dioxide into chemical energy; 2. They are classified into spore bearing plants, also known as cryptogams, and seed

bearing plants, also known as phanerogams; 3. Angiosperms are flowering plants while gymnosperms have no flowers but seeds which are on cones, in cups or in fleshy coats; 4. They are divided into two major groups: monocots and dicots; 5. There are different structural features in seeds, leaves, stems, roots and flowers; 6. It describes how long a plant lives or how long it takes to grow, flower and set seeds; 7. A biennial plant lives for two growing seasons: it produces leaves one season, then goes dormant over the winter and completes its life cycle in spring; a perennial plant lives for many growing seasons and continues to reproduce; 8. They include deciduous and evergreen plants.

2.

Teacher's note

This word list should be pre-taught before watching the video.
blade: *lamina*
bundle: *fascio*
haphazardly: *a caso*
scattered: *sparpagliato*
slender: *sottile*
taproot: *radice a fittone*

Monocots vs Dicots *posted by* Neural Academy

Plants can be put in one of two groups: monocots (short for monocotyledons) and dicots (short for dicotyledons). But what's the difference between these groups and how can you tell which is which? Well, the name provides the first hint since monocotyledons have one cotyledon and dicotyledons have two cotyledons. A cotyledon is an embryonic leaf, and it is the first leaf to appear once a seed has germinated. These embryonic leaves help the new plant access to nutrients stored in the seed, giving it a source of nutrients until the true leaves are formed and start to photosynthesise. The true leaves of monocots and dicots are also different: while monocots have leaves with parallel veins and long, slender blades, dicots have broader leaves with branched veins. The stems leading up to these different leaves are also different: monocots have their vascular bundles scattered haphazardly although most are found near the edge of the stem, dicots, however, have their vascular bundles arranged in a ring. There's also a difference between the flowers of the plants in each group: monocot flowers will usually form with petals and multiples of three, while dicot flowers will have petals in multiples of four or five. Underground, we see yet another important difference between monocots and dicots. While monocots have fibrous roots which splay out in every which direction, dicots have a tap root system, which means they have one main root, from which smaller roots branch off. While fibrous roots stick to the upper layer of soil, tap roots can generally reach deeper down into the ground. So, in summary, monocots and dicots differ structurally in terms of their leaves, stems, flowers and roots. But there is one last thing you should note: most monocots are herbaceous, meaning that they have no persistent woody stem, instead they tend to have a flexible green stem, grow quickly, and produce lots of seeds in a short period of time. There are many more varieties of dicots compared to monocots because the possibility of a woody support system in their roots and stems allows them to grow to all shapes and sizes, from trees to daisies.

	Embryos	Leaves	Stems	Flowers	Roots	Type of plant
Monocots	One cotyledon	Parallel veins and long slender blades	Vascular bundles scattered haphazardly	Petals in multiples of three	Fibrous root splaying out in every direction in upper soil layer	Herbaceous: flexible green stem, grow quickly, produce lots of seeds
Dicots	Two cotyledons	Broader leaves with branched veins	Vascular bundles arranged in a ring	Petals in multiples of four or five	Taproot from which smaller roots branch off reaching deeper layer	Woody: persistent woody stem, grow to all shapes and sizes

3. 67

God Created, Linnaeus Organised

Carolus Linnaeus, a Swedish naturalist, is usually regarded as the founder of modern taxonomy and his books are considered the beginning of modern botanical and zoological nomenclature. His taxonomy classifies living things according to kingdoms, phyla, classes, orders, families, genera, and species. This classification system has survived in biology, though additional ranks have been added to accommodate growing numbers of species. The outstanding feature of the Linnean taxonomy was the introduction of

a binomial system: in other words, two names are generally sufficient to differentiate one organism from the other. As a young scientist, he was particularly fascinated with the great variety of plants in the world and wanted to create a way of organising them. During this period, Linnaeus had become a professor of botany, and he found it difficult to teach using the lengthy names that were given to plants at that time. He thought that every plant could be organised into groups according to the number of its male and female reproductive organs. So, each plant and animal were given a genus name, followed by a specific name, with both names being in Latin. Accused of inaccuracy by some scientists, he refined his system, grouping plants by other physical characteristics, such as leaf shape and seed type. For the first time, the world was able to communicate about the natural world in a universal language. A language that is still used today.

1. the founder of modern taxonomy; 2. botanical and zoological nomenclature; 3. kingdoms, phyla, classes, orders, families, genera, and species; 4. binomial system; 5. two names, genus and species; 6. Latin; 7. some scientists; 8. universal language.

Pages 138-139

What hormones do roots and shoots produce?

Sample answer

Auxin is a plant hormone that helps in the initiation of adventitious roots. Indole acetic acid (IAA) is the naturally occurring auxin found in plants. IAA is involved in nearly every aspect of plant growth and development. Cytokinin is produced in regions where cell division generally occurs; mostly in the roots and shoots. Its function is to break bud and seed dormancy and promote growth of lateral buds.

4.

1. They are the vegetative and the reproductive systems; 2. It includes the root system and the shoot system 3. It consists of the stem, leaves and reproductive structures; 4. It enables plants to obtain water and nutrients from the soil, anchors the plant to the soil, and produces hormones; 5. They are connected by a vascular tissue that runs from the root through the shoot; 6. They are flower, fruit and seed; 7. They are petals, sepals, male parts and female parts; 8. It is protected by the fruit: the ovary swells and becomes either fleshy or hard and dry to protect it.

5.

1. seed; 2. plant; 3. flower; 4. shoot; 5. root; 6. fruit; 7. stem; 8. leaf.

6.

1. stamen; 2. anther; 3. petal; 4. stigma; 5. style; 6. ovary; 7. ovule; 8. pistil; 9. peduncle; 10. sepal; 11. calix; 12. petal; 13. filament.

Pages 140-141

Do you know if all plants photosynthesise?

Sample answer

Not all plants photosynthesise, for example parasitic plants simply attach themselves to other plants and feed from them; mushrooms get their food from the ground and from their surrounding areas; carnivorous plants trap and catch small insects and eat them.

7.

1. T; 2. T; 3. F, The results of photosynthesis and respiration are different; 4. T; 5. F, They make their food by using light, water, chlorophyll and carbon dioxide; 6. F, Stomata are minute epidermal pores in the leaves and stem of the plants; 7. F, It is slower; 8. T; 9. T; 10. F, The by-products of respiration are water and carbon dioxide.

8.

Photosynthesis	Respiration
Produces *sugars*	*Burns* sugars
Energy is stored	*Energy is* released
Occurs only in cells with chloroplasts	*Occurs in* all *cells*
Oxygen is produced	*Oxygen is* absorbed
Water is used	*Water is* produced
Carbon dioxide is used	*Carbon dioxide is* produced
Requires light	*Occurs in* darkness and light

9.

1. The most important role of plants is the production of oxygen and the absorption of CO_2; 2. Stomata facilitate the transfer of gases and water vapour; 3. Through photosynthesis, plants take energy from the sun, CO_2 from the air, and water and minerals from the soil; 4. The sun's energy reacts with carbon dioxide and water to form carbohydrates; 5. Respiration takes place in the leaves, stems and roots of the plant; 6. The process of turning carbon dioxide in the atmosphere into a usable form of energy is called carbon fixation.

Pages 142-143

Do you know that some weeds are beneficial to human health and environment?

Sample answer
Some weeds are beneficial to the environment because they provide soil stabilisation, habitat and feed for wildlife, nectar for pollinators, organic matter and genetic reservoir. Certain weeds are edible and important for human health; for example, the dandelion is one of the most nutritious weeds on the planet, high in minerals, vitamins and antioxidants with cancer fighting power.

10.

Sample answers
1. What are infectious diseases caused by?; 2. Why are infectious agents particularly dangerous?; 3. What factors make plants more susceptible to disease?; 4. How do parasitic pests damage plants?; 5. How do weeds damage plants?; 6. What is the aim of control practices?; 7. What does mechanical control include?; 8. How are natural predators used?; 9. How can weeds be controlled?; 10. What is the most effective method to prevent weed infestations?

11. 71

European Weeds Colonise Urban Habitats

A tree can be a weed if it is planted in the wrong place, if it seeds on its own in an undesirable location, or if it is a species that has the potential to be invasive. A recently completed study of the most frequent vascular plants in metropolitan cities of the northern hemisphere, has proved that European weeds are the most successful plants in the colonisation of urban habitats. The two most successful tree species are the Black Locust from North America and the Tree-of-Heaven from China. Native (indigenous) plant species dominate in every city in Europe, while alien species from Europe represent the main part of urban vegetation in American cities. To explain the world-wide success of European weeds, we have to consider that, in general, almost all European plants can be regarded as invaders, if the last 10 thousand years in which they colonised the European landscape after the glacier period are used as a point of departure. It is hypothesised that urban plants have developed over the last 6,000 years of European agriculture by introgression and selection from native species. Due to their long co-evolution with man in the European landscape, they are well adapted to human disturbances. It is suspected that some species even developed only in urban areas. Some botanists also argued that Rome, as the city with the longest world-wide urban tradition, is the centre of evolution of some ruderal species. Finally, alien plants help increase the biodiversity in urban areas in comparison with the surrounding landscape, thanks to the evolution of new species. The long tradition of agricultural landscapes in Europe has led to a continuous increase in biodiversity under human influence over the last 6,000 years.

Adapted from: *https://www.fh-erfurt.de/lgf/fileadmin/LA/Personen/Mueller/europweeds04.pdf*

1. European weeds; 2. North America; 3. China; 4. invaders; 5. 6,000; 6. urban areas; 7. Rome; 8. evolution, biodiversity.

12.

Sample answer
Pulling weeds manually
Manually pulling weeds is a common way to keep weeds under control. However, unless you pull out the root, you'll find yourself doing this task all summer long. Pulling off the head will not stop weeds from growing. To make sure you get to the root of the problem, you can buy a special weed remover or dandelion puller in the garden section of your local home store.

Unit 3.4 Seeds and fertilisers

Pages 146-147

1.

Sample answers
1. What does the expression cropping system refer to?; 2. What is monocropping?; 3. Why do farmers have to use chemicals in monocropping?; 4. What are the advantages of crop rotation?; 5. How often are the type of crops changed in a field if crop rotation is adopted?; 6. Why is it essential to carefully pre-plan a crop rotation system?

2.

1. one; 2. fertility; 3. biodiversity; 4. market; 5. less; 6. pest; 7. yield; 8. structure; 9. interfere; 10. nutrients.

3. Conservation Choices Practice Spotlight: Crop Rotations *posted by* IowaNRCS

Narrator: A conservation crop rotation means growing different crops on the same piece of land, year after year in a planned recurring sequence.
Mr Johnson: A true conservation crop rotation includes growing more than just corn and soybeans. For example, a farmer may choose to grow small grains or hay. In a crop rotation, legumes such as

alfalfa and clover hay give the soil a rest from real crops. This adds diverse biological activity in the soil, which improves soil health.
Narrator: Rotations with alfalfa and other legumes also reduce fertiliser needs. These plants replace some of the nitrogen removed by corn and other grain crops. Pesticide costs may also be reduced by naturally breaking the cycle of weeds, insects, and diseases.
Mr Johnson: On sloping lands, crop rotations can help reduce soil erosion. Grass and legumes protect water quality by preventing excess nutrients and chemicals from entering water supplies.
Narrator: A few key points to consider about crop rotations: only plant crops suited to your soils; small grain crops and corn for grain can be used to replace any low residue producing crop to gain better erosion control; and for crop rotations which include hay, the rotation can be lengthened by maintaining the existing hay stand for additional years. For more information about conservation practices in Iowa, go to the Iowa NRCS website or your local NRCS office.

1. different crops; 2. small grains or hay/ legumes/alfalfa and clover hay; 3. biological activity; 4. fertilisers; 5. nitrogen; 6. pesticide; 7. nutrients; 8. better erosion.

Pages 148-149

4.
1. widespread; 2. promoting; 3. moisture; 4. runoff; 5. row; 6. uptake; 7. sequestration; 8. decreased.

5.
1. T; 2. F, It enhances soil health; 3. T; 4. F, It decreases soil erosion; 5. T; 6. F, It is required; 7. F, It requires more labour; 8. T.

6.
1. c; 2. e; 3. f; 4. a; 5. d; 6. b.

Pages 150-151

What elements are called macro-nutrients and meso-/micro-nutrients?

Sample answer
Macro-nutrients include: Nitrogen, potassium, Calcium, Magnesium, Phosphorous and Sulfur.
Meso-/micro-nutrients include: Chlorine, Iron, Boron, Manganese, Zinc, Copper, Molybdenum and Nickel.

Do you know the main features of organic fertilisers?

Sample answer
They add natural nutrients to soil, increase soil organic matter, improve soil structure and tilth, improve water holding capacity, reduce soil crusting problems, and reduce erosion from wind and water. They may be rich in one of the three essential nutrients (nitrogen, phosphorous, and potassium), or may have low levels of all the three nutrients, which are slowly released.

7.
1. From the soil and from the air; 2. They can be added to the soil or sprayed on the leaves of plants; 3. When the product is harvested; 4. They should recycle manure or add mineral fertilisers; 5. Because they hinder the proliferation of helpful microorganisms found in the soil; 6. They are rich in phosphorus, nitrogen and potassium; 7. Organic fertilisers; 8. Polluting effects, such as eutrophication or nitrate leaching through the soil.

8.
1. by; 2. have not flowered; 3. cut; 4. them; 5. as; 6. be; 7. for; 8. applying; 9. comes; 10. watering; 11. which; 12. welcome.

9.
Get Nitrogen Fertiliser from Nature, for Free
posted by Organic Egypt

Egyptians love to start their day with delicious, energy-packed ful and ta'ameya. Both are made from fava beans. Fava beans and many of the legumes that we enjoy eating are rich in protein. Legumes are easy to recognise as their seeds split in two. Some trees and plants like clover are also legumes and are known for their high protein content for animal feed. Legumes are truly amazing plants. They are healthy for humans and animals, while building the soil fertility. Their magic happens where you least expect it – in their roots. Legumes are unique because they partner with nitrogen-fixing soil-living bacteria that allow them to grow such high levels of protein. When legume seeds germinate, Rhizobium bacteria *are activated in the soil. They move towards the sprouting roots and penetrate them. As a result, the legume roots form pale pink nodules in which these bacteria live. The bacteria benefit from this by getting carbon and other nutrients from the plant, and in return provide nitrogen from the air, building soil fertility and the plant protein content.*
Because you cannot be sure if this bacteria lives in your soil, it is best to inoculate your legume

seeds. You can buy inoculants with Rhizobium bacteria *at your local agro-shop. Each legume has a specific inoculate.*

Coat your seeds on the day of sowing. You'll need a sticky liquid, such as molasses, or a syrup of sugar with water. Don't use tap water as the chlorine in it can kill the bacteria. About 4 to 8 weeks later, when your legume plants are flowering, the nodules start to be visible. Having nodules is not a guarantee that the bacteria is fixing nitrogen; you must check the colour inside the nodules. Uproot some plants, and gently wash the soil from the roots and break the nodules to see if they are pink or red inside. This is a good sign that you are getting free nitrogen thanks to the active bacteria. Good nodulation has long lasting results. Legumes release nitrogen slowly in the soil through their roots and through the crop residues if left in the field. The bacteria can survive in the soil for 3 to 5 years, enhancing your future harvests. This is why farmers include legumes in their crop rotations, as this helps to replace chemical fertilisers. Growing legumes benefits your soil and your next crop while giving you a nutritious meal full of protein. Next time you enjoy your ful and ta'ameya, know that this delicious meal is thanks to a symbiosis between soil dwelling bacteria and a legume plant.

1. T; 2. F, They are rich in protein content; 3. T; 4. F, They are activated in the soil; 5. F, They form pale pink nodules; 6. T; 7. F, On the day of sowing; 8. F, Tap water should be avoided as the chlorine in it can kill the bacteria; 9. T; 10. T.

Pages 152-153

10.

1. Seed producers and processors; 2. They must be clean, free of weed seeds and other contaminants, certified for their viability, and have a good germination rate; 3. Cryopreservation, which is a special freezing technique; 4. Higher vulnerability to all sorts of environmental stresses; 5. Because it helps adapt agriculture to the climate crisis, reduce environmental degradation, improve livelihoods, and feed everyone adequately; 6. More than 1,700 gene banks; 7. It is a safety deposit building on Norway's Svalbard archipelago; 8. A safeguard against the loss of biological heritage; 9. It is ensured thanks to low temperature and moisture levels; 10. They aim to protect and promote traditional plant varieties and animal breeds in local farming systems.

11.

1. genetic integrity; 2. concern; 3. worldwide; 4. safekeeping; 5. heritage; 6. metabolic activity; 7. viable; 8. engaged.

12. 76

A Seed Library Promotion

Our County Seed Library is thrilled to announce the launch of three seed library locations in our region. We look forward to growing with you a variety of vegetables, herbs, and flowers. The seed library provides access to seeds free of charge for anyone interested in growing. Our goal is to allow communities to take control of their own food cycles, increase sustainability, and facilitate a culture of sharing within the community. Seed saving is something humans have done for over 10,000 years. Today, seed sharing encourages either new or experienced gardeners to grow their own products, taking advantage of older, unusual or traditional varieties which may be available. At the start of the growing season, you're welcome to come and see what we have and select varieties that you're interested in. Take the seeds home and grow them over the summer. When the season is over, please consider collecting and returning seeds that were produced by the plants that grew from the ones you borrowed. We are proud of considering our seed library an important step in developing a network of seed savers, creating locally adapted varieties, tackling climate change or loss of gene integrity, as well as preserving genetic diversity.

1. F, Three seed libraries are going to be opened; 2. F, There are vegetable, herb, and flower seeds, too; 3. T; 4. F, For over 10,000 years; 5. T; 6. F, Older, unusual or traditional varieties may be available; 7. T; 8. T.

Pages 154-155

Go online and find examples of laws supporting the two following seed systems.

Sample answer

Farmers' rights are supported by the Treaty on Plant Genetic Resources for Food and Agriculture (Art. 9), the UN Declaration on the Rights of Indigenous Peoples (Art. 31), and the UN Declaration on the Rights of Peasants and Other People Working in Rural Areas (Art. 19). They state that all indigenous peoples and peasants have the right to maintain, control, protect and develop their own seeds and traditional knowledge.

On the breeders' side, the International Union for the Protection of New Varieties of Plants (UPOV) places limits on the production, sale and exchange of seeds. They state that the imposed restrictions encourage innovation by allowing breeders a temporary monopoly to profit from the new plant varieties they develop without facing competition.

13.
1. f; 2. d; 3. g; 4. a; 5. b; 6. e; 7. h; 8. c.

14.
1. wild; 2. relationship; 3. chemical; 4. loss; 5. acquired; 6. organic; 7. concentration; 8. engineered.

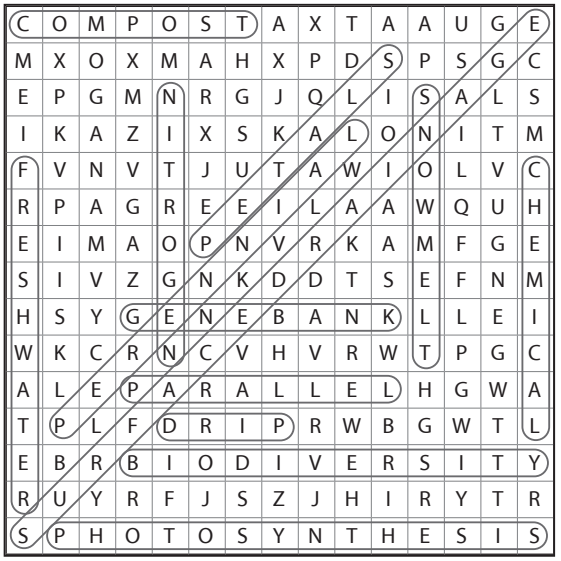
Pages 158-159

VOCABULARY

1.
1. mixed; 2. intercropping; 3. monocropping; 4. drip; 5. sprinkler; 6. furrow; 7. cryptogams; 8. cryptogams; 9. phanerogams; 10. stem; 11. stamen; 12. root hairs.

2.
1. Fertilisers are not basic components of soil; 2. Humus is not a portion of soil; 3. Potassium is useless to contrast weeds; 4. Eutrophication is not related to water cycle; 5. Root hairs do not belong to the shoot system; 6. Ginko is a seed-bearing plant.

3.
1. compost; 2. chemical; 3. cryopreservation; 4. gene bank; 5. biodiversity; 6. parallel; 7. perennial; 8. freshwater; 9. drip; 10. petals; 11. photosynthesis; 12. snowmelt; 13. surface drainage; 14. nitrogen.



Page 160

REAL-LIFE SKILLS

4.
1. c; 2. a; 3. a; 4. b; 5. a; 6. c; 7. b; 8. a; 9. c; 10. b.

5.
Personal answer

Page 161

CASE STUDY

6.
1. It is usually sent to landfill or incinerated; 2. In 2020; 3. They are turned into natural oils; 4. Because it is rich in nutrients that are essential for fertilisation; 5. They both supply nutrients to the soil, but traditional fertilisers do not improve its physical condition; 6. They can also be used as a pesticide and natural repellent; 7. Coffee grounds are decontaminated and dried, before sieving and packing; 8. It has saved about 9,000 tons of CO_2.

7.
Personal answer

Pages 162-163

CLIP DOCUMENTARY: Kiss the Ground

8.
Sample answers
1. It could evoke a sense of reverence to the soil to which we are bound by gratitude; 2. A soil without organic matter becomes dirt, a mix of rock materials, which cannot store water, and heats up massively under the sun with no protection. With no plants to transpire and create the water vapour, local rainfall also fails, turning the area to desert; 3. By the end of 1934 about 200 million acres of croplands in the fertile midwestern plains had been permanently damaged by dust storms, called "The Dust Bowl". This was due to a combination of drought conditions and intensive farming and tilling, which left the soil bare for large periods of time; 4. The Lhos plateau in China witnessed how centuries of overuse and overgrazing led to one of the highest erosion rates in the world and widespread poverty. By the late 20th century there was no vegetation left and farmers had to move on or starve. Through the introduction of sustainable farming practices for about 20 years, more than 2.5 million people were lifted out of poverty: farmers' incomes doubled, and the degraded environment was revitalised.

9.
[Kristin Ohlson] Agriculture is the biggest way that humans impact our landscape.
We have unleashed, through agriculture, over the centuries, over the millennia, carbon from the land, and it's now up in the atmosphere. It's now part of that legacy load of carbon dioxide. Many people are coming to this discussion about soil health because it can bring that carbon back down and put it in the ground.

[Anchorman] First, here is an environmentalist and the editor of Drawdown*, the most comprehensive plan ever proposed to reverse global warming. Please welcome Paul Hawken. Tell us why your plan is different and why it is the most comprehensive.*

[Paul Hawken] Well, it's very different because it's the first one ever. You cannot achieve drawdown without bio sequestration. Bio sequestration is using plants, trees, perennials, and techniques of grazing and farming to capture carbon and store it in the sink of the soil, and retain it for decades, if not centuries.

What we did is mapped, measured, and modelled the hundred most substantive solutions to global warming. And what I mean by solutions, I mean things that are at hand. We know how to do it. There's scaling. And if we continue to scale in a rigorous, but reasonable way, over 30 years, we can reverse global warming.

[Kristin Ohlson] When you talk to people about this great technology that has existed for millions of years that takes carbon out of the atmosphere and stores it safely in the soil, and that it's called plants working with soil microorganisms, it seems too simple.

1. centuries; 2. atmosphere; 3. health; 4. reverse; 5. perennials; 6. global; 7. reasonable; 8. technology; 9. carbon; 10. microorganisms.

10.

1. T; 2. T; 3. F, The soil can bring carbon back down and store it into the ground; 4. F, It is the most comprehensive plan ever proposed; 5. T; 6. F, Hundreds of significant solutions; 7. T; 8. F, They have worked with microorganisms for millions of years.

11.

Personal answer

DEBATE TIME

12.

Personal answer

Unit 4.1 Crops

Pages 166-167

1.
1. T; 2. F, It is an ancient practice; 3. T; 4. F, There are different methods; 5. T; 6. T; 7. F, The same plant may belong to multiple groups; 8. T.

2.
1. d; 2. e; 3. a; 4. h; 5. f; 6. b; 7. c; 8. g.

3.
1. identifies; 2. season 3. rainy; 4. beginning; 5. short; 6. irrigation; 7. dry; 8. summer; 9. warm; 10. sown.

Pages 168-169

What are cereals mainly used for?

Sample answer
They are processed into products such as bread, pasta, biscuits, breakfast cereals, cakes, beer and whiskey – products which are consumed directly by people. They are also used as feed for animals, so humans consume them indirectly as meat, eggs and milk.

4.
1. millet, miglio; 2. maize, granoturco; 3. sorghum, sorgo; 4. barley, orzo; 5. wheat, frumento; 6. oats, avena; 7. rice, riso; 8. triticale, triticale; 9. any pseudocereal (chia, quinoa, amaranth and buckwheat; chia, quinoa, amaranto e grano saraceno); 10. rye, segale.

5.

Crop	Growth requirements	World production areas
Wheat	Temperate climate; drought intolerant	North America, Europe, Australia, New Zealand
Maize	Wide range of temperature, climates and soils	Tropical and temperate areas in Africa and Asia
Rice	Tropical, hot and humid climate, drought intolerant	China and India
Sorghum	Dry and hot climates	Tropical and sub-tropical regions in Africa and Asia
Rye	Cool temperate climate	Russia, Australia, Germany, Turkey and North America
Triticale	Cold tolerant	Poland, China and USA
Oats	Temperate climate	Russia, Canada and Poland
Barley	Wide variety of climates	Russia, Australia, Germany, Turkey and North America
Millet	Dry climate, drought tolerant	Asia, Africa
Khorasan	Fertile soil and warm climate	Mediterranean areas

6. 80

Super Seeds

Nowadays it seems that the most popular grains and seeds are those that come from afar. There are amaranth and chia, the super seeds of the Aztecs and Mayans, and buckwheat, the Asian plant characterised by triangular-shaped seeds.

Amaranth, which means 'everlasting' in Greek, was a staple food of pre-Columbian civilisations, where it was used in many religious practices and as a medicinal herb. Both its leaves and seeds are nutritionally dense and are good sources of dietary fibre, calcium, iron and proteins.

The little seeds of chia – which is a variety of the mint plant – either in their white or black variety, also have a huge nutritional profile. They contain calcium, manganese, and phosphorus, and are a great source of healthy omega-3 fats. Originally grown in Mexico, the seeds were highly valued for their medicinal properties and nutritional value, and they were even used as currency.

Native to Northern Europe and parts of Asia, buckwheat is used in its seed form and milled as a flour. While it is often mistaken for a grain, it is actually a seed related to rhubarb, and in turn, gluten-free. Buckwheat is one of the best sources of high-quality protein in the plant kingdom. It's easy to grow, harvest, and process. It is one of the best natural weed suppressors, thrives in poor soil conditions and

it's not susceptible to disease or pest problems. Moreover, its flowers are very fragrant and are attractive to bees that use them to produce a special, strongly flavoured, dark honey.

1. F, People choose a lot of grains and seeds coming from far away; 2. T; 3. F, They are triangular; 4. F, It is rich; 5. T; 6. F, A variety of the mint plant; 7. T; 8. T; 9. F, It easily adapts to poor soil conditions; 10. T.

Pages 170-171

What is the difference between roots and tubers?

Sample answer

A root fixes a plant to the ground and absorbs nutrients, a tuber is only a part of the plant that is responsible for storing nutrients. Tubers are underground stems intended for the accumulation of a plant's reserve nutrients.

7.

Bulb vegetables	Fruit vegetables	Leafy green vegetables	Root vegetables	Stem vegetables	Tuber vegetables
chives	aubergine	chicory	beet	artichoke	cassava
garlic	cucumber	endive	carrot	asparagus	Jerusalem artichoke
leek	pepper	lettuce	celeriac	broccoli	potato
onion	pumpkin	spinach	radish	broccoli rabe	sweet potato
shallot	squash		turnip	cauliflower	
	tomato			celery	
				chard	

Teacher's note

Extra activity

Fill in the blanks with the right colour.

blue · green (x2) · purple · red · white

A Colourful Protection against Disease

The colour of a fruit or vegetable is related to its health benefits because of the chemicals it contains that produce its colour.

Some 1. ..... or 2. ..... vegetables, like cauliflower, broccoli and brussel sprouts contain sulforaphane, a compound which reinforces the body's natural cancer-fighting resources.

The anthocyanins found in 3. ..... and 4. ..... foods, like blueberries and eggplant, not only protect the human body against cancer but also improve brain function and help keep the heart healthy.

5. ..... vegetables, such as kale and spinach, contain zeaxanthin, a carotenoid which helps prevent cancerous tumour growth in humans.

6. ..... fruits and vegetables, such as watermelon, tomatoes and red grapefruit contain lycopene, which reduces the risk of developing cancers of the lung, prostate and stomach.

8. Fresh Things: Root Vegetables vs. Tubers *posted by* FreshPoint, Inc

Teacher's note

This word list should be pre-taught before watching the video.

- Moot point: *questione di lana caprina*
- Boniato: *patata dolce, batata*
- Sunchoke: *topinanmbur*
- Jicama: *patata messicana*
- A bit of give: *un po' di elasticità*

Root Vegetables vs Tubers

Hi, I'm Francy Deskin with FreshPoint, and today we're going to talk about root veg. Here we've got a nice colourful array of root vegetables, many different shapes, sizes, and colours... but we also have tubers. What's the difference you may wonder? Not much, really. From a culinary perspective it's a moot point, but from a botanical perspective, I can explain it to you. Here we have a carrot. A carrot, along with radishes, and beets, these are roots. Above ground you've got the green stuff, below ground, you've got the root. Easy right? No problem. When it comes to tubers, you got the green stuff above ground, and then below ground you have a system of hairy like roots... and from that the tuber will grow. When it comes to tubers, you can get several tubers from one above-ground plant. Ok, so this is a Japanese

sweet potato, we also have boniato, we've got sunchoke, we've got jicama, those are tubers. Culinary uses, again, almost interchangeable. They're great in soups, they're great roasted, they're great sauteed, you can even puree them. When you're selecting root vegetables, you want to take an opposite approach as when you're trying to select a good piece of fruit. On a good piece of fruit you're looking for a little bit of give, but when it comes to a root vegetable, the harder the better. When you're storing the root vegetables, the best place to store them is in a cool, dark place, such as a root cellar. I'm from Florida, I've never even been in a root cellar... so from the chef's perspective, put them in the walk-in cooler and use them within a few weeks. And remember Fresh Things come from FreshPoint.

1. very different; 2. root vegetables; 3. green stuff, roots; 4. green stuff, hairy roots and tubers; 5. sweet potato, boniato, sunchoke, and jicama; 6. very similar; 7. a hard texture; 8. a cool dark place or a root cellar.

Pages 172-173

Do you know why large quantities of potatoes are not recommended for people with diabetes?

Sample answer
Diabetic patients are strongly advised to select foods with a low glycemic index (GI). GI measures the rate at which carbohydrates elevate blood glucose. Foods with a high glycemic index increase blood glucose quickly, while those with a low glycemic index increase the blood glucose slowly.

9.

Sample answers
1. What does the word potato refer to?; 2. How many potato varieties are there worldwide?; 3. Where were potatoes first domesticated?; 4. Who brought potatoes to Europe?; 5. What nutrients do potatoes contain?; 6. What toxic substances do potatoes contain?; 7. Where are these toxic substances concentrated?; 8. Why do potatoes need to be stored in a dark, well-ventilated room?

10. 83

Poisonous Effects of Nightshades

Nightshades are flowering plants in the Solanaceae family: they can be annuals, biennials, or perennials and are usually herbs, though some species grow as shrubs or small trees. Most of them are toxic, especially their unripe fruits. Some of the more well-known plants in this family include ornamentals, characterised by poisonous properties, causing skin irritation, rapid heartbeat, hallucinations and, in the case of Belladonna, death.
Only a small selection of the 3,000 varieties are staple fruits, vegetables and herbs in our diet. Many of the nightshade family plants are cultivated in the home garden and are known as nightshade vegetables or fruits. The most common include tomato, eggplant, peppers of all kinds (except black pepper), potato and garden huckleberry.
Even though these plants are perfectly safe to eat under ordinary circumstances, some people may be sensitive to them, suffering allergic reactions. Anyway, there's very little scientific evidence to support eliminating nightshades from your diet.
Responsible for this concern are some compounds called alkaloids. In particular, solanine, which may be toxic in large quantities or in a green potato. But there's no evidence solanine is harmful in normal food amounts. What's more, solanine isn't only found in nightshades: blueberries, huckleberries and artichokes contain it, too. On the contrary, numerous studies suggest nightshades and the chemicals within them are often beneficial to health. In particular, their nutrition content may help with arthritis symptoms.

1. F, Some species grow as shrubs; 2. F, Most are toxic; 3. F, Only a small selection of the 3,000 varieties are used in our diet; 4. T; 5. T; 6. T; 7. F, It is found in other edible vegetables, too; 8. T.

11.

Sample answer
Nightshades are a group of common plants including tomatoes, potatoes, peppers, aubergines, tobacco and some medicinal plants. The origin of word 'Nightshade' is not clear. Some people used to believe that these plants grew over night rather than in daytime. While certain members of this family are edible, others are poisonous. Some of these have even been used in witchcraft in the past.

Pages 174-175

Do you know the common name given to poisonous or inedible mushrooms?

Sample answer
They are called toadstools.

Mushrooms can also have some side effects. Do you know what they are?

Sample answer
Some side effects are possible in certain people, such as mental disorders, tiredness, stomach upset, skin allergies, anxiety and headache.

12.

1. F, They breathe in oxygen; 2. F, They belong to the Fungi Kingdom; 3. T; 4. T; 5. F, They are rich in vitamins and minerals; 6. F, Only some species are.

13.

Sample answer

Journalist	Farmer
Ladies and Gentlemen, welcome to *New Enterprises*. Our guest for today is Mr Bertagna, a farmer from Alba, Northern Italy, who has started a profitable truffle growing activity. Good evening, Mr Bertagna.	Good evening. I'm very pleased to be here.
Could you give us further details about your new activity? How and why did you jump into this new activity? Your major concern is a vineyard, isn't it?	Yes, I'm a winemaker but, you know, since long ago, Alba hills have been particularly suitable for truffle growing and recently farmers have been encouraged to diversify their crops, as a way of spreading their risk, but coming up with the right idea isn't always easy.
Did you start and operate individually?	No, we are a group of farmers who cooperate with TRF Enterprise.
Is there a partnership arrangement between the farmer and the company?	Yes, they provide oaks and hazelnuts for the orchard and saplings inoculated with white truffle fungus, as well as advice and support to start the plantation. The landowner pays the company at the start of the process and then, as truffles are harvested, the two parties take a percentage share of the yields.
What do you mean by orchard?	Well, it's a sort of orchard: truffles grow on the roots of oak and hazel trees, but they require a very specific treatment in order to fruit successfully.
I see. But what does all the business imply?	You have to raise the PH of the soil and spread lime on the ground as it's essential to protect the trees from pests. Then, train a dog, monitor the average temperature and grant well-drained soil.
When do you expect to begin making a profit?	Plantations usually produce truffles after four to seven years. Last year we harvested the first truffle, but we have not produced enough to sell yet.
When does the truffle harvest take place?	The peak harvest period is October to mid-January.
Thank you, Mr Bertagna, for the explanation.	Bye and thank you so much for the invitation.

14. 85

An Unusual Start-up

Fungiculture is the process of producing food, medicine and other products from the cultivation of mushrooms and truffles. Most mushrooms found in supermarkets have been commercially grown on mushroom farms, i.e. in controlled, sterilised environments.

Best of all, you can grow lots of oyster mushrooms in a small space such as a shed and even a spare room: it's not uncommon to produce 2,000 pounds of these tasty mushrooms yearly, in just one hundred square feet! At 7 dollars a pound that's about 14,000 dollars, which makes the oyster mushroom a very profitable crop. Because oyster mushrooms are best when freshly picked, small local growers can do well selling them at the farmers' market, or to local restaurants.

The basic rule is that you only need to control the temperature, light and humidity. So, you can give mushrooms just what they need at each stage of the growing phase. Here's how to get started in just six easy steps. First, you'll need a mycelium to start the culture, and straw or wood chips to prepare the substrate. Then, boil the straw for half an hour. Pack plastic bags with the straw and the mycelium, close the top and poke holes in the bag. Start the incubation phase in the dark at around 25 degrees Celsius. As you notice tiny pinhead mushrooms near the air holes, you're ready to move the mushrooms to the fruiting room. Here, you need a high level of humidity and a lot of natural light. Finally, cut away the bag, allowing mushroom growth to take place.

1. truffles; 2. controlled; 3. 2,000; 4. market; 5. temperature; 6. straw; 7. 25 degrees; 8. humidity.

Pages 176-177

Can you find some examples of false fruits?

Sample answer

Examples are:

- strawberries, which develop from the receptacle of the strawberry plant and contain the seeds on the outside;
- apples and pears, which develop from the hypanthium and have a central core with a seed chamber called carpel;
- pineapples, which develop from the stem of the pineapple plant and contain small, hard seeds;
- figs, which develop from the inflorescence of the fig tree and contain tiny seeds.

15.

Sample answers

1. What are the three layers of the pericarp?; 2. How are fruits usually classified?; 3. How are simple fruits divided?; 4. What elements are involved in the development of false fruits?; 5. Why is it important to evaluate sun exposure when planting fruit-bearing trees?; 6. Why are loam soils preferable to plant orchards?

16.

1. like; 2. into; 3. the; 4. that/which; 5. nor; 6. to; 7. of; 8. but; 9. or; 10. as.

17.

DEMYSTIFIED: Are tomatoes a fruit or a vegetable? | Encyclopaedia Britannica
posted by Encyclopaedia Britannica

Are tomatoes a fruit or a vegetable? Really, the answer comes down to who you ask. A chef would say that fruits are sweet and fleshy, eaten as a snack or dessert, while vegetables are savoury and lower in fructose, eaten as sides or part of a main dish. But a scientist, on the other hand, would say all these things are just "plants". And the seed-bearing structure formed from a plant's ovary after flowering is called "fruit". So, in scientific terms, that means familiar things like apples, oranges, and pears are fruit, because they have seeds. But it also means that things we usually say are vegetables, like pumpkins and avocados, are actually fruit too, because of their seeds. So, what about tomatoes? We know what science would say: because tomatoes have seeds, they're fruit. Just like avocados and pumpkins (weird, right?). But really what we call "fruit" or "vegetable" reflects cultural and culinary traditions, not science. These cultural and culinary traditions tell us to think about how these plants taste, and how we use them when we cook, meaning the savoury tomato is probably considered a vegetable by most non-scientists, just like these other botanical fruits we usually call vegetables. So, are tomatoes a fruit or a vegetable? They're both. Either term is appropriate, it just depends on the situation. And even if you tell a chef that they are fruit, tomatoes might not taste great in a fruit salad.

1. as a snack or dessert; 2. plants; 3. seed-bearing structure; 4. fruits; 5. culinary traditions; 6. the situation.

Pages 178-179

Legumes are also called pulses. Can you tell the difference?

Sample answer

Although used interchangeably, the terms "legumes" and "pulses" have distinct meanings. A *legume* refers to any plant from the *Fabaceae* family that would include its leaves, stems, and pods. A *pulse* is the edible seed from a legume plant. For example, a pea pod is a legume, but the pea inside the pod is the pulse. The entire legume plant is often used in agricultural applications (as cover crops or in livestock feed or fertilisers), while the seeds or pulses are human food.

18.

1. They are grown for different purposes: as human food, livestock feed and organic manure; 2. Legumes are annual plants whose seeds are contained in pods which can be separated easily when ripe; 3. They contain protein, B vitamins, carbohydrates, minerals, fat and fibre; 4. Lentils contain a much higher percentage of protein; 5. Soybeans are processed to make oil and milk, and as grain fodder for cattle; 6. Peanuts can be eaten raw, toasted or salted; they are also used to make oil, butter, medicines, cosmetics, and textile materials; 7. Alfalfa, soybean and cowpea can be added to cereal crop residue to increase animal productivity as they have a large content of protein, calcium and vitamin; 8. The roots of leguminous plants contain bacteria which fix the atmospheric nitrogen by converting it into nutrients for the plants, thus supplying a great amount of nitrogen to the soil.

19.

Sample answer

This bar chart shows the chemical content of cereal grains and legume seeds. If we compare these crops, we can see that maize and wheat are particularly rich in starch, followed by barley

and oats. As regards soybeans and lupin beans, starch represents approximately no more than 15% of their content. Fibre is almost half the total content of oats, while it is one third in case of lupin beans, even less in the case of barley and around 30% in the case of maize and wheat. Fat value is negligible for barley and wheat, a little higher for maize, oats and lupin beans, whereas it is around 25% in soybean. Soybeans and lupin beans are particularly rich in protein, whereas values of oats, wheat and barley are much lower. Last in the ranking is maize, with approximately 15% protein.

20.
1. resources; 2. contamination; 3. environment; 4. characteristics; 5. emissions; 6. nitrogen; 7. soil; 8. drought-resistant; 9. waste; 10. nutritional.

Unit 4.2 Oil plants

Pages 182-183

1.
1. a; 2. c; 3. b; 4. c; 5. a; 6. a; 7. b; 8. c.

2.
1. margarine; 2. emulsifier; 3. deep-frying; 4. rancidity; 5. flavour; 6. waste; 7. feed; 8. lubricant.

3.
1. fibre; 2. sheets; 3. flax; 4. seeds; 5. ingredient; 6. stem; 7. linseed; 8. printing.

Pages 184-185

Why is oil palm cultivation a driver of natural habitat degradation?

Sample answer
The tropical areas suitable for oil palm plantations are particularly rich in biodiversity. Oil palm development, therefore, has significant negative impacts on global biodiversity, as it often replaces tropical forests and other species-rich habitats.

4.
1. Because once planted, they remain on the land for a long time and provide recurring yields; 2. Hard freezing environments with temperatures below -5°C that may kill small shoots and branches. Also frost during bloom and before harvest can be unfavourable; 3. It is native to West Africa, but most of the global palm oil supply comes from Indonesia and Malaysia; 4. It is used for food, particularly cooking oil and processed oils and fats. It is also used in cosmetics, cleaning products and biofuel; 5. From the kernel of the fruit which is dried, called copra; 6. It is obtained from the dried copra by pressing and solvent extraction.

5. Oil Palm Tree *posted by* MPOC AMERICAS

The oil palm tree is a monoecious crop, having both male and female flowers on the same tree. It can grow up to 60 feet and more in height. Oil palm trees bear fruits after 30 months of field planting and continue to be productive for the next 20 to 30 years, ensuring a consistent supply of oils. One oil palm tree can produce many bunches of fruitlets commonly known as fresh fruit bunch or FFB, weighing between 10 to 25 kilograms, with 1,000 to 3,000 fruitlets per bunch. In Malaysia the oil palm trees planted are mainly the tenera variety, a cross between the dura and pisifera. The tenera variety yields about 4 to 5 tonnes of crude palm oil or CPO per hectare per year. The oil palm is the most efficient oil-bearing crop in the world, providing up to 10 times more oil per hectare of land, compared to other crops.

1. male, female; 2. 60; 3. 30 months; 4. 10, 25; 5. five; 6. ten times.

6.
Sample answer
According to this bar chart, soybean supplies the most consistent production of oil, followed by rapeseed, which represents almost 22% of its value. There is not a great difference between sunflower seed and peanut, which together produce about 16,5 million metric tons more than rapeseed. Fifth in the ranking is cottonseed, whose production is slightly lower than peanut, but more than double that of palm kernel. The tail end is represented by copra, whose production of around 5,86 million metric tons is a great deal lower than the palm kernel one.

Pages 186-187

7.
1. T; 2. F, It is a rustic species and can adapt to unfavourable conditions; 3. F, These are extreme events which can damage trees and fruits; 4. T; 5. T; 6. T; 7. F, Only olive trees cultivated for table olives need more irrigation; 8. F, It is important to prune as little as possible.

8.
1. c; 2. f; 3. a; 4. d; 5. b; 6. e.

Pages 188-189

Do you know which Italian regions have been mostly infected by this deadly bacterium?

Sample answer

In Southern Italy more than one million ancient olive trees have been infected and felled since 2013. There was a rapid spreading of the disease throughout the Apulia region, therefore the Italian government had no choice but to approve the felling of 3,000 trees in Salento, trying to create a sanitary buffer zone between affected and non-affected areas.

9.

Sample answers

1. What climatic features favour the propagation of peacock spot?; 2. How can peacock spot be detected on olive trees?; 3. How does the black scale damage the olive tree?; 4. What compromises olive acidity?; 5. What kind of damage do the larvae of the olive fly cause?; 6. Why are several chemical insecticides being avoided?; 7. What are the alternative methods to control pests?; 8. Why do plants infected by *Xylella fastidiosa* die?; 9. How is the disease transmitted?; 10. Why are the only strategies against *Xylella fastidiosa* isolating, felling and burning infected trees?

10.

1. d; 2. b; 3. a.

Extra sentence: c.

11.

Sample answer

Since 2013 many of the ancient olive groves in southern Italy have been destroyed by *Xylella fastidiosa*, an insect-borne bacterium, probably imported from Central and South America. The causes of this disaster are not clear, but the use and abuse of pesticides and herbicides, the abandoned state of too many olive groves, the uncontrolled importation of plants and, consequently, the introduction of new pathogens may have been responsible for the outbreak of the disease.

Once again, this crisis in Apulia has shown the fragility of agro-ecological systems, when plant-invasive harmful organisms are brought into new vulnerable regions.

Farmers have been forced by the Italian and EU government to cut down thousands of olive trees which were infected, even those in the surrounding areas which did not show signs of the disease. This has had a huge economic impact on agriculture, as a lot of farms have been forced to destroy their estate and cease production. Currently, there is no known eradication strategy, largely due to the mere distribution of olive orchards in Southern Italy and the broad host range of the pathogen and its vectors.

Researchers think the only way to save nature is through nature itself. For the future we need to adopt suitable agricultural practices, protect the native varieties of olives, which are the most resistant to adversity, and promote scientific research within organic and biodynamic farming.

Unit 4.3 Vineyards

Pages 192-193

Is wine produced in your region? What varieties of grapes are grown?

Personal answer

1.

1. vine; 2. vineyard; 3. raisins; 4. drainage; 5. moisture; 6. frost; 7. harvest; 8. pruning.

2.

1. *Vitis vinifera*, *Vitis labrusca*, *Vitis riparia* and *Vitis rotundifolia*; 2. 'Terroir' refers to the specific geographical and geological characteristics of a grapevine plantation, which may contribute to the character of a wine; 3. The ideal site for a vineyard should be characterised by full sunlight, soil fertility and drainage, available moisture, sufficient slope and suitable configuration for weather conditions; 4. It affects the success of a vineyard; 5. The quality of wine is determined by grape variety, soil composition, weather conditions and farming techniques; 6. The American varieties.

3. 93

Fox Grape

Vitis labrusca, *commonly known as the fox grape, or strawberry flavoured hybrid, is a woody, deciduous vine that can climb to the tops of tall trees or sprawl horizontally over low-growing shrubs. It is native to woodlands and forest margins from Eastern North America to Louisiana and Florida.*

It is best grown in deep, loamy, humus-rich, medium moisture, well-drained soils, in full sun. Even if it tolerates a wide range of soil conditions, including average garden soils, it must have good drainage. It can withstand the severe weather conditions in the Eastern and Midwestern states better than many other types of grape, but it prefers a location

sheltered from winter winds and frost. This grape is self-pollinating and spreads by self-seeding, thanks to wild animals and birds, which eat the fruits and help distribute the seeds to new locations.
Vitis labrusca *is a high maintenance plant that requires regular pruning and chemical spraying, as its grapes are susceptible to a large number of diseases, particularly in humid, summer climates. Even if its grapes are primarily grown for fruit production in home fruit gardens, they have good ornamental value, too: when grown on fences, walls, trellises, arbours or other structures, grapes can be quite attractive year-round and can provide good cover, screening, or shade to areas around the home.*

Adapted from: *https://www.missouribotanicalgarden.org/*

1. T; 2. F, All through the US; 3. T; 4. T; 5. T; 6. F, It needs regular pruning and chemical spraying; 7. F, Humidity is responsible for various diseases; 8. T.

Pages 194-195

What are the most important nutrients for a grapevine?

Sample answer
One of the most important nutrients for a grapevine is nitrogen. This element is essential for plant growth and is also involved in the formation of chlorophyll for photosynthesis. Furthermore, the grapevine needs minerals such as phosphorus, potassium, magnesium, calcium and others.

4.

1. pruning; 2. cluster; 3. (winter) dormancy; 4. desuckering; 5. trellising; 6. pinching back.

5.

1. For regulating both vegetative growth and fruit production; 2. The production of many small clusters of small grapes that may fail to ripen properly; 3. In late winter or early spring; 4. Its development can be severely weakened; 5. Climate, weather, variety, and other growing conditions; 6. To remove non-fruitful shoots; 7. To allow maximum light penetration; 8. Climatic parameters and the vine cycle evolution.

6.

Sample answer
Winter and early spring are the best periods for pruning, which is a delicate and important operation. During the first year, the grapevine should be left to grow, but in the spring of the second year you can begin removing the side shoots that grow from the trunk. The vine is then allowed to grow during the third spring and summer; in the following winter you will leave 12 buds along each of the arms, which will bear fruits during the fourth summer.

7.

1. pinching back; 2. desuckering; 3. trellising; 4. phyto-sanitary treatment.

Pages 196-197

8.

1. T; 2. T; 3. F, It reduces vine exposure to the sun; 4. T; 5. F, It is suitable for warm, dry climates; 6. F, It is mainly adopted in alpine regions.

9. 96

Agronomist: Good morning. How can I help you?
Customer: Good morning. I've got a quite large back garden where I'd like to plant grapevines. I've heard about some advantages of growing grapes on a pergola but, actually, I don't know anything about it. So, could you give me some tips?
A: Sure. To start with, there are two very important questions you will have to ask yourself before you plant the grapevines.
C: Which ones?
A: Are you going to grow grapes on a pergola for the grapes as well as for decoration, or just for decorating the pergola?
C: Why? Is it essential to know?
A: Of course. I can then suggest the right variety for you.
C: Do you think a pergola is the right solution?
A: A pergola is highly recommended because it has several advantages; for example, it's much simpler to keep the grapevine under control during summer, while winter pruning will be much easier, because of an established framework of the grapevine. In addition, the leaves of the grapevine are better exposed to sunlight and both summer treatments and spray coverage are more effective, which means fewer diseases.
C: What about the cons?
A: Well, you have to consider the cost and manual labour for building this trellis system. And finally, if you can't train the grapevine to cover the pergola, you need an agronomist to do the job.
C: What should I do first?
A: It is recommended that you construct your pergola before you plant the grapevines. Then, you should start training the vines to reach the roof or canopy of the pergola as soon as possible.
C: What size should the pergola be and how many grapevines should be planted?
A: An average vigour variety will easily cover an area of about 3 square metres. Planting too many grapevines on a small pergola will make summer

treatments and pruning much harder! That's why I recommend you start with one or two vines for every 6 square metres – you can always plant more in the future! And don't forget to construct a sturdy pergola that will withstand strong winds, snow, rain and the increasing weight of a grape crop.
C: Thanks a lot, Mr Dotto. I'll be back with pictures of the garden and all the measurements.
A: See you soon, then.

1. large; 2. isn't; 3. variety; 4. summer; 5. treatments, spray; 6. cost, manual labour; 7. reduced/little; 8. strong winds.

10.

1. back; 2. southwest; 3. terroir; 4. surroundings; 5. international; 6. wines; 7. indigenous; 8. climatic.

Pages 198-199

Do you know how downy mildew spread throughout Europe?

Some of the resistant grape rootstocks introduced to Europe from North America (1878) to control *Phylloxera* were carrying the downy mildew pathogen (*Plasmopara viticola)*, which spread widely throughout Europe.

11.

Sample answers
1. can be affected by several pests, diseases, rodents, insects and birds that can minimise their vigour; 2. the leaves fallen at the foot of the vine; 3. that feeds on grapevine roots; 4. were destroyed by grape *phylloxera*; 5. consists in grafting *Vitis vinifera* onto *Vitis labrusca* rootstocks; 6. to control grape *phylloxera*; 7. circular spots and white downy fungal growth; 8. warm and humid weather; 9. white powdery spots on the leaves and stems; 10. the fungus *Botrytis cinerea.*

12. 98

Remedies
Two of the most serious diseases of grapes in the world are grey mould and downy mildew. The former is a fungus which gives rise to two different kinds of infections in grapes. The first, grey rot, is the result of consistently wet or humid conditions, and typically results in the loss of the affected bunches. The second, noble rot, occurs when drier conditions follow wetter, and can result in distinctive sweet dessert wines.
As regards downy mildew, its first symptoms are usually seen on the leaves as soon as 5 to 7 days after infection. Infected parts of bunches of young fruit turn brown, wither, and die rapidly. The infection of young shoots and leaves can lead to significant crop loss and affect sugar accumulation and growth in the following season. Disease can be prevented by establishing grapevines in well-drained sites with good air movement and using pre-infection (protective) copper-based fungicides, such as Bordeaux mixture and the dithiocarbamates, applied prior to an infection event. Post-infection fungicides are more costly and should be applied as soon as possible after infection.
In 1885, P.M.A. Millardet first used Bordeaux mixture to control downy mildew. It is said that a farmer had applied this mixture of copper sulfate and lime to produce a chemical residue on grapes along the roadside to discourage pilfering by passers-by; it turned out to be particularly efficient against this disease. Millardet's extensive experimentation led to the development of Bordeaux mixture as the first widely used chemical to protect plants from fungal infections.

1. grey mould; 2. infections; 3. humid; 4. bunches; 5. downy mildew; 6. die; 7. sugar; 8. well-drained; 9. fungicides; 10. Bordeaux mixture; 11. roadside; 12. efficient; 13. T; 14. F, Firstly, it attacks the leaves; 15. F, A good prevention measure is the choice of a well-drained site with good air movement; 16. F, They are expensive; 17. T; 18. T.

Unit 4.4 Gardening and landscaping

Pages 202-203

Do you know any cultural landscapes protected by UNESCO in Italy?

Sample answer
Since 1992, UNESCO has protected cultural landscapes from damage, and identified them as tourist destinations, such as the Roero Vineyards, The Prosecco Hills of Conegliano and Valdobbiadene, the National Park of Cilento, Villa Adriana in Tivoli and the Botanical Garden of Padua.

1.

1. A landscape consists of the geographical features that are characteristic of a particular area; 2. A natural landscape is made up of different landforms, such as mountains, hills, plains, highlands, lakes, streams, soils and natural vegetation; 3. A cultural landscape is a landscape that people have modified; 4. The growth of technology has increased our ability to change a natural landscape; 5. The main aim of landscape policy is the protection, management

and planning of landscapes; 6. It deals with the development and decorative planting of gardens, yards, grounds, and parks.

2.

1. cultural; 2. nature; 3. impacts; 4. ecosystems; 5. landscapes; 6. infrastructure; 7. habitats; 8. world; 9. heritage; 10. essential.

3. 100

1. Yellowstone – it is the oldest national park in the US; much of the park is a high mountain plateau. At the lowest elevations you'll find grasslands. You'll see the park's volcanic activity on a 17-mile journey east to the lake area. The beautiful valley where elks, bison and wolves live, is dotted with glacial ponds.
2. Bergen – situated in west Norway, it is surrounded by seven hills and seven fjords. This beautiful city is a mix of history and nature. But you'll also discover a dynamic cultural life, with lots of cafés, restaurants, and art events.
3. Ayers Rock – it is one of Australia's most iconic symbols. Located in the heart of Ayers Rock – Mount Olga National Park, Uluru (this is the indigenous name) is a unique desert landmark. Despite its harsh environment, the national park is home to hundreds of species of animals, birds and rare plants.
4. Langhe – located in the centre of Piedmont, in the north-west of Italy, the Langhe is the result of the combined work of nature and man and it is famous for viticulture and winemaking. Beautiful castles, villages and wineries are scattered on charming hills. Its vineyards constitute an outstanding example of man's interaction with his natural environment.
5. Galapagos – they lie in the Pacific Ocean, 600 miles from the Ecuadorian coastline. Since the Galapagos islands are of volcanic origin, you will see many craters. Some of these craters have salty water and others have freshwater. Some islands have black sand beaches and others have red sand beaches. The Galapagos are rich in wildlife, too – sea lions, penguins, flamingos, giant tortoises, iguanas, and a whole range of birds.
6. Amalfi coast – it is an area of great physical beauty and natural diversity in the south of Italy. It has been intensively settled by human communities since the early Middle Ages. There are a number of towns such as Amalfi and Ravello with architectural and artistic works of great significance. The rural areas show the versatility of the inhabitants in adapting their use of the land to the diverse nature of the terrain, which ranges from terraced vineyards and orchards on the lower slopes to wide upland pastures.

Name	Location	Kind of landscape	Natural features	Man-made features
Yellowstone	USA	Natural	High mountain plateau, grasslands, volcanic activity, glacial ponds, elks, bison and wolves	//
Bergen	Norway	Cultural	Seven hills and seven fjords	Lots of cafés, restaurants and art events
Ayers Rock	Australia	Natural	Desert, hundreds of species of animals, birds and rare plants	//
Langhe	Piedmont, Italy	Cultural	Hills	Viticulture and winemaking, beautiful castles, villages and wineries
Galapagos	Pacific Ocean - Ecuador	Natural	Volcanic origin, craters with salty or freshwater, black and red sand beaches, rich wildlife	//
Amalfi Coast	Southern Italy	Cultural	Hills, grasslands	Vineyards, orchards, towns with architectural and artistic works

Pages 204-205

4.

Sample answers
1. large paths, parterres, terraces and a reflecting pool; 2. Italian garden; 3. Vaux-le-Vicomte and Versailles; 4. into their natural shapes; 5. the natural look of the English garden; 6. profusion of flowers, borders of hardy perennial plants and climbers.

5.

1. It is the Latin name *topiarius,* which refers to a person skilled in ornamental gardening; 2. Evergreen shrubs such as box, holly and cypress;

3. Yes, it evolved from the necessary trimming, pruning, and training of trees; 4. Cones, columns, and spires; 5. In the 18th century; 6. With the rise of the natural garden.

6. HISTORY OF IDEAS - French & English gardens
posted by The School of Life

There have been two central traditions in European gardening, each one associated with a great European nation. The first originated in 17th century France and became known as the "Jardin à la française" or "formal French garden". The most sublime example of this school of gardening is to be found in the chateau of Vaux-le-Vicomte, which is about 50 kilometres south-east of Paris. It was laid out in the late 1650s by André le Nôtre, the most important figure in the history of the French Garden, and the son of the gardener of Louis XIII. The idea was to arrange everything around symmetry, flattening the existing natural landscape so as to create perfect arrangements of borders, flower beds and reflecting pools. A grand perspective, a thousand five hundred metres long, extended from the foot of the chateau to the end point: a statue of Hercules. The alleyways were decorated at regular intervals by statues, basins, fountains and carefully sculpted topiaries. It was in an extremely logical, precise, unyielding way, perfect. Another masterpiece of French gardening was then constructed at Versailles, also by André Le Nôtre. Here too there was astonishing symmetry and a will to bend the unruliness of nature to the designs of man. The French gardening tradition achieved enormous popularity and was widely copied in far more modest homes across Europe for a century at least, but the dominance eventually gave way to a new theory of gardening that developed in England in the 18th century. And was known as the "Jardin à l'anglaise" or "English Garden". The central figure in this tradition was Capability Brown, a gardener of genius, responsible for 170 gardens up and down the United Kingdom, including Petworth in West Sussex, Chatsworth and Derbyshire, Bowood in Wilshire and Blenheim Palace in Oxfordshire. The jardin à l'anglaise couldn't have been more different from the jardin à la française. In the English tradition everything was about working with rather than flattening natural features. The wildness of nature wasn't the enemy, it was the starting point which the skilled English gardener would enhance and work with. A good English garden relished the raw impulses of nature; it was about accommodating and delighting in nature even though this was nature that was tampered with in order to get it to look just that bit more natural. The English garden usually included a lake, sweeps of gently rolling lawns and groves of trees. The English tradition reigned supreme for a century at least. These are two historical traditions of gardening, but they are also along the way, two modes of being. The French style is about a confident rationalism and willpower; this is how we might feel when we want to change the world through thought and planning. The English tradition is about accommodating ourselves to what already exists, bending with what is there, trying to make the most of what we've been given and to see its beauty and its charm. It looks like a battle, but ideally, we need the two attitudes, the French and the English, in our lives, in order to call upon them in diverse situations. Each of us is probably a bit biased towards one or the other and could benefit from seeking out the distinctive wisdom of either the French or the English style. The opposition of the two gardening styles is stark, but in truth we need integration; the Jardin à la française and the Jardin à l'anglaise, rational willpower and acceptance of nature. There are in fact a few places that do show the two integrated, like Sissinghurst Garden in Kent, which borrows from both traditions. This shows us the model of how an ideal individual might be, someone with a French and an English garden sight to their nature, ready to call upon either faculty depending on the occasion. That would be interesting gardening and wise psychology.

1. France, the 17th century; 2. symmetry; 3. flower beds, fountains; 4. popular; 5. England, the 18th century; 6. 170; 7. wildness; 8. willpower; 9. already exists; 10. attitudes.

Pages 206-207

Do you know where the word *horticulture* comes from?

Sample answer
It comes from the Latin *hortus*, garden, and *colere*, to cultivate. So, horticulture means the knowledge or practice of cultivating and managing a garden.

7.
1. The cultivation of plants for food and ornamental purposes; 2. Through urban forestation and the implementation of green spaces in urban contexts; 3. It is concerned with the cultivation of flowers and ornamental plants for commercial purposes; 4. Because it provides employment opportunities and entrepreneurship in both urban and rural areas; 5. They are made up of glass or plastic film; 6. For providing favourable climatic conditions, controlling temperature, humidity and light intensity inside.

8. 103

Greenhouses and Nurseries

Modern horticulture extends well beyond the traditional production of food for humans: it makes use of heating and climate control systems, crop techniques and even electronic devices to automate production in nurseries and greenhouses, for example. These businesses, which may be wholesale or retail, grow annuals, perennials, trees and shrubs. Specifically, a nursery is a place where young plants and trees are grown for sale or for planting elsewhere, while a greenhouse is a glass or plastic building where plants needing protection from cold weather are grown. Plant nurseries are designed for the propagation and care of young plants. They often contain one or more large greenhouses in order to shelter new plants from frost or excessive heat. These have a variety of uses: decorative plants for flower gardening and landscaping, garden vegetable plants, and agricultural plants. Some specialise in one phase of the process (propagation, growing out, or retail sale), others in one type of plant (ground covers, shade plants, fruit trees or rock garden plants). Greenhouses range in size, from small sheds to very large buildings, and may be automatically controlled by a computer and equipped with screening, heating, cooling and lighting systems.

The material used for a greenhouse works as a barrier to air flow and its effect is to trap energy within the greenhouse, which heats both the plants and the ground inside it. This warms the air near the ground, which is prevented from rising or flowing away and is retained in the area by the roof and walls. These structures have become very sophisticated, allowing growers to produce many types of crops of high quality in any season; nevertheless, although most processes involved in nurseries and greenhouses have been mechanised and automated, they still remain highly labour-intensive, since plant care requires human observation, judgement and manual dexterity.

1. Electronic devices are used to automate production; 2. Annuals, perennials, trees and shrubs; 3. It is a place where young plants and trees are grown for sale or for planting elsewhere; 4. It is used to protect plants from cold weather; 5. In plant nurseries; 6. It can be equipped with screening, heating, cooling and lighting systems; 7. It makes high-level yields possible all year round; 8. No, because human observation, judgement and manual dexterity are essential.

9.

1. flowers; 2. products; 3. crops; 4. water; 5. postharvest; 6. temperature; 7. refrigerating; 8. Hydration; 9. plants; 10. sugar.

Pages 208-209

Do you know the main differences between climbing and rambling roses?

Sample answer

Rambling roses have more flexible canes, a large number of smaller flowers in larger clusters, and grow to around 6m high. Climbing roses produce thicker straighter growing stems, a good amount of single or clustered roses, and reach around 3.6m.

10.

1. e; 2. j; 3. i; 4. g; 5. c; 6. f; 7. b; 8. h; 9. a; 10. d.

11.

1. By planting plants which are suitable to the site; 2. Well-drained soils; 3. No, because they are shade-loving plants; 4. They need regular watering and fertilising, routine pruning and grooming, and also careful monitoring for pests; 5. Ornamental grasses, hollies and junipers; 6. Because people want beautiful gardens without spending too much time, money and effort.

Pages 210-211

Do you know any examples of vertical gardening in the past?

Sample answer

The Hanging Gardens of Babylon, built in 600 BC, are one of the first, and most famous, examples of a creative approach to decorative, wall-based gardening.

What is the urban heat island effect?

Sample answer

It happens because the closely packed buildings and paved surfaces that make up cities amplify and trap heat far more effectively than natural ecosystems and rural areas, which are often shaded by trees and vegetation and cooled by evaporating moisture. In addition, cities also generate their own heat, which is released from sources such as furnaces, air conditioners, and vehicles. On a sunny day, paved surfaces can be a remarkable 27-50°C hotter than the air. The difference is especially noticeable at night, when the heat captured by pavement and buildings during the day continues to warm the city after the sun goes down. Large cities can be as much as 12°C warmer than their surrounding environments in the evening.

12.

Sample answers

1. Why is it important to bring nature into cities as much as possible?; 2. What kind of plants are more suitable on green roofs?; 3. How is a green façade different from a green wall?; 4. Who developed the first modern green wall with a hydroponic system?; 5. What is a vertical garden?; 6. How do green walls help reduce heat?; 7. Why are succulents considered ideal plants on green walls?; 8. What are the downsides of green roofs and green walls?

13.

1. accessible; 2. harvesting; 3. remedial; 4. development; 5. choosing; 6. climbing.

14. 106

How to Start Vertical Gardening

A garden filled with vertically grown vegetables can not only produce more in a small space, but also camouflage unattractive structures and provide privacy or shade. In addition, vertical structures make pruning and checking for garden pests easy.

Starting a vertical garden isn't hard, but, first, you have to decide on the type of garden and the type of placement, since vertical gardening uses an assortment of support structures which can go just about anywhere – indoors or outdoors.

In general, mix plants with the same "habit": I mean choosing all-sun or all-shade plants and using ones that have the same rate of growth. You can grow succulents, herbs, vegetables, trailing varieties or ferns, even if I would suggest trying herbaceous plants rather than woody ones, because the herbaceous kinds are a little more flexible in the way they fall.

Another important factor is soil. Vertical gardens dry out quickly just as pots will, therefore use potting soil, as it helps retain the water and hold in the moisture. In addition, your vertical garden might need more maintenance than a regular in-the-ground garden or a container plant. Being more compact and having less soil, it may need to be watered more often. That's why I would recommend incorporating drip irrigation. You can also use a watering can, but you'll have to be sure that water is being evenly distributed.

And finally, photograph and document your progress from planting to harvest. You'll be amazed.

Adapted from: *https://www.hobbyfarms.com/how-to-start-vertical-gardening*

1. F, They produce more; 2. T; 3. F, They can be installed indoors or outdoors; 4. T; 5. F, They are more flexible; 6. T; 7. T; 8. T.

Teacher's note

There are many examples of vertical gardens in the world. Thanks to Patrick Blanc's innovative concept, for example, nature is integrated into urban architecture in a harmonious, flawless and natural way. These wonders can be appreciated in various places, from the lobby of the *Icon Hotel* in Hong Kong and the spectacular *Dussmann das Kultur Kaufhaus* bookstore in Berlin, to the beautiful resort *Life Marina* in Ibiza, the *Grand Palais* in Paris and the *Perez Art Museum* in Miami.

Pages 214-215

VOCABULARY

1.

1. aromatic crops; 2. truffles/mushrooms vegetables; 3. oilseed crops; 4. chickpeas; 5. peanuts; 6. clover; 7. powdery mildew; 8. *grape phylloxera*; 9. red spider mite(s); 10. climbers; 11. ground covers; 12. bushes.

2.

1. h; 2. f; 3. g; 4. c; 5. a; 6. i; 7. d; 8. b; 9. j; 10. e.

3.

Across: 2. cover crops; 5. informal; 6. truffles; 7. leafy green; 10. evergreen; 11. fertilising; 12. ground covers; 14. millet.

Down: 1. potatoes; 3. canola; 4. simple fruits; 8. pergola; 9. greenhouses; 13. oil palm.

Page 216

REAL-LIFE SKILLS

Teacher's note

Some information about the historical gardens on Lake Maggiore.

The magnificent and romantic English Garden on **Isola Madre** hosting rare vegetable essences together with numerous faunal species is a real garden of Eden with magnolias, azaleas, rhododendrons and hydrangeas arranged in terraced gardens, rich in obelisks and statues. **Isola Bella** has a spectacular Italian garden with a baroque taste, equipped with statues and architectural decors set amidst the perfect green geometry of magnolias, camellias, wisteria, hibiscus, azaleas, not to mention the extraordinary collection of South African protea plants, which thrive thanks to mild climate. This results in an impressive view, displaying the power and magnificence of the noble house.

The English gardens on the lake bank characterise both **Villa Taranto**, with more than a thousand plants brought from the far corners of the world, as well as rare and unique varieties and species, and **Villa Pallavicino**, rich in secular sequoia and chestnut trees, liriodendrons, rhododendron and hydrangea bushes.
The four Medioeval gardens at **La Rocca di Angera**, which have undergone a long process of restoration to rediscover their original layout, show what the symbolic garden represented in the Middle Ages in botanical and historical terms.

4.
Personal answer

5.
Personal answer

Page 217

CASE STUDY

6.
1. F, It represents just 0.38% of the world's production; 2. T; 3. T; 4. F, It was launched in February 2016; 5. F, Besides farmers, other stakeholders are rice mills, retailers, food companies, universities and a non-profit organisation; 6. T; 7. T; 8. T.

Pages 218-219

CLIP FILM: A little Chaos

7.
1. *Sample answer*. Known as the "Sun King", Louis XIV centralised power in the monarchy and reigned over a period of unprecedented prosperity in which France became the dominant power in Europe and a leader in the arts and sciences. In the latter years of his 72-year rule, however, the succession of wars launched by the King ultimately took their toll on France and resulted in battlefield defeats, crippling with debt and famine; 2. *Sample answer*. The Gardens at the Reggia di Venaria, near Turin; the ones at the Reggia di Caserta; Villa d'Este Gardens at Tivoli; Villa Carlotta, Como; Medici Villas near Florence; Boboli Gardens, Florence; Giardino Giusti, Verona; Isola Bella and Isola Madre, Lake Maggiore; Villa Taranto Gardens, Pallanza; 3. *Sample answer*. Hunting trips, concerts, parties and celebrations.

8.
Le Nôtre: Madame de Barra – Monsieur Sualem and De Ville. They are building the Marly waterworks and an aqueduct from there to Versailles, which we hope will alleviate the severe water shortage here.
Monsieur Sualem and De Ville: Madame.
Madame de Barra: Gentlemen.
Le Nôtre: Madame de Barra will be constructing the Rockwork Grove here at Versailles. Water, or rather the lack of it, will be a pressing concern.
Sualem: Master, the King's ambitions are already…
Le Nôtre: …are vast and ever changing and our task is to meet them.
De Ville: But, with respect, no man can meet infinite demand.
Le Nôtre: The King's commands are not infinite, De Ville, they are the King's commands.
De Ville: Well, quite so, but the aqueduct can only do so much.
Sualem: When we began construction, I was under the impression that…
Le Nôtre: The past is history. Our task is to suppress nature to our will, according to the present plans.
Sualem: But, Monsieur, the money being spent…
Le Nôtre: The aqueduct will carry sufficient water to the gardens of Versailles because it must. That is your brief. – Madame? – It is essential your plan number six in your submission, I believe. This part is entirely original to myself. You see? It fits onto this end of your plan. Now you can see the extent of the enterprise.
Madame de Barra: Yes. It's a large, flat area.

1. F, He thinks the King's demands have to be satisfied since they are the King's commands; 2. F, The soil at Versailles is poor in water; 3. F, A pool of builders will be there to help her; 4. T; 5. F, She sounds surprised when she hears about that; 6. T; 7. F, Le Nôtre says time is not unlimited; 8. T.

9.
1. waterworks; 2. lack; 3. ambitions; 4. task; 5. demand; 6. construction; 7. nature; 8. money; 9. plan; 10. enterprise.

10.
1. They are building an aqueduct because the soil in Versailles is poor in water; 2. The lack of water; 3. They find it difficult to satisfy the King's requests, because they are "infinite"; 4. He says that they have to suppress nature to their will; 5. Number six; 6. No, it's a large, flat area; 7. An arena with tiered sides; 8. It will be used as an outdoor ballroom.

DEBATE TIME

11.
Personal answer

Unit 5.1 Food production

Pages 222-223

Do you know what an ingredient traceability system is?

Sample answer
Ingredient traceability is the ability to track the production process from the reception of raw ingredients to the packaging and distribution process to trace ingredients at all production stages and create transparency and accountability.

1.
1. Because consumers are getting aware of the food impact on human health and the environment; 2. Because they are likely less processed and more authentic than industrial products; 3. They can be both fresh and preserved; 4. Because they come into contact with the outside only at the end of their production cycle, when they are already packaged; 5. Local ingredients, typically grown in organic, free-range environments; 6. Yes, because they are made using carbon-neutral methods that support sustainable agriculture.

2. ▶ Food Additives 101 *posted by* Web MD

Have you ever flipped over a box of cereal? Read the label and wondered: what is lecithin and all this other stuff? Why is it in my food? Technically, a food additive is just anything added to a food during its production, processing or packaging, so, unless you grow, harvest and process all your own food, you've almost certainly eaten additives at some point. In fact, we've been using simple additives like salt, vinegar, sugar, herbs and spices to change and preserve our food for centuries. They keep eating interesting, but modern food engineering means tons of new additives. The Food and Drug Administration regulates over 3,000 of them, including all those tongue twisters on that label. Some are natural, like beet powder used to add colour, while others are artificial, like synthetic sweeteners used in diet soda. Long, unfamiliar names may be hard to pronounce, but that doesn't automatically mean they're bad, just like natural ones aren't always healthier. Most additives fall into a few basic categories: preservatives keep food from spoiling, while spices, sweeteners and acids change flavour, and added vitamins and minerals supply extra nutrients. Many additives change texture in some way, adding bulk, for example, or keeping oil and water mixed together so your ice cream stays creamy, but here's where it gets tricky. Not everything that's added to your food is regulated by the FDA. Why not? Well, there's a loophole: some additives are privately tested and deemed generally recognised as safe outside of FDA review. Also, remember that, while food labels should tell you what additives are in there, they won't say how much, or how your body may react to them. In the end, if you're worried about certain additives, it's up to you to learn more about them, so you can make informed choices and feel good about the foods you eat.

1. processing, packaging; 2. change, preserve; 3. 3,000; 4. colour; 5. food; 6. vitamins, minerals; 7. FDA; 8. body.

3.
1. ingredients; 2. flavours; 3. creaminess; 4. dairy; 5. fat; 6. air; 7. artisanal; 8. technique; 9. percentage; 10. nutritional.

Pages 224-225

4.
Sample answers
1. What is food spoilage caused by?; 2. What are the most common preservation methods used since ancient times?; 3. Why is dehydration efficient to preserve food?; 4. What were the drying houses used for?; 5. How does smoke preserve foods?; 6. Where were the first ice-houses built?; 7. What is pickling?; 8. Why do spices contribute to preserve food?

5.
1. invented; 2. evaporation; 3. produce; 4. availability; 5. surrounding; 6. irrigated.

6.
▶ The Father of Canned Food: Nicholas Appert – Hidden Genius *posted by* Stuff of Genius – HowStuffWorks

Behold: canned food! But where did it come from? Meet Nicholas Appert, born in France in 1749. Today Nicholas Appert is known as the father of canning, but before he began preserving food, Nicholas tried several other careers, including a stint as a chef and a brewer. His experience working with food brought him face to face

with one of the unpleasant realities of food: it spoils. Depending on the climate, it can spoil very quickly. At this time the chief preservation method had several disadvantages. These methods altered the taste of food and they were not always effective. Yet, preserved food was a vital supply during the harsh European winters. Preservation was also a huge problem for the military. Such a problem that in 1800 Bonaparte offered an award of twelve thousand francs to anyone who could invent a better way to preserve food for his armies. Nicholas learned that food can be preserved by using heat to sterilise the food in closed vessels. Here's how it worked: Nicholas placed food in a glass jar or bottle and corked it, sealing the lid; he then placed the container in boiling water for several hours depending on the type of food he was preserving. Heat preservation may sound simple today, but he won Napoleon's prize. He also used the money to build the first cannery and wrote a book about his process.

1. F, Appert was born in 1749; 2. F, He was a chef and a brewer; 3. T; 4. T; 5. T; 6. F, He put the glass containers in boiling water; 7. F, The prize was twelve thousand francs; 8. T.

Pages 226-227

Do you know what preservatives are mostly used in food preservation?

Sample answer
Sugar, salt, nitrites, butylated hydroxy anisol (BHA), butylated hydroxyl toluene (BHT), tert-butylhydroquinone (TBHQ), vinegar, citric acid, and calcium propionate are all chemicals that preserve foods. Salt, sodium nitrite, spices, vinegar, and alcohol have been used to preserve foods for centuries. Sodium benzoate, calcium propionate, and potassium sorbate are used to prevent microbial growth that causes spoilage and to slow changes in colour, texture, and flavour.

7.

1. T; 2. F, Not only that; after freezing, food is placed in a vacuum chamber; 3. T; 4. F, They delay or prevent attack by pathogens; 5. F, No, it can't eliminate them; 6. F, It has a minimal influence on food quality.

8.

1. product; 2. consumer; 3. chemicals; 4. hazards; 5. combination; 6. health; 7. reduce; 8. plan; 9. harvesting; 10. food.

9. How to Understand Food Expiration Dates at the Grocery Store *posted by* Howcast

How to Understand Food Expiration Dates at the Grocery Store. Don't feel hemmed in by "use by" and "sell by" dates. Find out what you can still eat after the stamped-on date, and how long you can wait before you toss it. You will need: sale-date knowledge and common sense. Optional: a glass of water.

Step 1. Don't let expiration dates intimidate you. They are often suggestions that have more to do with quality than safety.

Step 2. Decipher the labels. Foods marked "sell by" remain good for several days past that date. "Use by" indicates the date the item will begin to lose freshness. Normally, food remains safe to eat a few days past then; it just might not taste as good. "Best if used by" is exactly what it says. Use your nose, and your brain. If food looks, smells, or tastes funny, throw it out.

Step 3. You can generally drink milk for several days after the date on the carton, and eat yoghurt for a couple of weeks past the stamped date. Just be sure to keep dairy products refrigerated; if left at room temperature for even a few hours, they'll spoil faster.

Step 4. Enjoy eggs up to five weeks past the stamped date. To maintain their freshness, leave them in their carton inside the fridge instead of placing them on the refrigerator door, where they will warm up every time you open it. Test an egg by putting it, whole, into a glass of water. A fresh egg will sink and lie flat on its side; a bad egg will float and stay upright.

Step 5. Theoretically, canned goods can stay good forever, as long as the seal hasn't been broken. And, contrary to popular belief, the food in slightly dented cans is fine, as long as the can is not bulging, leaking, or rusting.

Step 6. The USDA recommends that you cook or freeze meat, poultry, and fish within two days of purchase, no matter what the date on the package says.

Step 7. Know a food's freezer life. Beef, lamb, veal, pork, and poultry are good for one year after freezing, but ground meat should be eaten within four months. Lean fishes like cod and flounder last six months, but fatty fishes like salmon should be cooked within three months. Lunch meats have a freezer life of two months. Because freezing allows food to keep almost indefinitely, the recommended storage times are for quality only.

Step 8. If you have questions about a food's expiration date, call the manufacturer. The number usually can be found on the product's packaging.

Did you know? Under federal law, manufacturers are not required to stamp their foods with expiration dates.

1. food safety; 2. "Sell by"; 3. to lose freshness; 4. with nose and brain; 5. refrigerated; 6. in a glass of water; 7. hasn't been broken; 8. within two days; 9. for quality only; 10. on the product's packaging.

Unit 5.2 Dairy products

Pages 230-231

What is lactose-free milk used for?

Sample answer
It has almost the same taste, texture, and nutrients as regular milk, and it is a great alternative for people who can't digest regular milk, as it contains lactase, an enzyme that helps break down lactose.

1.
1. Because, even in small quantities, it contains all the nutrients which are essential to the growth, development and maintenance of the human body, from children to the elderly; 2. Milk contains proteins, fats and lactose; 3. It depends on the breed of cow, the feed given to the cow, the geographical location, and the season and stage of lactation; 4. There are two kinds of vitamins: fat soluble vitamins like A, D, E, K, and water soluble vitamins of the B group; 5. Because it plays a vital role in calcium and protein metabolism; 6. Calcium is an essential mineral for the growth and maintenance of teeth and bones; it also plays an important role in blood clotting and muscle contraction.

2.
1. drink; 2. source; 3. calves; 4. mammalian; 5. enzyme; 6. milk-free; 7. plants; 8. dairy; 9. osteoporosis; 10. bones.

3.
Personal answer

Do you know how long milk is heated and at what temperature?

Sample answer
HTST: at least 72°C for 15 seconds.
LTLT: at least 63°C for 30 minutes.

4.

	Processing	Effect	Shelf life
Pasteurised milk	Heating	· Harmful bacteria destroyed · Nutritional content or taste unaffected	6 days
UHT milk	Ultra-heating, then packaging into sterile containers	· Free of bacteria · Nutritional content slightly affected	About 3 months
Filtered milk	Microfiltration, homogenisation, pasteurisation and chilling	· Free of bacteria · Nutritional content unaffected	45 days
Evaporated milk	Heating and evaporation	· High temperature and pressure	15 months
Condensed milk	Heating and evaporation, sugar addition	· Extensive usage in confectionery industry	2 years
Dried milk powder	Homogenisation, heating, pre-concentration and drying	· To be treated like fresh milk after it is reconstituted	1 year
Untreated (raw) milk	Boiling advised before consumption	· Large amount of vitamins, nutrients and digestive enzymes	2-3 days at ≤ 4°C

5. The Life Saving Story Behind the Invention of Condensed Milk *posted by* wareboilers

Gail Borden was an American inventor and, as history tells the story, he was returning from London where he was at the 1851 World's Fair. Well, on the way back, he watched several passengers become ill and die from the effects of contaminated milk and right there and there in that moment he became passionate about creating a safe way for milk to be extracted and preserved, and created a special vacuum evaporator that used steam as the heating source. Now, after the milk comes through the evaporation process, you're left with evaporated milk. A lot of us also

know it as sweet and condensed milk, and the only difference is that condensed milk has sugar added to it. Roughly 60 percent of the liquid or the water is taken out of milk and you get this thick syrup. And what Borden really left us with is a shelf-stable product that lasts for years, that is also free of contaminants because of the vacuum process that he created.

1. F, He was American; 2. F, It took place in 1851, 3. T; 4. T; 5. F, Sugar is added to condensed milk, 6. T.

6.

Sample answer

One of the key aspects of milk processing is refrigeration since raw milk grows bacteria very quickly above a temperature of 7°C. The cooling of milk immediately after milking is essential to maintain high quality levels until milk is processed for consumption or to produce dairy products. The more rapidly milk is cooled, the better quality it will be. Milk must be cooled from about 39°C (cow body temperature) to 3°C for safe storage until it is collected from the farm.

Pages 234-235

Why is butter important in a healthy balanced diet?

Sample answer

A moderate amount of butter in a healthy balanced diet is important for many reasons. Fat is necessary to carry fat-soluble vitamins A, D, E and K, and help the body assimilate them; it also slows digestion and gives a sense of satisfaction, avoiding overeating.

7.

Sample answers

1. What kind of milk are dairy products made from?; 2. What is butter made from?; 3. What is a butter churn?; 4. How is butter made?; 5. Why is cream put in an ageing tank?; 6. What is buttermilk?; 7. Why are starter cultures added to milk?; 8. What happens during the incubation?

8. 113

The Difference Between Butter and Margarine

Butter and margarine are an essential part of our meals: butter is a natural product and margarine is a manufactured alternative. We get butter from the milk of animals, usually cows, while margarine is prepared through an industrial process. Butter and margarine are great sources of fats for humans and are also used in making different food products. Butter and margarine have equal calories.

One teaspoon contains 100 calories in both cases: butter is of animal origin and is manufactured from the milk of mammals, whereas margarine is prepared from vegetable oils through the process of hydrogenation. Butter consists of saturated fats and cholesterol, and margarine is composed of trans fats and less cholesterol, but butter is better in taste when compared to margarine. In any case, both are used in cooking, particularly in baking, but they are not recommended for frying.

Margarine has a longer shelf life than butter. In economical terms, margarine is cheaper than butter. However, from the medical point of view, studies reveal that margarine and butter significantly increase the risk of cardiovascular disease, even if to a different extent.

1. meals; 2. natural, manufactured; 3. milk; 4. fats, calories; 5. teaspoon; 6. hydrogenation; 7. saturated, cholesterol; 8. frying; 9. shorter; 10. disease.

9.

1. l; 2. d; 3. j; 4. b; 5. f; 6. a; 7. e; 8. h; 9. g; 10. c; 11. i; 12. k.

Pages 236-237

Can you give some examples of soft cheeses and hard cheeses?

Sample answer

Soft cheeses are Camembert or Brie, which are hardly cut at all. Harder cheeses like Cheddar and Parmesan are cut into a very fine texture.

10.

1. h; 2. g; 3. f; 4. e; 5. b; 6. a; 7. c; 8. i; 9. j; 10. d.

11.

Butter	Cheese
The cream is separated from the milk.	*The milk is selected.*
The cream is heated at 95°C.	The milk is pasteurised.
The cream is put in a cool ageing tank for 12 hrs.	A starter culture is added.
The cream is put in a churn and shaken.	Rennet is added to the milk, making the casein coagulate.
Butterfat granules separate from the buttermilk.	The curd is cut to remove whey.

The buttermilk is drained away.	Sometimes the curd is cooked.
The butter granules are washed and worked.	The cheese is salted in different ways.
Sometimes salt is added to the butter.	The cheese is shaped and pressed.
The butter is packed into patties or sticks.	The cheese is ripened.
The butter is stored in a cool place.	

12.
1. different; 2. product; 3. optimise; 4. separate; 5. left; 6. addition; 7. coagulate; 8. traditionally.

Unit 5.3 The edible oil industry

Pages 240-241

Which Italian regions are big producers of olive oil?

Sample answer
The biggest olive oil production regions in Italy are Liguria, Tuscany and the southern regions.

1.
1. The factors which can affect the quality of olive oil are the variety of olive, climate, growing conditions, harvesting and pressing methods; 2. Olives must be picked at the right moment of ripeness, when most of them have changed colour from green to black, so that the concentration of oil in the fruit is high; 3. The best method of all is hand picking the olives directly into a basket because no injuries to olives may be inflicted, and consequently free fatty acids levels and peroxide are substantially reduced, and total polyphenol content is increased; 4. Because they deteriorate very quickly if they are stored for more than 48 hours and the final product may be spoiled; 5. There are seven different steps in the olive oil making process: cleaning and washing, grinding, malaxation, pressing, separation and bottling; 6. It consists in mixing the olive paste: it is a crucial phase that must be done slowly and well to ensure the ultimate uniformity of the oil; 7. During pressing, the juices are separated into oil, vegetable water and pomace; 8. It is stored in a dark, cool place before bottling.

2.
Sample answer
Student A: What about having dinner out tonight?
Student B: Hmm, yes, why not?
Student A: I'll take you to a very special place.
Student B: What have you got in mind?
Student A: Have you ever heard of Frantoio Restaurant?
Student B: No, I haven't. What does "frantoio" mean?
Student A: It means "olive mill" or "olive crusher". It's a stylish Italian restaurant. Well, it's not just a restaurant really. There are two massive granite olive-crushing wheels visible from the dining room.
Student B: That's amazing!
Student A: And this is not just a gimmick to attract customers. They use them to crush their own olive oil. They actually produce two extra virgin olive oils which can be bought at the restaurant and at selected gourmet food stores around the country.
Student B: How interesting! So, we can see olives being crushed!
Student A: I'm afraid not. It's September, too early for the harvesting of olives. But I guess we can try the extra virgin olive oil with a spectacular meal.
Student B: I can't wait to taste that oil. Where is this restaurant?
Student A: It's just across the Golden Gate Bridge from San Francisco, in Mill Valley. Shall we meet at half past six at your place?
Student B: OK. I'll make sure I'm on time. See you later, then.

Pages 242-243

Why is olive oil called virgin?

Sample answer
Virgin means that the oil has been extracted only by mechanical means. This may be by the traditional pressing method or with more modern centrifugation. Heat is never used on virgin olive oils.

What characteristics do extra virgin olive oils have?

Sample answer
Extra virgin olive oil is the most digestible of all the edible fats. It also favours the assimilation of vitamins A, D and K since it helps liver and intestinal functions. Furthermore, 75% of olive oil fat is oleic acid, a type of "healthy" monounsaturated fat, which may lower risk of heart disease and strokes.

3.

Type	Acidity level	Properties / Use
1. Extra virgin olive oil	≤ 0.8%	Fruity, no defects / edible
2. Virgin olive oil	≤ 2%	Slight sensory defects / edible
3. Lampante oil	> 2%	Lower quality / fuel for oil lamps / edible if refined and blended with virgin oil
4. Refined olive oil	≤ 0.3%	Lower quality / edible
5. Composed olive oil	≤ 1%	Mixed olive oils / edible
6. Olive pomace oil	≤ 1%	Refined mixed oil / edible

4. 117

The IOC

The International Olive Council is the world's only international intergovernmental organisation in the field of olive oil and table olives. It was set up in Madrid, Spain, in 1959, under the auspices of the United Nations. It used to be known as the International Olive Oil Council or IOOC until 2006, when its name was changed. The Council is a decisive player in contributing to the sustainable and responsible development of olive growing and it serves as a world forum for discussing policymaking issues and tackling present and future challenges.

Its current members include the leading international producers and exporters of olive oil and table olives. IOC producer members account for 98% of the world olive production, located primarily in the Mediterranean region.

The IOC is committed to the integrated, sustainable development of world olive growing. It attempts to translate this commitment into tangible advancement for its member countries and, most importantly, for the ordinary people who earn their livelihood from the produce of the olive tree.

World Olive Day is celebrated every year on 26 November with a ceremony attended by the delegations of the member countries, representatives of the sector, authorities and members of the diplomatic corps. World Olive Day is aimed at spreading the concept that olive production is an "agent in combating global warming", because "olive growing has a positive carbon balance, sequestering more CO^2 in its growth cycle than the greenhouse gases that are emitted in the production process of virgin and extra virgin olive oil."

Adapted from: *www.internationaloliveoil.org*

1. T; 2. F, It deals with both oil and table olives; 3. F, In 1959; 4. F, Both producers and exporters; 5. T; 6. T; 7. F, Only the delegations of the member countries; 8. T.

5.

1. table; 2. 1959; 3. 2006; 4. responsible; 5. exporters; 6. Mediterranean; 7. sustainable; 8. ordinary; 9. member; 10. diplomatic; 11. carbon; 12. greenhouse.

Pages 244-245

What is the smoke point of different nut and seed oils?

Sample answer

In general, more refined oils will have higher smoke points than unrefined, virgin, or extra-virgin oils. In particular, the highest smoke point is refined avocado oil at 271°C, then soybean oil at 232°C, canola oil at 204°C, grapeseed oil at 199°C, extra virgin olive oil at 163°C.

6.

1. canola oil; 2. oil cake; 3. oxidation; 4. by-product; 5. smoke point; 6. unrefined.

7.

Sample answer

In the past, we were advised to avoid all fats because they were bad; then in the last decade we were informed that only some fats are bad, while others positively affect cholesterol and nutrient absorption as well as being beneficial to people who are on a diet.

Contrary to popular belief, when the right types of fats are consumed, fat is actually a valuable part of a diet, allowing you to absorb nutrients that require fat in order to metabolise, as well as requiring a longer time for the body to digest, keeping you satiated longer.

Since oil is one of the major ingredients of our cooking, much attention has been focused on the saturated, monounsaturated and polyunsaturated fats which can be present in vegetable oils. Olive oil is high in monounsaturated fats, while palm and coconut oils have the highest levels of saturated fats.

8. 119

How I Choose the Healthiest Oil

I think that we are pretty confused about the variety of oils on the market today and not all oils are created equally. There's one thing they all have in common, though: that's the monounsaturated fats, that's the good stuff, that's what we need to eat more of. What they don't have in common is the way

they respond to heat. Now, I'd like to break them into two categories: cooking oil and finishing oil. We have two cooking oils and they're both very popular and easy to find. We have canola and grape seed; these oils can withstand higher temperatures, so when they cook, they don't break down and create free radicals – which are not so good for us. Finishing oils are extra virgin olive oils, toasted and sesame oils and, one of my favourites, flaxseed oil. These oils tend to be a bit more expensive than cooking oils, so I like to use them sparingly. Also, one thing about finishing oil is that if you do cook with them, they will lose their flavour. So, save your health and save money by starting with flavourless cooking oils and finish with a drizzle of beautiful expensive stuff. Now I want to spend a minute on flaxseed oil because this is the only oil that has omega-3 fatty acids from plant sources; omega-3 fatty acids lower the bad cholesterol in our system and really promote good health.

Adapted from: *www.dietdetective.com/interview-chef-and-foodie-michel-nischan/*

1. a lot of; 2. a different; 3. higher; 4. negative; 5. cheaper; 6. reduce.

9. 120

Interviewer: How did you learn to cook?
Michel: My mother, who was a farmer, taught me how to cook, can, pickle and butcher. She was quite the farm girl, capable of butchering birds and other animals necessary to put protein on the farm table.
Interviewer: Tell us about your overall food philosophy. What have you learned in the last 20 years that you would like to impart to us?
Michel: I believe that food, as a single subject, has more impact on human health, environmental health, ecological health, societal health and economic health than any other subject. This philosophy took shape when my son was diagnosed with Type 1 diabetes.
Interviewer: How would you define healthy cooking and healthy food in general?
Michel: Healthy food comes from healthy, living soils that are managed in ways that enhance the ecosphere and provide food plants with maximum health, nutrients and, therefore, flavour. I also feel very strongly that reducing animal protein consumption while increasing plant-based protein consumption is critically important for both human and ecological health.

Adapted from: *http://www.dietdetective.com/interview-chef-and-foodie-michel-nischan/*

1. His mum; 2. No, she butchered poultry from her farm to provide food for her family; 3. Yes, there is; 4. After his son was diagnosed with diabetes; 5. To grow plants in healthy, living soils; 6. Animal protein consumption.

Unit 5.4 Alcoholic beverages

Pages 248-249

Do you know what ingredients may be used?

Sample answer

- A single grain or combination of grains, such as corn, wheat, or rye, are used for spirits like whiskey, vodka, and gin.
- Molasses, obtained from the refining of sugarcane, or sugar beet juice into sugar, is fermented for rum.
- The extracted juices of the agave plant are the base for tequila.
- Brandy is made from fermented fruit juices, such as grapes, apples, apricots, cherries, and other fruits.
- Some vodkas are distilled from fermented potatoes.

Do you know how liqueurs are mainly consumed?

Sample answer

Liqueurs, sweet in flavour, may be served straight or used as flavourings in various dessert dishes.

1.

1. F, They differ in processing, flavour and use; 2. F, Malted grains are used; 3. T; 4. T; 5. F, Sugar is not added to spirits; 6. T; 7. T; 8. F, Ageing time as well as infusing time contribute to create a special flavour.

2.

1. c; 2. a; 3. e; 4. b. Extra sentence: d.

3. Learn how to make vodka *posted by* Britannica

Vodka is one of Eastern Europe's most popular beverages. Both Russia and Poland, in particular, are known for their love of the clear, odourless alcohol most often served ice cold. These days, however, vodka's domestic sales have experienced something of a slump in many of its top manufacturing countries, making the export of the spirit that much more important. Traditionally, vodka is made from grain – rye being the most common – which is combined with water and heated. Yeast is then added to the pulp, initiating fermentation and converting sugars into alcohol. Now the distillation process can begin. Afterwards, the vodka is subjected to a trial by fire to see whether the desired alcohol content is present. It gets the seal of approval if it catches fire. If it doesn't light up, the substance is deemed too weak and distilled yet again. Pure

vodka must be free of flavour, which is why it is repeatedly heated into a vapour and distilled. The substance returns to its liquid state when cooled, and then proceeds to be filtered. The finished vodka has an alcohol content of approximately 40 percent. Whereas traditional distilleries only managed to produce a few litres of vodka a day, modern industrial distilleries produce several hundred litres in a single shift. In addition to standard pure vodka, flavoured vodkas have gained popularity in today's market. These are made by infusing the pure vodka base with fruits, spices or extracts. No maturation is necessary. The majority of vodka can be bottled and shipped to market straight away. The few types of vodka that are left to mature do so in oak casks stored underground. This process imbues the spirit with a distinctive character. Still, before it's sold, vodka has to fulfil an entire set of criteria and undergoes continuous and rigorous testing. Once deemed exceptional, the vodka is then hand bottled and sealed. Quality is a top priority and comes before speed. Vodka, after all, has a worldwide reputation to maintain that extends well beyond Poland and Russia's borders.

1. Ice cold; 2. Rye; 3. Yeast; 4. It is distilled yet again; 5. When it is free of flavour; 6. It is of approximately 40 percent; 7. Several hundred litres in a single shift; 8. Flavoured vodkas have gained popularity; 9. In oak casks stored underground; 10. After passing rigorous testing.

Pages 250-251

Do you know how this step was carried out in the past?

Sample answer
For thousands of years, this step was performed by men and women who crushed grapes in barrels and stepped on the berries, turning them into must.

4.

1. When the grapes are ripe, i.e. when the winemaker believes their sugar and acid content are optimal; 2. Because otherwise the quality is low; 3. They are removed by a machine called a destemmer; 4. It is added to start the fermentation; 5. The sugars of the juice are transformed into ethyl alcohol and carbon dioxide; 6. This process occurs naturally after the completion of the primary fermentation when the malic acid is converted into lactic acid leading to a reduction in acidity; 7. Skins, pieces of stems, pulps and seeds either settle at the bottom of the barrel to be removed or are pulled out thanks to a centrifuge; 8. Maturing is the last step in winemaking when wine develops additional flavours, softens tannins and harmonises its structure.

5.

1. F; 2. B; 3. D; 4. C; 5. E. Extra paragraph: A.

6.

Learn about Natural Wine *posted by* Jacky Blisson MW

Hello everyone. Today we are talking about natural wine! What is it and why do wine lovers have such heated feelings about it?
In very basic terms, a natural wine is one made with the lowest possible amount of chemical and technological interference. The vineyards are farmed organically, the grapes are handpicked, they are fermented using the wild yeasts present on the skins and in the cellar. There is no acidification, there is no addition of sugar, there are no clarifying agents used, and there is none to very little sulphur. Natural wines have developed a loyal and growing following in recent years. In fact, if you go into a wine bar in pretty much any major city, you are likely to run into a natural wine lover in the first five seconds. A lot of these wine bars have a list that is heavily or entirely made up of natural wines these days. Natural wine lovers will tell you that their wines have more pure expressions; that they are a more authentic representation of the grape, of the soil, of the climate in which they are grown. Natural wine sceptics will tell you that this is simply not true. Why? Sulphur is a powerful preservative. It protects against oxidation and microbial spoilage. Natural wines – with no sulphur – tend to be a little bit more fragile. They might taste great at the winery but with the extremes of heat, and light, and oxygen exposure during transport and storage, they can deviate in terms of flavour and aroma. Aromas and flavours that are akin to barnyard smells, or sour apple, or even beer can develop. Natural wine aficionados call these smells "funky" and really appreciate them. Wine traditionalists call them "wine faults". For traditional wine lovers, these wine faults taint the wine, overpowering the natural fruit, floral, spice type aromas and are therefore the opposite of a pure and authentic expression of grape or place.
It is up to you to decide which camp you fall into. I encourage you to try some natural wines and tell me what you think. Before you go, I have a few parting thoughts. Just because a wine is not labelled natural, it doesn't necessarily make it a heavily processed, evil thing! The good news is that the majority of conscientious winemakers are well below the legal limits of sulphur nowadays, and many are working sustainably in the vineyards and with low interventionist techniques in the cellars. The only thing that matters when it

comes to wine drinking is what you like. Never let a wine professional tell you that you just haven't "understood" the wine! If you don't like it, don't drink it. Thanks very much for joining me. If you like this video, please consider subscribing to my YouTube channel. And until next time, santé!

1. chemicals; 2. organically, by hand; 3. sugar, sulphur; 4. any wine bar; 5. oxidation and microbial spoilage; 6. aromas and flavours; 7. fruit, flowers and spices; 8. processing.

Pages 252-253

What are the possible benefits and potential disadvantages of fortified wine?

Sample answer
Like regular wine, moderate consumption of fortified wine can offer health benefits as it is rich in antioxidants, supports heart health and may protect against chronic diseases. On the other hand, it contains more alcohol and is high both in calories and sugar.

7.

1. T; 2. T; 3. F, An enormous variety of wines is produced in this California region; 4. F, Still wines do not contain any carbon dioxide; 5. T; 6. T; 7. T; 8. F, They show the net content in millilitres; 9. F, A lot of excellent wines are not classified; 10. T.

8.

Sample answer
Waiter: Good evening, Sir. Are you ready to order?
Customer: Good evening. Yes, I'd like to try something special.
W: Which do you prefer, meat or fish?
C: Well, I don't really know…
W: Why don't you try our standing aperitivo on the restaurant terrace? We have excellent seafood starters.
C: That sounds a good idea. I love seafood! What wine would go with it?
W: Vernaccia di San Gimignano is an excellent wine with fish. Its delicate aroma and flavours of citrus, peaches and minerals, with its pleasant bitter-almond finish, make it perfect with seafood.
C: Ok, I'll have that, then. And what about the main course?
W: The chef suggests sirloin steak with garlic butter, braised venison with rosemary and mushrooms, Italian Ossobuco with mashed potatoes. Nebbiolo would be perfect with this.
C: Braised venison with rosemary and mushrooms, then. And a bottle of Nebbiolo, vintage 2009, please.

Pages 254-255

Do you know how a refractometer works?

Sample answer
It is an optical measuring instrument with which the concentration of liquids or solids can be determined by means of light refraction. It helps determine the sugar percentage and potential alcohol content in a drop of liquid, just by how much light bends or refracts as it passes through it. The more concentrated the sugar solution, the more the light is refracted.

9.

1. closed top fermenters; 2. refractometer; 3. ebulliometer; 4. hydrometer; 5. crusher-destemmer; 6. press.

10.

1. e; 2. d; 3. f; 4. a; 5. b. Extra sentence: c

11.

Sample answer
The label is divided into three sections on a black background. The serif style is chosen for all details, except for the sentence about bottling, which is written in cursive font. The top section shows the type of wine: this particular red wine uses the location – Montalcino – to identify itself. It is one of the DOCG-recognised wines and is produced in the Italian region of Tuscany. The middle section shows the founder of the estate and the domain, whose coat of arm stands out in the middle. The lower section points out that the wine is grown, produced and bottled on the wine estate by the producer, Mr Franco Biondi Santi. The bottom of the lower section shows the ABV (13%) and the content (750 ml).

Pages 256-257

What is the difference between small and large barrels?

Sample answer
Smaller barrels (Barrique, 225 litres) allow more contact with the wine, thus a more intense flavour. Even if ageing time, barrel toasting, species and origin of wood are the same, the ageing process and the oak character of wine will differ depending on barrel size. The larger the barrel (Foudre, 2,000÷12,000 litres), the less flavour the wine will receive.

12.

1. T; 2. F, They are more durable than wood barrels; 3. F, Oxygen can interact with the wine because oak barrels are not airtight; 4. F, French oak barrels are better suited for elegant wines than American oak barrels; 5. T; 6. T.

13.

1. stainless; 2. vessel; 3. taste; 4. properties; 5. technology; 6. wineries; 7. cheap; 8. epoxy; 9. hard; 10. cleaning.

14.

Teacher's note

The teacher may want to pre-teach the following vocabulary:
viognier: a full-bodied, perfumed, white wine that originated in southern France
Sky Island viognier: a white wine of the Sky Island series. It is aged in stainless steel to preserve the unique characteristics of the Chiricahua Mountain fruit
to toast: *tostare*
to cooper: *fabbricare botti.* Cooperage is the process of creating wooden barrels, casks, and similar items. The word itself dates back to Middle English around 1350 and 1400
chicken stock: *brodo di pollo*

Choosing Barrels vs. Tanks for Wine *posted by* LDV Winery

A lot of people come into the tasting room in Scottsdale and ask us, "What's the difference between ageing wine in a barrel versus in a stainless steel tank?" There are several things that are very, very different: a stainless steel tank is what's called an anaerobic environment; there's no oxygen in that tank and there's no oxygen transfer, and that's the goal of the tank is to not have any oxygen come into play with the wine. So, for example, our viognier that we make, a Sky Island viognier, that we want to keep as fresh as it can be, right from the vineyard, is all aged in stainless steel. So, we don't have any oxygen or flavourings involved in that.

A barrel is completely different. A barrel actually breathes and that breathing causes several different things to happen. First of all, the wine in a barrel… we're looking for a little bit of oxygen content and a little bit of oxygen transfer, but not very much. The barrel is the perfect vessel that regulates exactly how much oxygen we have involved with the wine. Also, obviously, the wine barrel will flavour the wine, depending on what kind of oak is used, how old the oak is, and how it's toasted and coopered, impacts the amount of flavouring that goes into that wine. But there's also another very, very important function of the barrel. The barrel actually transpires or loses moisture through its pores. Also, alcohol leaves in small amounts through this process of transpiration. Well, what does that do? Have you ever had a pot of chicken stock that you boil down over time and then it gets much more flavourful? It happens the same way in a barrel. As that moisture leaves the barrel, it concentrates the wine and concentrates those flavours, but what happens when we lose wine from the barrel? At certain times of the year, we have to refill that barrel to make sure there's not a lot of oxygen in that barrel. So, the barrel does a lot of things to the wine. The stainless steel basically puts the wine in suspended animation until it's ready to be bottled and during its cleaning up process.

So, it's two very different philosophies in making wine, stainless steel versus barrel. We invite you to come in. Taste some wines made in stainless, taste some wines made in barrels. See which ones you like best. See you soon.

1. oxygen nor oxygen transfer; 2. stainless steel; 3. kind and the age of the oak; 4. loses moisture; 5. refill the barrel; 6. is ready to be bottled.

Pages 258-259

What does the taste of beer depend on?

Sample answer

The taste of beer depends on the type and amount of hop used: the more hops, the more bitter the beer.

15.

1. F, Malting consists in the germination of barley grains; 2. T; 3. F, There are three fermentation methods: warm, cool or wild; 4. F, No, this process is called mashing; 5. F, It happens during the secondary fermentation; 6. T.

16.

1. preparation of malt; 2. wort boiling; 3. fermentation; 4. filtration; 5. bottling.

17.

1. believed; 2. discovered; 3. settlements; 4. unsurprisingly; 5. tasty; 6. compensation; 7. benefited; 8. widely.

Pages 260-261

What are the main features of Porter and Stout beer?

Sample answer

Porters use dark malted barley and tend to be sweeter, with less burnt or roast flavours and a focus on more chocolate, caramel, and toasted malt character. Stouts use unmalted roasted barley and/or black malt, with an espresso, roast and almost burnt flavour. They are darker than Porters.

18.

1. They are different fermentation temperature and different yeasts; 2. Ales are fermented at higher temperature than Lagers; 3. The

production of esters and other secondary flavour and aroma products; 4. In cool cellars and caves; 5. Lager; 6. It contains wild yeast and bacteria.

19. 128

Improving Sustainability in Beer Packaging

The International Council of Chemical Associations has developed an Executive Guide to help educate industry executives on the environmental, social and economic impacts of a product over its entire life cycle. Beverage containers were the subject of some of the first evaluations of life cycle. Beer, however, is rarely taken into consideration because of its particular packaging. Beer poses an especially interesting challenge to containers, as it is pressurised and fermented. The purpose of a single portion beer container is to allow the beer to ferment, protect the beer from oxygen or UV light and contain the beer during shipping from the brewery to the distribution centre, grocery store and home. The container is also used during consumption as the beer is being drunk. But there are other problems with beer containers. As we know, beer consumers have different tastes, depending on how beer is packaged. It is essential to evaluate the design of aluminium cans, and glass beer bottles according to sustainability. The problem needs to be analysed from the point of view of energy, materials, toxicity, and the environmental impact of the production process. It is also important to evaluate how well each container solution meets the needs of producers, stores, and consumers.

1. T; 2. T; 3. F, The purpose of a single portion beer container includes allowing beer fermentation; 4. F, The container is used during consumption; 5. T; 6. T.

20.

1. educate; 2. impacts; 3. first; 4. packaging; 5. challenge; 6. container; 7. grocery store; 8. tastes; 9. view; 10. meets.

Unit 5.5 Italian excellence

Pages 264-265

Do you know how much milk is necessary to make a single cheese wheel?

Sample answer
For each cheese wheel weighing about 33-40 kilograms, around 600 litres of milk are used.

1.

1. The inscription DOP; 2. The dairy code; 3. The oval trademark of the Consortium; 4. The name Parmigiano Reggiano in dotted characters; 5. Month and year of production; 6. The CE stamp.

2.

1. c; 2. e; 3. a; 4. d; 5. b.

3. 130

Safeguarding Italian Quality

Parmigiano-Reggiano has been guaranteed for over seventy years by the Consortium and, above all, has been loved for over nine centuries for its excellent inimitable flavour. The Consortium, whose denomination is "Consorzio del Formaggio Parmigiano-Reggiano", is joined by all manufacturers. The Consortium's tasks are: the defence and protection of the Designation of Origin, and the facilitation of trade and consumption by promoting every initiative aimed at safeguarding the characteristic and unique features of the product. One of the most important measures adopted by the Consortium with the aim of protecting the product sales, was that of introducing in 1964 the mark of origin of the dotted inscription "Parmigiano-Reggiano" encircling the wheels, thereby conferring on the cheese its current external appearance. Parmigiano-Reggiano is a hard, granular cheese with a long and natural maturation. It's a highly concentrated cheese and contains only 30% water and 70% nutrients. This means that Parmigiano Reggiano is very rich in protein, vitamins and minerals. During maturation, Parmigiano-Reggiano takes on its classic granular structure and, when cut into slivers, it becomes crumbly and soluble. Delicious, easy to digest and with a host of nutritional benefits, Parmigiano-Reggiano has the unique taste of a product made without additives, and, with its concentration of proteins, vitamins, calcium and mineral salts, it is perfect for all ages and all situations – a ready source of useful energy for everyone.

1. over seventy years; 2. the "Consorzio del Formaggio Parmigiano-Reggiano"; 3. nine centuries; 4. facilitation of trade and consumption; 5. the dotted inscription "Parmigiano-Reggiano"; 6. a long maturation; 7. nutrients: protein, vitamins and minerals; 8. cut into slivers; 9. additives; 10. for all ages.

Pages 266-267

4.

1. It is produced in the areas near Modena and Reggio Emilia; 2. It has been made since the 11th century; 3. Yes, because in recent years, a lot of poor-quality imitations have been coming onto the market; 4. There are three balsamic condiments: authentic traditional balsamic vinegar, made only of cooked grape must and aged minimum 12 years; Modena balsamic vinegar, made of concentrated grape must, wine vinegar and caramel, and aged at least 60 days; balsamic condiment, which is a mixture of concentrated

grape must, wine vinegar, caramel and pectin as thickeners; 5. They are the ingredients and the ageing; 6. The over-ripe grapes are harvested and squeezed, then the grape must is cooked over a fire and fermented in wooden barrels; finally there is maturation and long ageing in barrels made of different woods; 7. The ageing period may take 12, 18 or 25 years; 8. Each type of wood (oak, mulberry, chestnut, cherry, etc.) gives a different flavour to the balsamic vinegar.

5. 132

Acetaia Malpighi

To produce our unique traditional balsamic vinegar from Modena five elements are required.

1. The microclimate, typical of Modena: cold and humid in winter for decanting, hot and humid in summer for fermentation.

2. The grapes. Acetaia Malpighi uses three types of grapes: Lambrusco from Modena, which is a red grape, and Trebbiano from Modena and Trebbiano from Spain, which are white grapes.

3. The barrels, which are made of various kinds of wood: oak, mulberry, chestnut, cherry and juniper, each giving a particular flavour.

4. The Consortium, founded on 14th September 1979, which is the official regulatory body for the production of the denomination of verified origin, Traditional Modena Balsamic Vinegar. In order to carry this name, the product is required to be produced from the must of grapes coming from vines traditionally cultivated in the province of Modena and cooked directly over a fire.

5. The producer, the Malpighi family, which has produced Traditional Modena Balsamic Vinegar since 1850. After an ageing process of no less than 12 years, the product may be marketed only after a special commission of tasters, chosen by the consortium, has conducted a rigorous examination of the quality of its properties. The balsamic vinegar approved by the commission is placed in a special bottle and labelled with a numbered red seal, the seal of the consortium, and the seal of the producer. It is then returned to the producer for sale to the public. Finally, it is ready to be used in your recipes. Our product can be enjoyed with any course. It is excellent on meat, fish, cheese, desserts and fruit or with cocktails, fillet of beef with shallot sauce, strawberries or "zabaione" ice cream with drops of balsamic vinegar.

1. F, It is cold and humid in winter and hot and humid in summer; 2. T; 3. T; 4. F, In 1979; 5. T; 6. F, It takes minimum 12 years; 7. T; 8. F, Also with desserts and fruit.

6.

Sample answer

Waiter: Good evening, Sir. May I help you?
Customer: I'd like to try some Italian specialities with Traditional Balsamic Vinegar. I've never tried it. What's it like?
Waiter: It's really special. It's basically made of cooked grape must, which is fermented and aged for many years. It's called vinegar but actually has a sweet-sour flavour.
Customer: I see. And what's the best food combination?
Waiter: You can try it with any kind of food, from cocktails to desserts. Here is our menu.
Customer: I think I'll have a Bloody Mary "Modenese", fillet of beef with shallot sauce and strawberries. Excuse me, are the strawberries served with vinegar as well?
Waiter: Certainly, and they're delicious.

Pages 268-269

Besides pasta, what can durum wheat be used for?

Sample answer

It can also be used to make breakfast cereals, puddings, or bulgur, or ground into a finer flour to make unleavened bread or pizza dough.

7.

1. T; 2. F, It was made with either wheat or rice flour; 3. F, It is common wheat or *Triticum aestivum*; 4. T; 5. T; 6. T; 7. F, It is mainly grown for the internal market; 8. T.

8.

1. feature; 2. to take shape; 3. staple; 4. milling; 5. coarse; 6. a wide range.

9.

1. b; 2. a; 3. b; 4. b; 5. b; 6. a; 7. a; 8. c; 9. a; 10. c.

Pages 270-271

Do you know any examples of Italian sounding brands?

Sample answer

Some of the most famous examples are *Parmesan*, which imitates Parmigiano Reggiano, *Mozarella*, which is falsely sold as buffalo mozzarella, *Salsa Pomarola*, sold in Argentina, *Zottarella* produced in Germany, and *Spagheroni*, sold in the Netherlands.

10.

1. f; 2. e; 3. a; 4. b; 5. d; 6. c.

11.

1. emigrants; 2. raw; 3. labelled; 4. economic; 5. shelves; 6. fake; 7. insidious; 8. countries; 9. sold; 10. damages.

12.

Sample answer

What is counterfeiting?

Counterfeiting mainly concerns the violation of a registered trademark, designation of origin (DOP, IGP, etc.), logo, design, copyright, and the product itself, with implications of productive character and considerable difficulties in the traceability of the food supply chain. This leads to serious consequences related to the use of ingredients harmful to health or to the use of unsuitable production and/or storage procedures.

Pages 274-275

VOCABULARY

1.

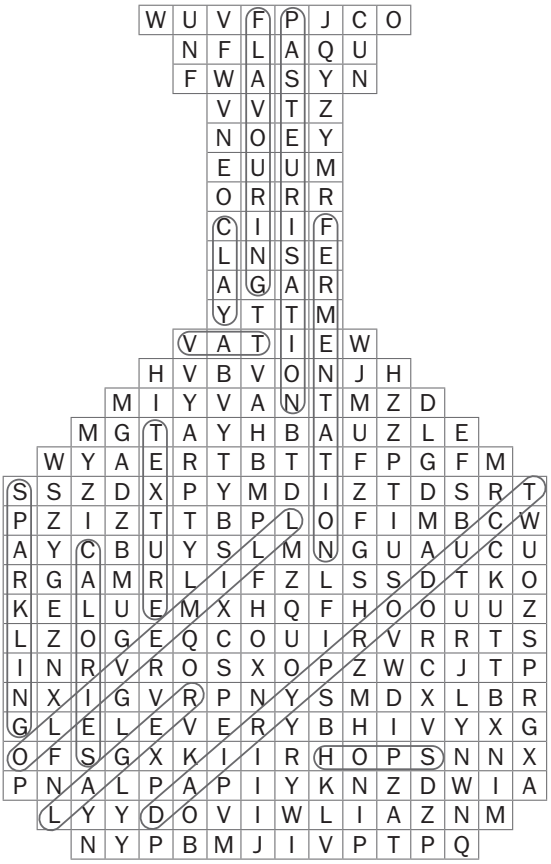
1. dehydration; 2. vacuum-drying; 3. pickling; 4. coagulation; 5. salting; 6. shaping; 7. grinding; 8. harvesting; 9. bottling; 10. crusher-destemmer; 11. ebulliometer; 12. refractometer.

2.

1. packaging; 2. bacterial; 3. coagulation; 4. bruised; 5. acidity; 6. fermented; 7. lactic; 8. sweetness; 9. vineyard; 10. ageing.

3.

1. fermentation; 2. vat; 3. hops; 4. dairy product; 5. texture; 6. lager; 7. pasteurisation; 8. flavouring; 9. sparkling; 10. calories; 11. clay; 12. olive mill.



Page 276

REAL-LIFE SKILLS

4.

Personal answer

5.

Personal answer

Page 277

CASE STUDY

> **Teacher's note**
> New trends: at the underwater winery in Croatia the glass bottles of wine are placed in terracotta amphoras at a depth varying from 18 to 25 metres for 1-2 years.

6.

1. T; 2. T; 3. F, The bottles contained spumante; 4. F, Bottles were positioned in a metal cage; 5. F, His bottles are sold mainly to international customers; 6. T.

Pages 278-279

CLIP **FILM: A Good Year**

7.

1. It is a historic province in south-eastern France; 2. Rolle (Vermentino), Syrah, Cabernet Sauvignon; 3. Napa Valley.

8.

Young Max: Why is he singing, Uncle Henry?

Uncle Henry: Well, you see, Max, the terroir needs more than sun and rain. It needs harmony. It needs balance.

Mr Duflot: My whole life people laughed at me for singing to the vines. I explained that someday the vines would sing back. Here they finally have. You don't know what you are doing.

Max: What are you talking about?

Mr Duflot: Here. Le Coin Perdu.

Max: That's not possible. The oenologue said you couldn't even grow squash or potatoes.

Mr Duflot: The oenologue was paid to say that. We thought that if you believed La Sirogue had no value, you would leave things as they were. A sorte de status quo.

Max: Why didn't you tell me this before? Why didn't you trust me?

Mr Duflot: Max, would you trust you? These vines, they are illegal. Your uncle always intended to leave the estate to you, but he worried about

what you had become. "My nephew is selfish," he used to say. "How can I give this place to a man who can't even appreciate the simple pleasures of life? So. it was never written. Alas, fate took him before he could decide what to do.

Max: I've already sold it.

1. sun; 2. explained; 3. grow squash; 4. tell; 5. intended to leave; 6. nephew; 7. appreciate; 8. could decide.

9.

1. He is surprised and cannot understand why Mr Duflot is singing to the vines; 2. No, he justifies Mr Duflot's behaviour; 3. Le Coin Perdu; 4. La Sirogue; 5. France; 6. No, he despised it; 7. No, because he lied; 8. No, Uncle Henry died before leaving the estate to Max; 9. He is selfish; 10. He has just sold the estate.

10.

Sample answer

Besides being blessed by a fantastic climate, which helps keep the vineyards dry and free of pests, Provence is characterised by different soils which are generally poor but well drained and with a moderate level of humidity: limestone in the western part of Provence where the land was once covered by a warm, shallow ancient sea, crystalline schist (granite) eastwards, and, in one small area, volcanic. This variety influences the growth of many varieties of grapes.

DEBATE TIME

11.

Personal answers

Unit 6.1 Ruminant livestock

Pages 282-283

What animals are raised as livestock?

Sample answer

Ever since early civilisations such as ancient Egypt, cattle, sheep, goats, and pigs have been raised on farms. A wide range of other species such as horses, water buffalos, llamas, rabbits and guinea pigs are used as livestock in some parts of the world. Aquaculture of fish, molluscs and crustaceans, and the keeping of bees and silkworms are widespread, too. Also, insects for human consumption are raised in several countries; for example, the production of crickets is a profitable industry in Thailand.

1.

1. b; 2. a; 3. b; 4. a; 5. c; 6. a.

2. 136

Types of Livestock Digestive Systems

Before we look specifically at the types of digestive systems, it is helpful to review the processes of nutrition, which are the same in all species no matter what type of digestive system they have.

The six main functions include: ingestion, or taking in feed, so how the food is eaten, how it gets into the animals' mouth; then we have mastication or chewing. After that, digestion, which is the breakdown of feed into simple substances, and this is both a chemical and physical breakdown. Next, is the absorption of nutrients into the blood stream, that is, how those digested particles are absorbed into the animals' body so that they can be used by the metabolism. This is just the cellular process that takes place in the body and how those nutrients are used by the animal. Finally, comes excretion or the elimination of waste. In most animals there are two products, a liquid and a solid. In poultry just the solid one.

Different species of animals are better able to digest certain types of feed than others. This difference occurs because of the various types of digestive systems found in animals. There are four basic types of digestive systems: ruminant, monogastric or non-ruminant, pseudo-ruminant and avian.

Some general information about non-ruminants: they have one stomach compartment and they are very poor users of roughage feedstuffs, so, generally, they are fed with concentrates or grains. Horses do have a little bit of an adaptation that allows them to be more efficient users of roughage than most other non-ruminant animals, and that's why they are called pseudo-ruminant, but they have a single stomach. A couple of things on the avian digestive system: they have a mouth, oesophagus and crop, but there are a lot of differences. There is a mouth, but it doesn't have lips or teeth, as these have been replaced by a beak. The oesophagus has an enlarged area called the crop, which functions like a storage area, but it isn't really a stomach.

Processes of nutrition	· *Ingestion*	*How the food is* eaten
	· Mastication/Chewing	
	· *Digestion*	*Breakdown of feed into simple* substances
	· Absorption *of nutrients*	*How digested particles are* absorbed *into the animals' body*
	· Metabolism	*How nutrients are used by the animal*
	· Excretion/Elimination of waste	
Basic types of digestive systems	· *Ruminant*	
	· Monogastric/Non-ruminant	*One* stomach *compartment, poor users of roughage feedstuffs, fed with* concentrates *or grains*
	· *Pseudo-ruminant*	*Exception:* horses*, with a* simple *stomach but efficient users of roughage*
	· Avian	*Mouth (no lips or teeth but* beak*), oesopohagus and* crop *(not a real stomach but functions like a* storage *area)*

3.
1. Not all animals, poultry excrete only solids; 2. Ruminant animals; 3. Because they are able to digest fibre but have a single stomach; 4. Poultry lack teeth or lips to ingest food and a stomach.

Pages 284-285

4.
1. toro; 2. bue; 3. manzo; 4. giovenca; 5. carne di vitello/a; 6. ariete; 7. capretto; 8. caprone; 9. pecora; 10. carne di manzo.

5.
1. T; 2. F, It is called a cow; 3. F, It is called a lamb; 4. T; 5. F, It is called a billy goat; 6. T; 7. T; 8. F, It is called a ram; 9. F, Only ruminants; 10. F, They have stomachs with more than one compartment.

6.
1. cow; 2. mutton; 3. calf; 4. live; 5. Normans; 6. food; 7. animals; 8. dead; 9. distance; 10. beef.

Pages 286-287

Do you know the main dairy breeds?

Sample answer
There are six main dairy breeds: Ayrshire, Guernsey, Brown Swiss, Milking Shorthorn, Jersey and Holstein (the black and white spotted cows).

7.
1. breed; 2. hump; 3. indigenous; 4. livestock; 5. pasture; 6. shed; 7. dewlap; 8. graze.

8.
1. They belong to the *Bos taurus* species; 2. They have a hump on the shoulders and a dewlap hanging from the neck; 3. Yes, the dual-purpose breeds; 4. Their basic shape is a rectangle and they are thinner than beef cows, they have huge udders and are highly producters of milk; 5. In the past, triple-purpose animals were used to provide food, fertiliser and labour; dual-purpose breeds were raised for both milk and beef; 6. They are Friesian/Holstein, Jersey and Brown.

9. Breeds of dairy cows *posted by* Discover Dairy

Discover the different breeds of dairy cows. There are seven breeds of dairy cows in Australia. They are: Holstein, Jersey, Aussie Red, Brown Swiss, Guernsey, Illawarra and Ayrshire. However, the most common breeds found on Australian dairy farms are Holstein, Jersey and Aussie Red. Holsteins are mainly black and white. They produce large quantities of milk and can weigh up to 600 kilos. Jersey cows are relatively small and fawn in colour, sometimes with black tips on their muzzles, ears, feet and tail. Their milk is really creamy. Aussie Reds are medium sized cows and mainly dark red in colour, sometimes with white markings. Their milk is high in protein. So, a typical Australian dairy herd is made up of four different groups of cattle. Cows are the females; heifers, the young, female cattle; bulls, the fathers of the dairy herd; and calves, the baby cattle. Ask your teacher how you can discover more about dairy.

1. b; 2. c; 3. b; 4. a; 5. b; 6. c.

Pages 288-289

What Italian sheep breeds have a Genealogical Record?

Sample answer
These are some Italian sheep breeds with a Genealogical Record:
- milk breeds (Altamurana, Comisana, Delle Langhe, Sarda);
- meat breeds (Appenninica, Bergamasca, Fabrianese);
- merinised breeds (Gentile di Puglia).

10.
1. they chew their cud; 2. wool, milk, and meat; 3. weeds, short grass and clover; 4. too much sun or rain; 5. to wander away; 6. there are more than one thousand distinct breeds; 7. the major producers of sheep farming; 8. wool production has disappeared.

11. 140

Impact of Predators on Livestock
Free-living populations of wolves and brown bears regularly cause damage to livestock in the Abruzzo region of Italy. The laws of the region award compensation payments to owners for losses caused by predators, namely wolves (responsible for over 92% of all attacks), bears and wild boars. The victims of wolf attacks are mostly sheep, goats and horses, followed by cattle, rabbits, fowl and dogs. While bears principally attack sheep and goats, their other targets include cattle, horses and bee-hives. Among cattle and horses, the victims are mostly the new-born or young, while among sheep and goats only adult animals are attacked.

To tackle the emergency in the Gran Sasso National Park, due to the reintroduction of predators into natural habitats near rural areas, it has become mandatory to use livestock guardian dogs. These allow sheep and cattle farming to partially coexist with predators in the same or nearby habitats. Unlike trapping and poisoning, livestock guardian dogs seldom kill predators; instead, their aggressive behaviour tends to condition predators to seek unguarded (thus, non-farm animal) prey. Where livestock guardian dogs and wolves have coexisted for centuries, older, more experienced wolves seem to "know" livestock guardian dogs and leave their flocks alone.

1. Wolves, brown bears and wild boars; 2. Sheep, goats and horses mainly; 3. Sheep, goats, cattle, horses and bee-hives; 4. No, predators kill new-born cattle and horses, but also adult sheep and goats; 5. Because of the reintroduction of predators into natural habitats near rural areas; 6. No, their aggressive behaviour makes predators seek non-farm animal prey.

12.

1. disease; 2. breed; 3. feeding; 4. meat; 5. lambs; 6. ewe; 7. dyeing; 8. cloth; 9. wool; 10. weaving.

Pages 290-291

Do you know why goat meat is considered an alternative to chicken or fish?

Sample answer
It is a tasty, low-fat alternative to chicken or fish because the molecular structure of chevon makes it easier to digest for those people with digestive problems requiring a careful diet.

13.

1. The goat is lighter of build, has horns that arch backward, a short tail, and straighter hair; 2. Domesticated goats are descended from the pasang or bezoar; 3. They eat almost any plants, grass (preferably over 10 cm high), herbs, weeds, shrubs and trees; 4. Because goats are intelligent and like to escape; 5. By providing them with field shelters; 6. For their meat, milk, fibre and skin, and for land vegetation management; 7. Australia and New Zealand; 8. Dairy products.

14. 142

Everything You Need to Know About the Angora Goat

The Angora goat is an ancient breed, dating back to as early as the 14th century. These thick-haired goats originated in Turkey and are named after the country's capital, Ankara, historically known as Angora. They were first brought to the United States in 1849 by Dr James P. Davis, after he received them as a gift from the Sultan of the Ottoman Empire in Turkey. Since their introduction into the American market, these goats have become popular for their fleece. To the untrained eye, an Angora goat could be mistaken for a sheep due to its thick, curly coat. They are the only breed of goat to produce a sought-after fibre known as mohair. A single Angora goat is able to produce between four and five kilograms of mohair each year. While they were originally bred for their white mohair, in 1998 the Coloured Angora Goat Breeds Association was founded to help promote the breeding of coloured Angoras. Due to their efforts, today we see Angora goats with coats of black, grey, silver, red, and brown. The Angora goat has a pleasant personality and is known for being a very curious creature, but they are not the hardiest of breeds. At birth, the Angora goat is very delicate, needing complete protection from the elements to ensure survival. This same protection is required after each shearing throughout their lives, as they cannot withstand rain or cold temperatures.

1. It dates back to the 14th century; 2. It derives from Ankara, the capital city of Turkey; 3. In 1849; 4. Because they produce a desired fibre called mohair; 5. Four or five kilograms; 6. Mostly white, but there are also black, grey, silver, red and brown goats; 7. Its aim was to promote the breeding of Angora goats with coloured coats; 8. No, it is very delicate and cannot withstand rain or cold temperatures.

15.

1. breed; 2. goats; 3. gift; 4. market; 5. sheep; 6. fibre; 7. mohair; 8. coloured; 9. silver; 10. delicate; 11. survival; 12. rain.

Unit 6.2 Non-ruminant livestock

Pages 294-295

Do you know how farmers can enhance egg production?

Sample answer
Playing calm music, heating the floor or brightly lighting the buildings day and night.

1.
1. farmyard; 2. broiler; 3. henhouse; 4. free-range farming; 5. ostrich; 6. turkey; 7. intensive farming; 8. swan; 9. hen; 10. poultry.

2.
1. The ancestor of chickens is the red jungle fowl, a wild bird that lives in south-east Asia; 2. They were raised for cockfighting and exhibitions; 3. Mass production of chicken meat and eggs began in the early 20th century; 4. Discoveries and inventions relating to the scientific housing, feeding and breeding, together with efficient methods of storing and distributing poultry meat and eggs; 5. Yes, the meat is rich in protein, minerals, and B-complex vitamins, and has a low fat content; 6. Free-range farming, which allows poultry to move freely outdoors, and intensive farming, which keeps the birds indoors, usually in battery cages or henhouses.

3.

	Intensive poultry farming	Free range poultry farming
Pros	3, 13	6, 7, 10, 11, 12
Cons	2, 4, 8, 9	*1*, 5

Pages 296-297

Intensive pig production systems raise concerns about animal welfare: can you think of advantages and disadvantages of this system?

Sample answer
In intensive farms, pigs are literally caged up and don't have adequate space to move freely or behave naturally. The only advantage it has is mostly profitability to pig farmers: it can be very advantageous in terms of efficiency, cost saving and space. The disadvantages instead are many: pigs are forced to lie and wallow in their own dung, causing them distress as they are naturally clean animals. Some pigs are tethered to stalls with chains. Pigs are friendly and social animals, but when they are restricted within closed confines, they develop aggressive behaviour due to frustration and try to attack one another.

4.
1. F, Wild boars or razorbacks are thinner and tougher; 2. F, Pigs lie around in mud to keep cool; 3. F, Pigs eat a wide variety of food: kitchen waste, vegetables, cereals and fish or meat meal; 4. T; 5. T; 6. T; 7. T; 8. F, When pigs are on pasture, it is necessary to rotate the grazing land to control parasites; 9. T; 10. T.

5.
1. d; 2. a; 3. b; 4. c.

6.
1. nutritional; 2. reduce; 3. available; 4. contaminates; 5. fermented; 6. daily.

Pages 298-299

What are their hybrids?

Sample answer
The mule, produced by crossing a male donkey with a mare, and the hinny, the offspring of a stallion and a jenny or female donkey.

7.
1. T; 2. T; 3. F, It depends on the breeding system chosen; 4. F, They produce only a very small amount of greenhouse gases, no carbon dioxide and little methane; 5. T; 6. T.

8.
1. domesticated; 2. tough; 3. ponies; 4. fox-sized; 5. hunted; 6. predators; 7. warfare; 8. urban.

9. How Does Working Livestock Contribute to the UN's Sustainable Development Goals? *posted by* Brooke

Hello, my name is Mwende. I live in Kenya with my husband, four children and my donkey Nuru. My donkey is an important part of my family because it helps me with my daily chores like collecting water for my family to drink and wash. My children are also able to go to school because they don't have to help carry the water. My donkey eases the burden of ploughing the field for crops and taking those crops to the market to sell. This pays for daily essentials, including school fees and medical care. Having a donkey means I have more time. I can go to the community meetings and am respected as a breadwinner for my family. Around the world, working horses, donkeys and mules like Nuru contribute to the livelihood of 600 million people in the poorest communities, yet their vital contributions to meeting many Sustainable Development Goals is largely overlooked. Working livestock are an important part of my daily life, that needs to be recognised. By working together, organisations that focus on human development, animal welfare and environment can help meet the sustainable development goals by 2030.

1. c; 2. b; 3. c; 4. a.

Unit 6.3 Alternative forms of breeding

Pages 302-303

Why do bees consume nectar and pollen?

Sample answer
Nectar is primarily an energy source. Pollen provides bees with the protein, lipids, vitamins and minerals that are essential for larval rearing.

1.
1. T; 2. T; 3. F, The species *Apis mellifera* is more easily managed and manipulated; 4. T; 5. F, Their organisation consists of three groups: a queen, workers and drones; 6. T; 7. F, It indicates the direction of the food source; 8. F, They hypothesise it may be due to pesticide poisoning, changes to the habitat where bees forage, lack of nesting areas, poor nutrition, hard winters, electromagnetic interferences, pests, viruses and parasites.

2. 147

How Bees Make Honey
Bees make honey because it provides an important food source for them. In order to produce honey, bees must gather a sweet liquid called nectar from flowers. A worker bee flies to a flower and sucks up the nectar with its long tongue. The tongue is a flexible tube on the outside of the bee's head. The nectar goes through the bee's mouth and into the honey stomach, where it is stored. The honey stomach is located in the bee's abdomen. Inside the honey stomach, enzymes, which are protein molecules that speed up chemical reactions, help transform the sugar in the nectar into two simple sugars: fructose and glucose; this process is called inversion. The worker bee stores nectar in its hive. It regurgitates or spits up the inverted nectar back through its mouth. It either gives the nectar to other bees or puts it in empty six-sided compartments, called cells. Bees then put wax caps on the cells to seal them. The warmth of the beehive causes water in the nectar to evaporate. Honey is an excellent energy food for bees, humans and other animals, because it contains simple sugars that the body can use quickly.

1. them; 2. sweet; 3. worker; 4. abdomen; 5. enzymes; 6. regurgitated; 7. six; 8. supplies; 9. wax caps; 10. can.

3.
1. in; 2. three; 3. more; 4. blooming; 5. throughout; 6. by; 7. but; 8. which; 9. their; 10. by; 11. less; 12. to.

Pages 304-305

Which EU countries are the most important honey producers?

Sample answer
The largest honey producers are Romania, Spain, Hungary, Germany, Italy, Greece, France and Poland.

4.
1. j; 2. c; 3. d; 4. i; 5. g; 6. f; 7. b; 8. h; 9. a; 10. e.

5. 149

Some Tips for Beekeeping
This year we started our honeybee farming project. First, we had to learn all about starting beekeeping, and I am glad we began by talking to other beekeepers and doing research. First challenge: the location. I knew bees could fly a long distance every day to find enough pollen. But was my estate able to provide enough grasses, trees, herbs, flowers, and weeds to feed the hive? Luckily, you don't need to have a flourishing flower bed in your yard, but having a varied garden will help the bees get enough food.
For our first hive, I chose to purchase a nuc (short for nucleus colony) from a local apiary. This is not the only way to get started. You can also purchase a package of bees and a separate queen, or you can capture a swarm if one happens to take up residence on your property. The advantages of buying a nuc when starting beekeeping, is that the bees are already beginning to produce comb and honey when you bring them home. You simply put on your protective bee clothing and transfer the ten frames from the cardboard box into your hive. The colony has already accepted the queen, and they have mated with her, so you have varying ages of brood ready to mature and take over as older bees die off.

1. T; 2. F, They fly long distances; 3. T; 4. T; 5. F, From a local apiary; 6. T; 7. T; 8. T.

6.
Sample answer
Mr Bianco: Good morning.
Roberto: Good morning. I'd like to talk to Mr or Mrs Bianco, please.
Mr Bianco: Good morning. Mr Bianco speaking. How can I help you?

R: I've just seen your job offer on the website. Hopefully, I'm the first candidate!
Mr B: Thank you for calling, Mr…
R: Robert Moss. I'm 18 and I've just left school after having graduated in Farming and Forestry Management.
Mr B: Do you have any previous experience?
R: Well, last summer I worked on a small estate which housed a dozen hives. Blueberries and strawberries were grown, too, but just for family consumption.
Mr B: Ok. You'll learn by doing. We have an organic farm high up in the mountains (1700 m). We work from April to October producing not a huge, but a high-quality range of honey, vegetables and red fruits, mainly raspberries and strawberries. In addition, we have more or less 150 hives that we move around, making different kinds of honey: rhododendron, linden, dandelion, chestnut and mountain flowers.
R: Where is your farm situated?
Mr B: It's in a hamlet near Champoluc. Do you know the place?
R: Yes, I've already been near there.
Mr B: Perfect, then. Send me an email with all your data and I'll send you the geolocation of the farm plus some info about accommodation, working times and wages. If it's ok with you, we can meet for an interview on Monday.
R: Yes, that's fine. Thanks, I'll see you on Monday then.
Mr B: Bye. See you soon.

Pages 306-307

Where are the warmwater and coldwater aquaculture sectors located?

Sample answer
Coldwater aquaculture is concentrated in Northern Europe, Norway in the lead, and in Chile. Warmwater aquaculture is mainly located in South-East Asia, Latin America and Africa.

7.

1. aquaculture; 2. trout; 3. nutrients; 4. warmwater; 5. aeration systems; 6. recirculating system; 7. offshore; 8. raceways.

8. 151

Aquaculture & Sustainability

The growing world population consumes more and more seafood, while the amount caught in wild fisheries is falling. There are limits to how much seafood can be provided by sustainable fisheries, so, if we want to preserve wild fish stocks, we need to find alternative ways of producing our seafood. There are several ways in which aquaculture interacts with the marine environment. Good water quality is absolutely vital for farmed fish and shellfish, and one way aquaculture can have an impact on its surrounding environment is through a high concentration of fish in the farms. Fish excrete unwanted nutrients which can also come from uneaten food. When the concentration of nutrients in a given area is too high, it can lead to a process called eutrophication, which depletes the water oxygen and can lead to lifeless areas. Researchers are looking at more effective types of food and are breeding more digestive efficient fish to reduce the amount of nutrients produced by aquaculture farms. Some farm species like bivalves and seaweeds actually remove nutrients from the water and help prevent eutrophication. Innovative projects are being developed to farm these extractive species alongside fish that produce nutrients, leading to zero impact farms.
Like many other farming systems, aquaculture makes use of veterinary medicines, antibiotics and antiparasitics, which have been judged to have minimal environmental impact, if used in accordance with strict rules and safe limits. Still, it is something that must be taken into account.
It is also important to control the interaction between farmed and wild fish. If farmed fish escape, they can compete with wild populations for food and space or reduce their genetic variety through interbreeding. If wild fish and farmed fish come into contact, diseases and parasites can be passed from one to another and a notable example is the spreading of sea lice in salmon populations.

1. decreasing; 2. quality; 3. high; 4. oxygen; 5. remove; 6. are; 7. compete for; 8. can.

9.

Pros	Cons
2, 4, 5, 7, 8	1, 3, 6, 9, 10

Pages 308-309

10.

1. They are farmed for food, clothing, or traditional medicines; 2. In tropical regions; 3. Europe; 4. It is used in foods, in textiles, lip glosses, pills and in paint; 5. Crickets; 6. Because insects cause fewer greenhouse gas emissions than cattle farming.

11.

1. collect; 2. small; 3. alive; 4. farms; 5. excrement; 6. enzymes; 7. bacteria; 8. oven; 9. shelf; 10. breakfast.

12.

Teacher's note

It may be useful to pre-teach the following vocabulary:
impending: *imminente*
mainstream: *tendenza dominante*
neat: *eccezionale*
win-win: *vantaggioso per tutti*

Next Millennium Farms - Insect Farming, Cricket Farming making Insect Protein and Cricket Flour *posted by* Entomo Farms – Entomophagy Cricket Flour

Next Millennium Farms started as an idea, as my brothers Darren and Ryan were farming insects primarily for the reptile trade for about eight years, and when we saw the impending need for food in the future, as well as the UN and FAO document citing how insects could be used, we decided to invest time, resources, and money into our nine thousand square-foot farm. It's very exciting for us because the category, that being insect food or in this case primarily what is cricket flour, has really exploded into the mainstream. What we're providing here is a superfood, primarily protein as well as lots of other essential nutrients for people. The two most exciting parts of insects are their incredible nutritional profile and their benefit to the environment. They have a very, very low carbon footprint on the environment. So, for example, they use ninety percent less water to produce the same amount of protein that beef does. They also are great converters of food. So, where beef takes ten units of food and produces one unit of output, insects take 10 units of food and produce up to seven units of output. So, they're a very, very carbon neutral or green food. When you combine this with the excellent nutritional profile, it's really a win-win situation for everybody. So, at Next Millennium Farms we have two barns and one processing facility. These farms have a lot of innovation and a lot of new process in the world of insect farming. Our processing facilities in Norwood, and this is where we roast the insects and primarily grind them up into a flour or powder. The flour or powder is used in baked goods and repurposed into energy bars and many, many other neat products. What's very exciting about working in this area is our ability to employ people in the local economy. We're very excited to announce that we'll have up to 15 people working in our farms by the end of the year and about five people working in our processing plant.

1. About eight years; 2. A UN and FAO document; 3. Nine thousand square-foot; 4. Protein and nutrients; 5. They have a very low carbon footprint, use less water and are great converters of food; 6. Two; 7. They are roasted and ground; 8. Yes, at Next Millennium Farms they employ local workers and are going to increase their staff.

Unit 6.4 Livestock management

Pages 312-313

1.

1. d; 2. a; 3. f; 4. b; 5. e; 6. c.

2. Animal welfare: animal-based indicators *posted by* EFSAchannel

Hi, my name is Frank Bert, and I am a scientist at EFSA, working in the area of animal health and welfare. Today, I am going to talk to you about animal-based indicators, a very specific aspect of our work related to animal welfare, but before I do that, I'd just like to briefly explain how an organisation like EFSA, that deals primarily with food safety, has a role to play in animal welfare. Well, in fact, the answer to this question is quite simple. We know that the safety of our food chain can be indirectly affected by the welfare of animals. This is because stress, injuries and poor welfare, all together, can lead to infectious diseases among animals, some of them being food-borne to consumers. One example of how animal welfare might affect food safety is tail biting among pigs. This is a major welfare issue on pig farms, and it is, as so, a risk factor of increasing the frequency of abscesses and infections in carcasses.
If you remember, earlier I said I wanted to talk to you about animal-based indicators; what are they and why are they so important? 'Animal-based indicators' is a term used by scientists to describe the way in which the welfare of an animal is measured, but in fact it's a very basic concept and something we are probably all familiar with in our daily lives. For example, when you measure your body temperature, you do this in the knowledge that this is a good indication of fever. The same principle can also be applied by scientists when they assess the welfare of animals. The challenge, and this is where EFSA plays an important role, comes in finding the most effective indicator, or combination of indicators, for what we are trying to measure.
Now let's go back to our example – tail biting. We know that this is an indicator of poor welfare, but it's not very specific because many different factors can lead to tail biting, making

it difficult to tell exactly what is affecting the pig's welfare. And so, in all fairness, it may reflect only part of the factors influencing the pig's welfare. However, tail biting may become an effective indicator when it is combined with other indicators. Taken together, they are likely to give a fair overall assessment of the welfare of the pig.

This aspect of EFSA's work reflects a shift in the way in which scientists, and also policymakers in Europe, are considering animal welfare assessment. It's a move away from a system that measures the environment in which the animal lives – such as access to water or food, or housing – towards a system that will measure how the animal itself will respond to the environment. It is hoped that this will lead to a more effective and efficient way of assessing animal welfare, whatever farming system is used. EFSA's advice in this area is designed to support the work of the European Commission and come soon after the launch of the EU animal welfare strategy 2012-2015.

1. He is a scientist; 2. They use 'Animal-based indicators'; 3. EDFA is finding the most effective indicators; 4. health; 5. indicators; 6. poor; 7. factors; 8. environment.

3.

1. f; 2. e; 3. b; 4. a; 5. c; 6. d.

Pages 314-315

4.

1. T; 2. T; 3. F, They may be kept together in large pens; 4. T; 5. F, Animals are kept loose in an open paddock; 6. T.

5. 155

The Effect of Sound Waves on Livestock

In times of intensified livestock production and, consequently, of overcrowded housing, reducing animal stress has become a challenge for breeders and producers, as it means positively affecting the health and production performance of animals, thus improving yields. Music therapy is increasingly used for farm animals as an element of enriching their living environment. Proper selection of the music genre, music intensity, frequency of sound waves and the time of exposure to sounds can reduce the adverse effects of noise and, thus, reduce the level of stress. Some music tracks promote relaxation while others have the opposite effect. It should be remembered, however, that silence is equally important and necessary for the welfare of animals. Cattle must be raised in a quiet environment, since abrupt, loud sounds may negatively impact milk yields: they become restless and have higher heart rates. Noise can also cause reproductive disorders, disrupting the estrous cycle, conception, and reproductive system functions. Dairy cows, in particular, require silence during rearing. Their prolonged exposure to high-intensity noise may adversely affect the quantity and quality of milk produced, which then translates into economic losses.

1. positively; 2. increasingly; 3. reduce; 4. environment; 5. dairy; 6. quantity.

6.

1. f; 2. e; 3. c; 4. a; 5. d; 6. b.

Pages 316-317

Do you know what effects *Escherichia coli* bacteria can cause in humans?

Sample answer

E.coli bacteria normally live in the intestines of healthy people and animals and are usually harmless. But a few strains, such as *E.coli* O157:H7, can cause severe stomach cramps, bloody diarrhoea and vomiting. Healthy adults exposed to the bacteria from contaminated meat usually recover in little time, whereas young children and older adults have a greater risk of developing a life-threatening kidney failure.

7.

1. Achieve the maximum yields and bring the highest economic profits; 2. Livestock raised in CAFOs may have serious health problems, such as liver abscesses, bloat, and sudden death syndrome; 3. Because these protein-rich grains help bring animals to market weight faster, and because they are cheaper than other feed options; 4. They can produce serious and sometimes fatal digestive tract problems in food animals such as cows, goats, and sheep, whose stomachs are best suited to digesting the cellulose in grass; 5. Livestock can be fed using waste or by-product from agro-industrial activity, by-products from fruits and vegetables, and seaweeds; 6. They are: improved growth performance, increased milk production, better meat quality, and stronger immune system.

8.

Factory farming		Organic farming	
Pros	**Cons**	**Pros**	**Cons**
2, 6, 8	1, 4, 5, 10, 12, 14	3, 9, 11	7, 13

9. Seaweed farm aims to reduce livestock methane emissions | ABC News *posted by* ABC News (Australia)

Narrator: There's not a tractor to be seen but this is what harvest looks like at Queen's Cliff. This crew is about to go and pick seaweed from the bottom of the ocean, but this is no ordinary seaweed. It's called Asparagopsis armata *and feeding it to livestock can reduce the amount of methane in a cow's gut by up to 98 percent.*
Henry Cole: Essentially, we're actually propagating seaweed from sea floor to our lines and, and basically, we're just giving it the assistance it needs and structure for it to grow.
Narrator: This is Victoria's first seaweed farm, and this project is looking to grow cattle feed additive on a commercial scale.
Dr Prue Francis: It's really exciting to see what might become particularly in Victoria. There's a lot of great sites along Victoria coastline.
Scott Elliott: We know that cattle need around 50 grams per day fed to them in order for the, for methane to be reduced. So, if we think just in terms of the dairy herd here in Australia, there's 1.5 million cows.
Narrator: If successful, it will go a long way to helping Australia's primary producers meet their goals of becoming carbon neutral.
Jason Strong: It demonstrates that we can actually solve the problem. It demonstrates that we can invest in and discover or find, invent technologies that get us down the path to being carbon neutral by 2030.
Narrator: Livestock industry leaders have invested heavily in the technology and say it's close to being commercially viable.
Jason Strong: There's a number of companies that are growing and producing the supplement now. Initially, as a freeze-dried product but also looking at other options.
Narrator: These waters could contribute to a significant reduction in greenhouse gas emissions. An agri-futures report found there's the potential for a one and a half billion dollar seaweed industry by 2040. But the benefits won't be confined to the livestock industry.
Dr Prue Francis: Depending on what the end product might be used for that seaweed depends on what species you're looking at. So, you might want to use it for medicine industry or perhaps the beauty, or it can also be applied in the food industry as well.
Narrator: The answer to reducing gas in the atmosphere could be sitting at the bottom of the sea.
Peter Somerville, ABC news, port Arlington.

1. seaweed; 2. feed the livestock; 3. methane; 4. cattle feed additive; 5. 50 grams; 6. carbon neutral; 7. one and a half billion dollars; 8. medicine.

Pages 318-319

What are spores?

Sample answer
Spores are resistant forms of bacterial cells able to withstand severe environmental conditions.

10.

Sample answers
1. What are some signs of poor livestock health?; 2. What is the cause of contagious diseases?; 3. What is the best method to control viral diseases?; 4. How are the epidemic diseases treated?; 5. What is the main damage of BSE and scrapie?; 6. Can bird flu infect also humans?

11. 158

Bird Flu

Susan Byrne: Concern is growing about a mutant strain of the deadly H5N1 bird flu virus, which is spreading in Asia and beyond. Existing vaccines appear to be powerless against the new strain. Today in our studio we have Mr Daniel Douglas, spokesman for the UK Health Department, who is going to tell us something more about this problem that is causing great concern all over the world. Good morning, Mr Douglas.
Mr Douglas: Good morning.
Susan Byrne: First of all, what is bird flu and how many types are there?
Mr Douglas: Avian influenza, or 'bird flu, is an infectious disease caused by viruses that normally infect only birds. There are many different types or strains. The one concerning experts at the moment is the "highly pathogenic" H5N1 strain – this means that it is highly likely to cause disease.
Susan Byrne: What is the concern about?
Mr Douglas: According to the UN World Health Organization, there have been over 565 cases of human infection with 331 deaths from H5N1 since it first appeared in 2003. Most of these were in South-East Asia, and were associated with close contact with diseased birds.
Susan Byrne: How does the virus spread?
Mr Douglas: Birds shed the virus in their faeces and so close contact with their immediate living environment can spread disease. It also seems possible that the virus can spread directly from person to person. In 2006, the H5N1 Highly Pathogenic Avian Influenza virus was eliminated from most of the 63 countries infected, but it remained endemic in six nations. Since then, we have recorded almost 800 cases.
Susan Byrne: Is it possible to stop bird flu coming into a country?
Mr Douglas: No. Wild birds do not recognise

national boundaries. But measures such as exclusion zones and rearing poultry indoors are designed to stop the virus.
Susan Byrne: Can the virus be passed on through eating poultry or eggs?
Mr Douglas: No. The virus is easily destroyed by cooking, so even if it was present, it would be destroyed.
Susan Byrne: Is there a vaccine or treatment?
Mr Douglas: Scientists have made a vaccine for H5N1. As with all flu vaccines, it is a "best guess" vaccine based on the strain experts predict will be most problematic. However, flu viruses are able to rapidly change or mutate, rendering such vaccines powerless. In addition to vaccines, there are also antiviral drugs, like Tamiflu, which can treat and minimise infection.
Susan Byrne: Is bird flu different to swine flu?
Mr Douglas: Yes. Bird flu, as the name suggests, originates in birds and is called H5N1. Swine flu originates in pigs and is a different type of flu, called H1N1. Both have caused outbreaks and deaths in humans.
Susan Byrne: Well, I'm afraid our time is up now. Thank you very much and goodbye. This is Susan Byrne at the BBC, London.

1. viruses that usually infect only birds; 2. H5N1; 3. South-east Asia; 4. through direct contact with infected animals or equipment; 5. rearing poultry indoors, thus avoiding their contact with infected wild birds; 6. be effective only if the strain of virus does not change; 7. is similar to bird flu.

12.

1. cows; 2. species; 3. protein; 4. carcasses; 5. feeding; 6. export; 7. passports; 8. infected; 9. beef; 10. spinal cord.

Pages 320-321

Which law are halal and kosher slaughter rules based on?

Sample answer
Halal and kosher slaughter rules are based on Islamic and Jewish law, respectively.

13.

1. T; 2. F, They should be kept cool; 3. T; 4. F, Antemortem and postmortem inspection is mandatory to check meat safety; 5. F, They must be alive and conscious; 6. T.

14.

Islamic Slaughtering Process *posted by* Innovative Village

Islamic slaughtering process.
Animals for slaughtering:
1. use permitted animals;
2. follow prescribed slaughtering procedures;
3. the animals must not suffer any pain before slaughter.

The butcher:
1. must be Muslim;
2. should not have a mental disorder;
3. should not have any infectious diseases;
4. should use a well sharpened knife as a tool of slaughtering except for skinning nails or bones.

How to slaughter:
1. speak the name of Allah before slaughtering;
2. face the animal towards the Qiblah;
3. make a swift, deep incision to the animal: cut the trachea, oesophagus, arteries and veins.

The animal must be dead before any further handling or processing. Fish and other sea life are ok to consume without the prescribed slaughtering procedure.

1. No, only the permitted ones; 2. The animals must not suffer any pain; 3. A Muslim butcher; 4. Butchers affected by mental disorder or infectious diseases should be excluded; 5. A sharp knife; 6. The name of Allah; 7. No, he must make the animal face towards the Qiblah; 8. The cut should be a swift, deep incision; 9. No, they must be dead; 10. No, sea creatures can be killed without any prescribed slaughtering procedure.

15.

1. brain; 2. unconscious; 3. electrodes; 4. pistol; 5. pain; 6. blood; 7. stunning; 8. bacteria; 9. death; 10. healthier.

Pages 324-325

VOCABULARY

1.

1. BSE; 2. scrapie; 3. African swine fever; 4. ostrich; 5. goose; 6. turkey; 7. kid; 8. lamb; 9. calf; 10. cricket; 11. cochineal; 12. cockroach.

2.

1. Veal is the meat of young cattle, not a live animal; 2. A ram is a live adult male sheep, not meat; 3. A steer is an adult animal, not a young animal; 4. A vaccine is used to prevent diseases, it is not a pathogen; 5. A hive is an apiary, not a bee; 6. Seaweeds are algae, not animals; 7. BSE is an epidemic disease; 8. Geographic location influences honey quality, but it is not a parameter to evaluate quality.

3.

1. goats; 2. rumen; 3. enzymes; 4. milkers; 5. poultry; 6. intensive; 7. hives; 8. honey; 9. hippotherapy; 10. crickets.

H	G	G	A	V	S	L	E	S	S	G	H	B	H	R
I	A	R	X	W	S	P	E	W	P	N	S	I	C	F
P	M	M	G	C	W	M	K	Y	J	X	X	C	S	G
P	M	X	U	O	Y	N	W	B	W	V	C	I	E	H
O	F	L	I	Z	Y	F	O	K	I	D	P	D	E	I
T	J	K	N	B	I	Y	A	M	G	R	O	H	H	V
H	V	E	T	Q	P	O	T	O	M	G	U	Z	V	E
E	H	U	E	N	Y	P	V	J	O	I	L	M	V	S
R	O	N	N	G	G	H	C	P	Q	O	T	M	E	E
A	Q	X	S	V	H	O	X	X	R	Z	R	I	F	N
P	R	J	I	T	O	Q	A	F	W	N	Y	L	M	U
Y	S	I	V	Y	N	T	P	T	C	Z	G	K	W	L
P	K	V	E	A	E	K	V	R	S	J	N	E	D	F
O	P	U	P	W	Y	J	U	X	S	Y	W	R	W	L
I	Z	C	R	I	C	K	E	T	S	N	G	S	D	X

4.

1. leg, muscular; 2. fat, poultry; 3. greenhouse gas emissions; 4. fenced; 5. royal jelly; 6. cattle; 7. wild, outdoors; 8. polygastric, rumen.

Page 326

REAL-LIFE SKILLS

5.

Sample answer

Student A	Student B
Good morning. I am ... and I am looking for a cattle farm in California.	I have a beautiful farmhouse situated on a 138-acre ranch.
Where is it located exactly?	It's located in Fort Bidwell, in the north-eastern part of California where California and Nevada intersect.
What is the house like?	It's a 4,200 square foot house with 9 bedrooms and 2 bathrooms. It's a charming historic home built in the early 1900s.
What about the land?	This ranch has the best water, the finest soils and the richest pasture grass. There is flood-irrigated permanent pasture, some dry pasture, and a farmstead.
I'm looking for a place to keep my livestock. Do you think it could be suitable for this?	I don't think there will be any problems with your livestock because this acreage is fenced and cross-fenced – there's fencing around the property which is divided up into pastures and other working spaces, with livestock corrals, a reservoir and irrigation wells.
Good. How much does it cost?	It costs only $700,000.
Well, I'll have to think about it.	Take your time.
Thank you, goodbye.	Goodbye.

6.

Personal answer

7.

Sample answer

Robert & Pat Forrest
375 South Road, Whitefish,
Montana 81401,
United States
☎ 855-848-4300
info@duderanch.org

15th April, 20…

Nature Tour
Via Roma 4
10100 Torino

Dear Travel Agent,

Are your customers getting tired of the same old holiday packages? Are they looking for a true 'home away from home'? Here they will be in touch with the wilderness, but only five miles from the shops, theatres and cinemas!

Robert & Pat Forrest and their sons, Steve and George, invite you to visit *Appaloosa Dude Ranch* and taste genuine Western hospitality. Our guest ranch lodge is located in one of the most picturesque corners of Montana and is 6,000 square feet with private cabin suites. A rustic Western paradise that provides its guests with an old-fashioned vacationing experience.

We offer activities for all ages: wildlife adventures, hiking, fishing, trap shooting, camping, herding cattle, horseback riding, as well as evenings gathered around a campfire. Our guests can

enjoy a varied menu of meats, fresh fruits and vegetables, homemade bread, cookies and desserts. The ranch chef will be happy to accommodate special diets with prior notice.

But our ranch is firstly a great vacation place for children: those over six years old can ride our ponies by themselves out on the trails. For younger children we will be happy to provide baby-sitting services while the older members of the family are on rides. Our staff will keep your children busy feeding the fish in the pond, looking for gold or with indoor projects if necessary. What's more, we offer a special 50% discount for children under 11.

Visit our website (www.appaloosaranch.com) today and book your ranch vacation – we promise you won't regret it!
We look forward to hearing from you and extending our services to your clients.

Yours faithfully,
Robert & Pat Forrest

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CASE STUDY

8.

Teacher's note

Advantages of Langstroth beehives – The removal of the honey from traditional hives often results in many of the bees being killed and honey impregnated with the smell of smoke. Honey Care began producing Langstroth hives of the movable-frame variety that maximise the honey crop each season with minimal disruption to the bee colony.
Social impact – Studies have shown that women are the 'change' agents of the family. Consequently, increases in women's incomes improve the health, nutritional and educational status of other household members.

1. F, Honey Care aims at stimulating the development of small-scale apiculture as a means of combating persistent rural poverty in the poorest areas; 2. T; 3. T; 4. F, Encouraging beekeeping has numerous benefits for biodiversity; 5. F, It results in creating additional job opportunities; 6. F, Honey Care has been active in Tanzania since 2004.

9.

Sample answer
Goal 1 – No poverty: keeping bees offers economic diversity as an income source, helping build resilient livelihoods for poor and vulnerable peoples.
Goal 2.3 – Zero hunger: bee pollination increases crop yield.
Goal 2.4, 2.5 – Biodiversity: bees play a key role in maintaining biodiversity.
Goal 4 – Quality education: vocational training for keeping bees can enhance equal opportunities for employment, training and entrepreneurship among men, women and indigenous people.
Goal 5 – Gender equality: beekeeping can enhance opportunities for women's involvement in economic, social and political decision-making processes.
Goal 8 – Decent work and economic growth: improved agricultural production from bee pollination may contribute to the gross domestic product (GDP) of nations.
Goal 15.2 – Forest conservation and regrowth: Honey Care's projects have been implemented with the express aim of reducing activities harmful to the natural environment, while improving sustainable forestry.

Pages 328-329

CLIP **DOCUMENTARY: Vanishing of the Bees**

10.

Sample answer
1. It is the transfer of pollen from a stamen to a pistil of the same flower or another flower; 2. Pollination is necessary for a flowering plant to bear fruit and develop seeds, and is a vital part of the plant's life cycle; 3. We might not be able to grow many of our food crops; 4. CCD is when complete hives are decimated and honeybees literally vanish.

11.

[Dennis van Engelsdorp, Pennsylvania Acting State Apiarist, PennState University Dept of Enthomology] The symptoms of colony collapse are the fact that you're, when a colony is completely dead, you're finding no bees in the colony or in the apiary. You're also not finding any of these known pathogens like varroa mite or honey bee tracheal mite that would explain the loss. And if there are bees left in the colony, you only find a handful of very young bees and the queen. And we know that it was a rapid loss because often you'll find lots of young bees or baby bees in the colony, and you'd never expect bees to leave their young behind so we see lots of young bees, but we don't find dead bees in the colony. And we don't find dead bees in the apiary. They've flown away.
[…]
[Dr Jeff Pettis, Head of Honeybee Research Lab.] Most conventional pesticides, you have a, will you say, a tomato plant, you spray the material over

the plant, insect feeds on the leaves and dies. Systemic pesticides, you feed it in irrigation or you put it on the seed. It then gets incorporated. It moves within the plant itself, and can either be expressed in the leaves. It's circulating in the leaves or in, in some cases, it can be expressed in, in the pollen, in the nectar when the plant blooms.

[…]

[Narrator] There are practical solutions you and I can do every day to save the bees. The first place to start is at home by cutting the use of toxic chemicals in our houses and on our lawns. Safe alternatives to pesticides and holistic gardening practices are often more effective than the poisons which have run amok in the suburbs as well as the corn fields.

1. apiary; 2. colony; 3. young bees; 4. pesticide; 5. nectar; 6. alternatives.

12.

1. Symptoms include: no dead bees in or near the colony; no mites or pathogens to explain the loss; only the queen and a handful of young bees are left; 2. They are sprayed over the plant, insect feeds on the leaves and dies; 3. They are incorporated within the plant and can be expressed in the leaves, in the pollen and in the nectar when the plant blooms; 4. *Personal answer*; 5. Cut the use of toxic chemicals in our houses and lawns, choose holistic gardening practices; 6. *Personal answer*.

13.

Personal answer

DEBATE TIME

14.

Personal answer

Unit 7.1 Cross-curricular topics

Pages 332-333

1.
1. d; 2. f; 3. h; 4. c; 5. g; 6. e; 7. b; 8. a.

2.
1. Three agricultural revolutions; 2. In the Palaeolithic Age; 3. In small clans; 4. During the first agricultural revolution, in the Neolithic; 5. To satisfy the need of larger and more complex societies; 6. To maximise productivity through new agricultural practices and the use of chemical fertilisers as well as advanced tools and machinery; 7. To eliminate hunger by optimising farming land exploitation; 8. On more productive agriculture techniques and the introduction of genetically engineered high-yielding and hybrid crops.

3.
1. position; 2. raw; 3. manufacture; 4. sector; 5. soil; 6. livestock; 7. size; 8. oxen; 9. feed; 10. expansion.

Pages 334-335

4.
1. Technological, economic and social changes. Britain abandoned its agrarian system and moved to an industrial one, based on mass production and power-driven machinery; 2. Trade with colonies was flourishing and provided extra capital to invest in industry and technology, encouraging a new economy; natural supplies and labour force were abundant; 3. Inventions such as the flying shuttle, the spinning jenny and the steam engine; 4. The inventions mainly concerned textile manufacturing, at the beginning; 5. Because it gave origin to large-scale production, and textile manufacturing was moved from cottages to factories; 6. The steam engine provided a new way to operate machinery because steam power replaced water power, factories could be located far from water sources and manufacturing was completely mechanised; 7. Organic fuels based on wood were replaced with others based on coal; new processes were adopted to make iron and steel stronger and increase production; 8. People crowded the new industrial towns, living and working in very bad conditions, but the death rate decreased and living standards gradually improved.

5.
1. city; 2. rural; 3. conditions; 4. polluted; 5. sanitation; 6. workers; 7. machines; 8. children; 9. law; 10. shifts.

6. 162 ***The Four Industrial Revolutions***

The four industrial revolutions are coal, gas, electronics, and the Internet. Beginning from 1760 through to the present day, we've seen an amazing evolution. Every Industrial Revolution is characterised by the invention of an innovative technology that completely changes the way of doing business.

The first industrial revolution started in Great Britain around 1760 and spread to Europe and North America through the early 1800s. It transformed our economy from agriculture to industry. The discovery of coal and its mass extraction, as well as the development of the steam engine and metal forging completely changed the way goods were produced and exchanged.

From the late 1800s, the second industrial revolution revolved around the discovery of electricity, gas and oil, which initiated mass production and the mechanisation of industrial processes. The light bulb, the telephone and the internal combustion engine were a few of the major inventions of this era.

The third industrial revolution, sometimes known as the Digital Revolution, occurred in the second half of the 20th century. In just a few decades, we saw the invention of the semiconductor, the personal computer and the Internet.

The term "fourth industrial revolution" was coined by the founder of the World Economic Forum, Professor Klaus Schwab, who used this term to describe an era marked by a "technological revolution that is blurring the lines between the physical, digital and biological spheres". Technologies like artificial intelligence, autonomous vehicles or the Internet of Things are becoming ingrained in our day-to-day lives.

So, what separates the fourth industrial revolution from the third? The main difference is that technology is merging more and more with humans' lives and that technological change is happening faster than ever.

1. innovative technology; 2. coal, steam engine; 3. the second industrial revolution; 4. the Digital revolution; 5. semiconductors, personal computers and the Internet; 6. the founder of the World Economic Forum, Professor Klaus Schwab; 7. artificial intelligence, autonomous vehicles and the Internet of Things; 8. technology is merging more and more with human lives.

Pages 336-337

7.

Causes: 1. d; 2. b; 3. c; 4. l; 5. m; 6. k.
Effects: 1. i; 2. g; 3. a; 4. j; 5. f; 6. e; 7. h.

8. 164

Teacher's note
Before listening, you can pre-teach this vocabulary:
to chop: *spaccare*
game: *selvaggina, cacciagione*
landlord: *proprietario, locatore*
vagrant: *vagabondo*

Interviewer: Good morning, Mrs Barret. Could you tell us where you lived when the Great Depression started?
Mrs Barret: Good morning. Well, I was born in O'Fallon, Missouri, on a farm called Breezy Point that later was known as Fort Zumwalt.
I: How old were you when the crisis started?
Mrs B: In 1929, I was 12 years old and I really do remember how everyone was so disturbed about the crash of the stock market.
I: Can you remember any direct consequences for the economic activities in your town?
Mrs B: Actually, there were two banks in our town at the time. One had been founded by my grandfather and it survived, but the other bank went bankrupt and account holders lost everything.
I: Were there many people who lost their jobs in your town?
Mrs B: There were lots of people without jobs, but the people who really suffered the most were those who depended on those jobs. Nobody was hiring anybody anymore.
I: And what about the farms? They had to harvest their crops. Did farmers still hire people for that?
Mrs B: The farmers who were renters were particularly hit by the crisis. You know, a farmer who rented had to give at least, I think, a third of whatever he grew, to the landlord. And if he didn't have a good crop that year, everybody suffered.
I: Did the government do anything to support them?
Mrs B: Well, actually, during the depression years the government started what they called the production credit association for farmers. And that allowed them to make loans through the government on their cattle, their crops, their intended crops because they bought… they made loans to buy seeds to plant and feed for their cattle.
I: Did you notice people helping each other more during the Depression?
Mrs B: Oh yes, when we were on a farm, there was a family that were our neighbours and their father was out of a job and they had six children. My dad always hired them and let their father hunt in our woods for his family to live off the animals he shot.
I: Did you come across any homeless people, or people who migrated from some other places into your area in search of work?
Mrs B: Well, during the Depression, there were a lot of homeless people and beggars who would walk along Highway 40, which was about a quarter of a mile from our house. And they would come down to our house and ask for food. And mom would always give them food. She would make sandwiches or whatever we were having, but she always asked them to chop some wood. So they would chop wood out while she prepared their dinner and their lunch. And then they would sit out in the back porch and eat their lunch, and then they would go on. But that happened quite often during the Depression.

Adapted from: *https://www.stlouisfed.org/the-great-depression/curriculum/interviews-barrett-6*

1. on a farm; 2. twelve; 3. crash of the stock market; 4. went bankrupt, account holders; 5. without jobs; 6. third/part, landlords; 7. loans; 8. each other; 9. out of a job, hunt; 10. food; 11. sandwiches; 12. wood.

9.

Personal answer

Pages 338-339

10.

1. an international organisation, whose main goal is to prevent wars; 2. 1945, the ratification of the UN Charter; 3. 193 member countries, two permanent observers; 4. five main bodies; 5. agencies, core objectives; 6. a list of the basic human rights; 7. makes use of peacekeeping forces a.k.a. the "Blue Helmets"; 8. the Blue Helmets and Kofi Annan were awarded the Nobel Prize for Peace.

11.

1. h; 2. f; 3. c; 4. d; 5. e; 6. b; 7. a; 8. g.

12.

Teacher's note

Note the video is from 2015 so some information about topics and the Secretary General is no longer updated.

"How does the UN work?" *posted by* NowThisWorld

In 2015, the United Nations turned 70. Since World War II, the UN has existed to foster communication between its member states to achieve global goals, which would be impossible individually. So how do they do this? How exactly does the UN work? Well, the UN is divided into six main parts. The first is the General Assembly, which includes nearly all internationally recognised countries, making up 193 member states. The Assembly meets annually in September, and debates issues on security and diplomacy. In 2015 the major topic is climate change and helping developing countries face the threat of global warming. Within the General Assembly, resolutions relating to defense as well as administrative issues like new membership and budget require a two-thirds vote. Most other issues only need the majority. Every country, regardless of size, gets a single vote. However, there are two states in the UN which are not actual members. The Vatican, whose government is called the Holy See, and Palestine. These are called permanent non-member observer states, and while they cannot vote, they are allowed to take part in debates. The second arm of the UN is the Security Council. It exists to prevent conflict on a large scale, promoting peace through democracy or sanctions. It only has five permanent members: Russia, France, China, the UK and the US, which were the winning powers in WWII. The permanent members have veto power, and their use has been incredibly controversial. The US, for example, has vetoed dozens of resolutions against Israel for their actions in the Middle East. There are ten members representing Africa, Asia, Eastern Europe, Latin America, and Western Europe. Those ten are elected on a rolling basis every two years to make sure the major world regions have representation. The Security Council's resolutions are carried out by the UN's peacekeeping force, which boasts about 100,000 soldiers. One of the most important parts of the UN is the Economic and Social Council, which works to improve standards of living and promote human rights. Most of what the UN actually does is centered around helping developing countries. The Council works with specialised agencies like the World Health Organisation and the High Commission for Refugees to make that happen. The judicial arm of the UN is the International Court of Justice. This is where international law violations are debated and prosecuted, although countries with significant power can often refuse to comply with the decisions. The fifth arm of the UN is actually not operational. The Trusteeship Council was created in the 1940s to help developing territories and dependencies become independent countries. The Council was suspended in 1994 after helping more than 70 countries gain independence. And finally, the Secretariat is essentially the internal, administrative workings of the UN. They're the ones who compile reports, communicate between the different councils, and are headed by the UN Secretary General, Ban Ki-Moon. Although the UN exists to promote global cooperation, many have criticised the greater influence of the five permanent Security Council members. Still, the UN has seen incredible advances in fighting hunger, poverty, and child mortality. Without communication and cooperation, the world would be considerably worse. Want to get a deep dive into why the UN Security Council has five permanent members? Check out Seeker Daily's videos to find out more. Thanks for watching. Be sure to subscribe for more.

1. 193 members states; 2. once a year/annually/ in September; 3. on security and diplomacy; 4. resolutions; 5. memberships; 6. permanent; 7. veto; 8. ten; 9. the general assembly; 10. security; 11. sanctions and peacekeeping forces; 12. standards of living; 13. specialised agencies; 14. international law violations; 15. 1994; 16. administrative.

Teacher's note

Extra activity

PAIR WORK. Listed below are some of the fundamental rights identified by the UDHR. Say which ones you consider to be more important and why.

1. The right to vote in elections once you reach the voting age
2. The right not to be required to do forced labour and not to be treated as a slave
3. The right not to be sentenced to death for any crime
4. The right to have your own thoughts, beliefs and religion
5. The right to move freely within our country, and to visit and leave other countries
6. The right to rest and leisure

Personal answers

Pages 340-341

13.

1. T; 2. F, The global market was alarmed; 3, F, The British pound fell to its lowest level against the dollar; 4. T; 5. F, Theresa May replaced David Cameron; 6. F, Her efforts to conclude a deal failed and she had to resign; 7. T; 8. F, Customs borders between the UK and EU countries were introduced.

14.

Leave	Stay
2, 3, 5, 6	1, 4, 7, 8

15. 167

1. g; 2. h; 3. f; 4. c; 5. b; 6. a; 7. d; 8. e.

Journalist: Immigration was one of the most pressing issues for the Leave side campaign. What did the pro-Brexit voters fear?
Interviewee: Most of them were afraid of the free movement of immigrants and refugees, believing that they were depriving British citizens of their jobs and benefits. The main goal of the UK government after Brexit was therefore to considerably reduce the levels of immigration in the country, creating a new immigration system based on national law requirements.
J: When did the new rules come into force?
I: The new immigration system was introduced on January 1st 2021: from that date free movement came to an end and EU citizens who wanted to live and work in the UK have needed to apply for a visa.
J: How does the post-Brexit immigration system work?
I: The migrant workers are awarded points based on their specific skills and qualifications: visas are granted only to those who have enough points.
J: What happens if someone is found without a valid visa?
I: When he was appointed Prime Minister, Boris Johnson assured British people that there would be zero tolerance on immigration. With Brexit, the country is no longer subject to the judgements of the EU Court of Justice. Even though human rights have to be respected, deportation for immigrants who cross the British border illegally or for people without a valid visa is easier. Therefore, also an EU worker with an expired work permit might be declared an overstayer and, subsequently, sent back home.
J: And what about EU citizens who were already living and working in the UK?
I: Citizens who were already living in the UK before 31st December 2020 had to file an application to the EU Settlement Scheme.
J: What has happened to UK citizens living in an EU country?
I: They continue residing and working in the EU member State but if they decide to move to another EU member state, they will be subject to different migration rules.

16.

1. F, Most of the pro-Brexit voters did; 2. F, The new migration system was implemented on 1st January 2021; 3. T; 4. T; 5. F, Boris Johnson's government showed zero tolerance; 6. F, The UK is no longer subject to the EU Court of Justice; 7. T; 8. F, They are sent back home; 9. T; 10. T.

Pages 342-343

17.

1. intelligence, skills and strong willpower; 2. individual initiative, hard work and perseverance; 3. the self-made man; 4. they worked hard; 5. collecting goods that enable him to produce what he needs; 6. believes he has the duty to "civilise" the savage Friday.

Sample questions
1. What are the main qualities of a self-made man?; 2. What principles are these ideals based on?; 3. What does Robinson Crusoe represent?; 4. What did the Puritans think you needed to do to earn God's favour?; 5. What does Robinson Crusoe do in order to survive?; 6. Why can he also be seen as a coloniser?

18. 169

I had been now thirteen days on shore, and had been eleven times on board the ship, in which time I had brought away all that one pair of hands could well be supposed capable to bring; though I believe verily, had the calm weather held, I should have brought away the whole ship, piece by piece. But preparing the twelfth time to go on board, I found the wind began to rise: however, at low water I went on board, and though I thought I had rummaged the cabin so effectually that nothing more could be found, yet I discovered a locker with drawers in it, in one of which I found two or three razors, and one pair of large scissors, with some ten or a dozen of good knives and forks: in another I found about thirty-six pounds value in money – some European coins, some Brazil, some pieces of eight, some gold, and some silver.
I smiled to myself at the sight of this money: "O drug!" said I, aloud, "what art thou good for?

Thou art not worth to me – no, not the taking off the ground; one of those knives is worth all this heap; I have no manner of use for thee – e'en remain where thou art, and go to the bottom as a creature whose life is not worth saving." However, upon second thoughts I took it away; and wrapping all this in a piece of canvas, I began to think of making another raft; but while I was preparing this, I found the sky overcast, and the wind began to rise, and in a quarter of an hour it blew a fresh gale from the shore.

1. thirteen; 2. eleven; 3. twelfth; 4. locker; 5. razors; 6. scissors; 7. knives; 8. forks; 9. money; 10. worth.

19.

1. consumer; 2. producer; 3. collection; 4. survival; 5. behaviour; 6. capitalist; 7. useful; 8. introduction; 9. possibility; 10. survival.

Pages 344-345

20.

1. The landowners or their spokesmen; 2. There are three types: some feel bad, some feel angry, and some others are insensitive as they realise their detachment can help them keep their job; 3. Men; 4. Because manual labour can be replaced by machines; 5. He wears gloves, goggles and a rubber dust mask; 6. He would lose his job.

21.

1. The tenants watched uneasily; the owner men sat in their cars to talk out of the windows; 2. needs – wants – insists – must have; 3. Like the landowner, the tractor man is part of a system that is far beyond his control; 4. Just as the tenant is powerless to resist the tractor man, the tractor man is powerless to oppose the harm he's doing.

Pages 346-347

22.

1. The imaginary inventor of the mass-production of babies; 2. It introduces the society of the Brave New World; 3. He is enthusiastic about the great opportunities provided by this process; 4. They are the major instruments of social stability; 5. Community, Identity and Stability. Community means giving up individual beliefs. Identity is the state of being exactly like everybody else. Stability is the equivalent of impossibility to change because everything is programmed; 6. It is identified with the mass production which is applied to human beings; 7. To engineer individuals to enjoy and accept their destiny; 8. Identical men or women for identical machines mean the possibility of precise prediction and programming with no margin of error.

23.

1. Embryo; a rackful of test-tubes; incubators where the buds began to develop; X-rays; proliferate; divide; 2. The narrator points out their passive attitude: "the students underlined the words in their little note-books", *"Responds by budding.* The pencils were busy"; 3. They are: "his expression was solemn" and "The voice was almost tremulous with enthusiasm"; 4. They are used in American schools to grade students: Alpha Plus is the highest, Epsilon Minus the lowest. Similarly, Alpha and Beta are the human models destined to management and directional duties whereas Gamma, Delta and Epsilon are the models destined to perform manual and low jobs.

Pages 348-349

24.

1. The European Directive 89/391 EEC adopted in 1989; 2. It introduced the principle of risk assessment together with the preventive measures to eliminate risk at source; 3. In 2008, with the Legislative Decree no. 81, which stated the obligations that fall under the direct responsibility of the employer, with the aim of preventing accidents and occupational diseases; 4. In 2021, the European Commission adopted the EU strategic framework on health and safety at work 2021-2027. It sets out the key actions needed to improve workers' health and safety over the coming years.

25.

1. workplace; 2. deaths; 3. fatalities; 4. reduction; 5. trend; 6. generation; 7. farmers; 8. safer.

26.

1. d; 2. f; 3. a; 4. b; 5. g; 6. e; 7. c.

Pages 350-351

27.

1. i; 2. j; 3. a, b, c, f; 4. h; 5. g; 6. d, e.

28.

1. d; 2. c; 3. a; 4. e; 5. b; 6. f.

Pages 352-353

Teacher's note

Extra activity

Look at the letter below and identify the sections that make up this letter of application.

date – signature – conclusion – closing salutation – sender's address – recipient's address – opening/greeting – personal details – introduction – reason for writing

1 23, Clareville Rd.
Cork
D17 8QF

2 26 October 20…

3 Mr Jones
Meadows Farm
11, Bond Road
Dublin
D18 5FT

4 Dear Mr Jones,

5 I am writing in response to your advertisement in "The Guardian" of 20 October, for the position of Production Technician.

6 I have just obtained my vocational certificate from James Peterson High School. Although I do not have a lot of work experience, I had the opportunity to do a three-month internship during my fifth year, in which I worked as a production technician at Parsley&Green, a dairy producer based near Cork. I have no objection to working weekends as I am very flexible, motivated and hard-working. I would really enjoy the opportunity to work in your company, because I think it would be both rewarding and challenging.

7 I would like to meet you to further discuss my skills and experience.

8 Please find enclosed a copy of my CV.

9 Yours sincerely

10 **Mike Taylor**

Keys:
1. Sender's address; 2. Date; 3. Recipient's address; 4. Greeting/opening salutation; 5. Introduction; 6. Personal details; 7. Reason for writing; 8. Conclusion; 9. Closing salutation; 10. Signature.

29.

1. j; 2. a; 3. f; 4. d; 5. g; 6. i; 7. e; 8. h; 9. b; 10. c.

Sample answer
Gent. Sig. Campbell,
Le scrivo in risposta all'annuncio su *The Guardian.*
Sono estremamente interessato a intraprendere la carriera di enologo.
Al momento sto frequentando il mio ultimo anno all'Istituto Professionale Parker e non posso diplomarmi se non faccio un regolare tirocinio: una volta fatto potrò sostenere il mio esame finale e cominciare a cercare un lavoro.
Come può vedere dal CV allegato, ho frequentato corsi per imparare a controllare e gestire pulizia, conservazione, chiarificazione, filtrazione e stabilizzazione del vino. Anche se non ho ancora alcuna esperienza lavorativa, sono molto motivato e volenteroso. Ho anche buone capacità comunicative e mi piace lavorare con altre persone.
Gradirei molto avere l'opportunità di darle personalmente ulteriori informazioni.
Grazie per il suo tempo e la sua attenzione.
Distinti saluti
James Kent

30.

Sample answer
Dear Mr Roberts,

I am writing to apply for the position of Garden Machinery Mechanic advertised on your company's website.

I obtained my diploma in Agricultural Science four years ago and since then I have been working in a garden centre.

As you can see from my enclosed CV, I received good marks for my vocational qualification, and during my time at school I had the opportunity to undergo training and develop experience working part-time as a mechanic for a garden machinery centre during the holidays.

I would really welcome the opportunity to further discuss the details of the position with you in person.

Yours sincerely,

Antonio Rossi

Teacher's note

Extra activity
PET – informal letter writing
This is part of a letter you received from your friend James:
"Tell me about the job you did during your summer holidays".
Tell him about the following:
· where the job was
· what kind of work you did
· your colleagues
· what you thought of it
· something unexpected that happened
· what you did.
Write your letter in about 100 words.

31.
Sample answer

PERSONAL INFORMATION	
First Name/ Surname	James Hutton
Address	68 Queen Mary St., Plymouth PL7 3GH
Phone number	0798 8326578
Email address	jameshutton@hotmail.co.uk
Date of Birth	6 October 1991
Place of Birth	Southampton
Nationality	British
EDUCATION AND TRAINING	
Name of school or college	Tellus College
Dates	2010
Title of qualification & grade	Vocational Diploma in Agronomy, Biology and Design. Pass with merit
WORK EXPERIENCE	
Name and address of employer Dates Position held Duties	Clayton Garden Projects, 55 Lower High Street, Plymouth Summer 2009 Assistant Landscape Designer Plan the location of flowers and shrubs in parks and gardens
Foreign languages IT skills Personal skills Additional skills	Spanish (level B2) Word processing, spreadsheet Hardworking and dependable Driving licence
References	Mr Timothy Smith, Manager, Clayton Garden Projects, 55 Lower High Street Plymouth, 01653 445582

32.
Personal answer

Teacher's note

Some additional interesting facts about CVs:
· The average time spent by recruiters looking at a CV: 5 to 7 seconds.
· 76% of CVs are discarded for an unprofessional email address (e.g. dragonball98@gmail.com).
· 88% of CVs are rejected if you do not include a photo.
· Only 35% of applicants are actually qualified for the jobs they apply for.
· 89% of recruiters have hired someone through LinkedIn.
· 93% of recruiters are likely to look at a candidate's social media profile.

Pages 354-355

33.
Order: 1, 4, 2, 3.
Sample answer
First of all, you start looking for a job in newspaper job vacancy pages. Then you write your CV and send it off. After that, you fill in an application form. Finally, you may get an interview.

34.
1. b, Good Morning, I am Mr Thompson; 2. g, I'd like to ask you a few questions; 3. f, Can you tell me about your previous work experience, please?; 4. c, I see. Why do you want this job?; 5. d, Do you work well in a team?; 6. a, How do you feel about working nightshifts or at the weekend?; 7. i, Do you have any questions for me?; 8. e, Yes, sure and you will receive benefits and/or compensation for that; 9. h, We'll let you know as soon as possible.

35.

Teacher's note

The extract is from the film *The Pursuit of Happyness* (2007).
Chris Gardner (Will Smith) is a San Francisco salesman who's struggling to make ends meet. When his girlfriend walks out, Chris is left to raise their five-year old son on his own. Chris's determination to succeed leads him to land an interview for an internship programme with Dean Witter, a stock brokerage firm. The day before the interview Chris takes a break from decorating his apartment to go to the police station to pay some parking fines. However, the police insist on keeping him in jail until his cheque can be cleared the next day at 9h30. The interview is at 10h15.

Assistant: Chris Gardner.
Chris: Chris Gardner. How are you? Good morning. Chris Garner. Chris Gardner. Good to see you again. Chris Gardner, pleasure. I've been sitting out there for the last half-hour trying to come up with a story that would explain my being here dressed like this. And I wanted to come up with a story that would demonstrate qualities that I'm sure you all admire here, like earnestness or diligence or team-playing, something. And I couldn't think of anything. So, the truth is, I was arrested for failure to pay parking tickets.
Interviewer 1: Parking tickets?
Chris: And I ran all the way here from the Polk Station, the police station.
Interviewer 2: What were you doing before you were arrested?
Chris: I was painting my apartment.
Interviewer 2: Is it dry now?
Chris: I hope so.
Interviewer 2: Jay says you're pretty determined.
Interviewer 1: He's been waiting outside the front of the building with some 40-pound gizmo for over a month.*
Interviewer 2: He said you're smart.
Chris: Well, I like to think so.
Interviewer 2: And you want to learn this business?
Chris: Yes, sir, I wanna learn this business.
Interviewer 2: Have you already started learning on your own?
Chris: Absolutely.
Interviewer 2: Jay?
Interviewer 1: Yes, sir.
Interviewer 2: How many times have you seen Chris?
Interviewer 1: Oh, I don't know. One too many, apparently.
Interviewer 2: Was he ever dressed like this?
Interviewer 1: No, no. Jacket and tie.
Interviewer 2: First in your class in school? High school?
Chris: Yes, sir.
Interviewer 2: How many in the class?
Chris: Twelve. It was a small town.
Interviewer 2: I'll say.
Chris: But I was also first in my radar class in the Navy, and that was a class of twenty. Can I say something? I'm the type of person, if you ask me a question, and I don't know the answer, I'm gonna tell you that I don't know. But I bet you what. I know how to find the answer, and I will find the answer. Is that fair enough?
Interviewer 2: Chris. What would you say if a guy walked in for an interview without a shirt on and I hired him? What would you say?
Chris: He must've had on some really nice pants.
Jay: Chris, I don't know how you did it dressed as a garbage man, but you really pulled it off in there.
Chris: Thank you very much Mr Twistle.
Jay: Hey, now you can call me Jay. We'll talk to you soon.
Chris: All right, so I'll let you know, Jay.
Jay: "You'll let me know, Jay". What do you mean?
Chris: Yeah, I'll give you a call tomorrow sometime.
Jay: What are you talking about? You hounded me for this. You stood here.
Chris: Listen, there's no salary.
Jay: No.
Chris: I was not aware of that. My circumstances have changed some and I need to be certain that I'll be…
Jay: OK. Tonight. I swear I will fill your spot. I promise. You know what I'll look like, if you back out, you know what I'll look like to the partners?
Chris: Yes, an ass – A-hole.
Jay: Yes, an ass A-hole, all the way. You are a piece of work. Tonight.
Chris: There was no salary. Not even a reasonable promise of a job.

Sample answers
Common rules: He introduces himself, he speaks honestly, he doesn't lie, he shows that he likes challenges and problem-solving, he is dependable and resolute.
Uncommon behaviour: He doesn't wear smart or appropriate clothes, he doesn't look clean.
The interview was successful, but he will not accept the post because he won't be paid.

Pages 356-357

36.
1. H; 2. S; 3. H; 4. H; 5. H; 6. H; 7. S; 8. S; 9. S; 10. H.

37. 177
Journalist: Good morning, ladies and gentlemen. Today in our studio we have Anthony Root, HR Manager of Hydroponics Ltd.
GC: Good morning.
J: Mr Root, would you like to tell our audience what your company expects from its employees?
GC: Sure, Ms Hunt. Today it is really important to understand what the fundamental moral codes and principles are as far as the workplace is concerned. If you are working in any business, there is a code of conduct and some particular attitudes that a worker has to show at work. This is what we call workplace ethics. Ethics cannot be taught, because they are something you feel is based on the moral principles each individual builds up by observing the role models they grow up with: that is to say parents, teachers, friends, colleagues or any person we come to interact with.
J: It must be very difficult to understand if anyone has it.

GC: That's for sure! You can't just understand it by reading a cover letter, an application form or a CV. You can only see it through an individual's attitude in the workplace.
J: Can you tell us what kind of attitude or behaviour an employer expects from an employee?
GC: Well, first of all punctuality, which means that if you have to start work at 8, you'd better be there at least 10 minutes earlier! Then, you have to show responsibility, which may mean even admitting that you have made a mistake and you are able to fix it by taking the initiative.
J: Do you mean that a person should never try to hide any mistakes or, even worse, blame someone else?
GC: Yes, exactly! You must always show integrity and honesty, which are fundamental in order to demonstrate your respect for the people around you.
J: Does this include wearing proper clothes and using proper language, too?
GC: Certainly! This is how you make other people see that you are behaving in a professional way.
J: Thank you, Mr Root.

1. T; 2. F, You can gain them by looking up to your role models who can inspire you through example, but they can't be explicitly taught; 3. F, No, they can't: you can show your ethics through your behaviour; 4. T; 5. F, They are really important because they give the recruiter the first impression of your personality; 6. F, Admitting your mistakes helps people understand that you are a responsible person.

38.

Sample answer
1. You should always be punctual; 2. You should collaborate with your colleague and show that you can work as a team; 3. You should ask for help and learn how to read them; 4. You should perform routine maintenance; 5. You should respect deadlines; 6. You should learn at least one foreign language.

Pages 358-359

39.

1. It has existed throughout human history; 2. They were employed because they were more submissive and could be paid less; 3. They had to work in factories and mines; 4. It recognises the children's right to education, play, healthcare and a supportive environment; 5. The ILO Convention sets 18 as the minimum age to start working in jobs that might be harmful to a person's health and safety; 6. About 160 million; 7. They are used as soldiers; 8. The main cause of child labour is poverty.

40.

1. a; 2. c; 3. b; 4. c; 5. a; 6. c; 7. b; 8. a.

Pages 360-361

41.

1. rights/opportunities; 2. sociological, biological; 3. discrimination; 4. fathers and husbands; 5. gender; 6. decision-making, lower.

42. 180

Journalist: How does gender discrimination affect society?
Expert: Poverty is one of the clearest examples of how gender discrimination affects society. Actually, in most countries, women represent the majority of the poor, even though they contribute to about 70% of the world's food production.
J: How is that possible?
E: Well, women often have limited access to the materials they need and even to the food they produce. If they could be granted their own land and the tools they need to work, as well as achieve new skills to improve their performance, food production would increase.
J: Has the situation improved over the last few years?
E: As a matter of fact, up until the outbreak of the COVID-19 pandemic some progress was being made. Unfortunately, a recent report from the UN estimates that for every 100 men, 121 women will be living in extreme poverty by 2030 due to the consequences of lockdowns and slowdowns.
J: But this is true for both women and men.
E: Undoubtedly, but women were affected more, since job losses resulting from the crisis have particularly affected sectors such as service industries where mostly women are employed.
J: Is female participation in the labour market still inferior to men's?
E: Without a doubt! In 2020, only 47% of women of working age participated in the labour market, compared to 74% of men, a gender gap that has remained relatively consistent since 1995.
J: And what about the pay gap between women and men, is it still relevant today?
E: Oh yes! Women still do most of the unpaid domestic and care work and only earn 10% of global income.
J: It seems quite unimaginable today.
E: Well, it should be remembered that in 18 countries around the world husbands can legally prevent their wives from working, while in 38 economies there are no laws prohibiting the dismissal of pregnant women by their employers.
J: So, this is the situation of our societies on an economic level, but what about the political level – is women's participation greater there?
E: Not really, even though in 2020 women's representation in the political sphere more than

doubled globally. 25% of members of parliament are female and women make up just 22% of the world's cabinet ministers.

1. T; 2. F, 70%; 3. F, Women living in extreme poverty will be more than men; 4. T; 5. F, 47% (or 74% of men); 6. T; 7. F, 10%; 8. T.

43.

1. c; 2. a; 3. b; 4. a; 5. b; 6. c.

Pages 362-363

44.

1. F, It needs small amounts of micronutrients; 2. T; 3. F, They are macronutrients; 4. F, They are simple carbohydrate molecules; 5. T; 6. F, Fibre passes through the body undigested; 7. T; 8. T.

45. 182

Sugars

Sugars provide living things with energy. They also act as substances used for structure. Scientists use the word saccharide to describe sugars. If there is only one sugar molecule, it is called a monosaccharide. If there are two, it is a disaccharide. If there are three, it is a trisaccharide. When there is a whole bunch, it is a polysaccharide. A sugar called glucose is the most important monosaccharide on Earth. Glucose is used in cellular respiration and created by photosynthesis. When several carbohydrates combine in a chain, this is called polysaccharide. These chains are also known as starches; they can be found in foods like pasta and potatoes. Another important polysaccharide is cellulose, which is found in plants; it is one of those carbohydrates used for structure.

1. energy; 2. structure; 3. saccharide; 4. one; 5. two; 6. three; 7. polysaccharide; 8. glucose; 9. photosynthesis; 10. chain; 11. starches; 12. cellulose.

46.

1. proteins; 2. binding; 3. enzyme; 4. interaction; 5. bonds; 6. link; 7. molecule; 8. shape.

Pages 364-365

47.

2. Why are proteins needed? They provide material for growth and repair of body tissue, being essential components of living cells. What foods provide proteins? They are found in plants and in animal foods, such as meat, fish, eggs and milk products; 3. Why are fats needed? They are a concentrated source of heat and energy and contain fat-soluble vitamins. What foods provide fats? They are found in oil, butter, margarine, milk, cheese, meat, fatty fish and eggs; 4.Why are mineral salts needed? They are necessary for healthy teeth, bones, muscles, etc. What foods provide minerals? They are found in many different foods; 5. Why are vitamins needed? They act as antioxidants and carry out metabolic reactions in the body. What foods provide vitamins? They are mainly found in fresh fruit and vegetables; 6. Why is fibre needed by the body? It helps the intestine function correctly. Where is it found? It is found in plant food only; 7. Why is water needed by the body? It prevents dehydration, carries out life processes and carries away waste products What foods provide water? It is found in almost all foods, particularly fruit and vegetables.

48.

Sample answer

Carbohydrates are needed because they provide energy and heat. They can be found in bread, pasta, rice, potatoes, sweets, cakes, jam, etc.

Proteins are needed to provide material for growth and repair of body tissue, being essential components of living cells. They are found in plants and in animal foods, such as meat, fish, eggs and milk products.

Fats are a concentrated source of heat and energy and contain fat-soluble vitamins. They are found in oil, butter, margarine, milk, cheese, meat, fatty fish and eggs.

Mineral salts are necessary for healthy teeth, bones, muscles, etc. They are found in many different foods.

Vitamins act as antioxidants and carry out metabolic reactions in the body. They are mainly found in fresh fruit and vegetables.

Fibre helps the intestine function correctly. It is found in plant food only.

Water prevents dehydration, carries out life processes and carries away waste products. It is found in almost all foods, particularly in fruit and vegetables.

49.

Personal answer

Pages 366-367

50.

1. b; 2. e; 3. d; 4. c; 5. f; 6. a.

51.

1. natural; 2. healthy; 3. made with whole grains; 4. made with real fruit; 5. lightly sweetened.

52. 185

Why should you read food labels carefully?

Y*ou may associate reading nutrition labels with*

*trying to lose **weight**, but the truth is, reading food labels is an important **practice** for everyone. Reading the ingredients list is essential when you're trying to limit things like sugar or increase your intake of **nutrients**, such as fibre.*
*Check the serving **size** and the servings per container, it will prevent you from overeating.*
The number of calories is also one of the most important parts of the label to check.
*Also check the nutrients such as dietary **fibre**, vitamin A, vitamin C, **calcium**, protein, and iron. Look at the fat. Total fat includes all types of dietary fat; trans fat, saturated fat, monounsaturated fat, and polyunsaturated fat.*
*Reading labels can help you start limiting your **intake** of ingredients that are unhealthy in large quantities: **sodium**, sugar, and trans fat, which raises your LDL ("bad") cholesterol and lowers your HDL ("good") cholesterol.*
(Sarah E. Ludwig – Adapted*)*

1. weight; 2. practice; 3. nutrients; 4. size; 5. fibre; 6. calcium; 7. intake; 8. sodium.

Unit 7.2 Grammar

Pages 368-369

1.
1. works; 2. use; 3. are converting; 4. is currently causing; 5. requires; 6. starts; 7. are making; 8. does not always provide.

2.
1. have finished; 2. have been trying; 3. have been helping; 4. have known; 5. haven't got; 6. have opened; 7. hasn't been working; 8. have been working.

3.
1. has been manufacturing, have you ever heard, are, have just started, are booming; 2. have been visiting, haven't made up, say, is, are talking; 3. are you reading, is complaining, have been doing, hasn't paid, have you worked, work; 4. are you, am leaving, have been working, have gone, can't concentrate.

Pages 370-371

4.
1. a. was waiting; b. hired; 2. a. had; b. was flying; 3. a. was ringing; b. crossed; 4. a. was writing; b. knocked.

5.
1. had drawn up; 2. had designed; 3. had never given; 4. had been looking; 5. had seen; 6. had been staying.

6.
1. had issued; 2. did you notice; 3. had been producing; 4. had sold; 5. had been trying, hadn't answered; 6. were producing, launched.

Pages 372-373

7.
1. 'm going to install; 2. 'll give; 3. 'll try; 4. 're going to waste; 5. will be kept; 6. won't break; 7. will be; 8. are going to become.

8.
1. will have paid; 2. will have finished; 3. will have delivered; 4. will you have achieved; 5. will have moved; 6. will have poured.

9.
1. takes off; 2. will play; 3. will become; 4. am going to be; 5. will be; 6. I'm going to try; 7. meets; 8. ship, will have looked for.

Pages 374-375

10.
1. Type 1 – The parcel would arrive if you ordered it online; The parcel would have arrived if you had ordered it online; 2. Type 3 – The customers will buy the goods if they are in stock; The customers would buy the goods if they were in stock; 3. Type 2 – If the ad is good, it will help to sell more; If the ad had been good, it would have helped to sell more; 4. Type 3 – If you send the email, you will get the refund; If you sent the email, you would get the refund.

11.
1. Type 3, wouldn't have increased; 2. Type 1, will place; 3. Type 3, had sold; 4. Type 2, would you ask; 5. Type 1, don't receive; 6. Type 1, will be; 7. Type 1, will reduce; 8. Type 2, offered; 9. Type 2, could speak; 10. Type 1, need; 11. Type 0, choose; 12. Type 0, evaporates.

12.
1. rained; 2. would stop; 3. were; 4. had told; 5. had never applied; 6. would teach; 7. had; 8. had purchased.

Pages 376-377

13.
1. after; 2. for; 3. during; 4. by; 5. in; 6. until; 7. at; 8. between.

14.
1. in the corner of; 2. outside; 3. opposite; 4. at the top of; 5. between; 6. in, under; 7. in the middle of; 8. close to.

15.
1. away from; 2. through; 3. up, down; 4. out of, past, across; 5. around; 6. onto.

Pages 378-379

16.
1. greater than; 2. as good as; 3. less resistant; 4. higher; 5. taller; 6. as big as; 7. more susceptible; 8. more productive.

17.
1. the best; 2. worst; 3. the most important; 4. the most common; 5. the highest; 6. the best.

18.
1. Ms Patterson is the least qualified agronomist they have employed; 2. We spent less time and money on the project that we had taken into account; 3. Our receptionist speaks English more fluently than French; 4. This is the least short and busiest route to go to the local wind farm; 5. Kim's solution is less good than Jim's; 6. The phyto-sanitary treatment was less efficient than we expected.

Pages 380-381

19.
1. some/many, none/few, too; 2. many, a few, none/some/many; 3. very/too, any; 4. some, no.

20.
1. some/a little/a lot of; 2. any; 3. enough; 4. very; 5. too much; 6. a lot of/several/many/lots of; 7. few/a few; 8. no, enough.

21.
1. are too expensive; 2. Several documents need/have to; 3. Any item from this list; 4. few.

Pages 382-383

22.

	Def. or non-def?	People or things?	Subj., DO, or IO?	Noun phrase
1. Ms Therry, who has just been moved to Paris, has a lot of experience with Frenchmen.	Non-def.	People	Subj.	Ms Therry
2. Our wooden pallets, which we'll be using for delivery, haven't been treated with chemicals.	Non-def.	Things	DO	Our wooden pallets
3. What is the name of the secretary X you talked to on the phone?	Def.	People	IO	The secretary
4. The trade fair X we attended wasn't very good.	Def.	Things	DO	The trade fair
5. Our latest catalogue, which you ordered on, is not updated.	Non-def.	Things	IO	Our latest catalogue
6. We are looking for the accountant that wrote this invoice.	Def.	People	Subj.	The accountant
7. My new credit card, which has a limit of £ 3,500, has just been stolen.	Non-def.	Things	Subj.	My new credit card
8. She works for a garden centre which has a good reputation.	Def.	Things	Subj.	A garden centre
9. The man X he has fired is Rebecca's cousin.	Def.	People	DO	The man
10. The country with which he trades has very restrictive laws.	Def.	Things	IO	The country

23.
1. (who/whom/that); 2. whose; 3. what; 4. where; 5. (which/that); 6. which, what.

24.
1. complaint which has been written; 2. where I work is; 3. (who/whom/that) we are looking for; 4. who was born rich.

Pages 384-385

25.
Sample answers
1. The – The Seine flows across Paris, just under the windows of our main premises; 2. The – We want to expand our market to the United Kingdom by next year; 3. The – The Isle of Man is difficult to be reached; 4. A, The – Can you please pass me a chair? – The chair you're sitting on is our latest sales success; 5. A, 0 – A Mr Reddington is waiting for you in the lounge, Susan. – I wish Mr Reddington didn't find out; 6. 0 – We might choose yellow for the new line of carpets; 7. A, The, 0 – There's a church beside our office block. – We need to put some leaflets about the initiative in the local church. – Mary usually goes to church during her lunch break, she's very religious; 8. An, The – An HR manager is in charge of all the staff of a company. – To solve this problem, you need to address the HR manager; 9. The, 0 – The mobile phones the competition sells aren't up to our safety standards. – Mobile phones are the new frontier of advertising; 10. The – The pen next to the book is Michelle's; 11. A – We've just ordered a thousand copies of the catalogue; 12. The – We won't be able to sell this product to the rich: they're too hard to please.

26.
1. Hundreds of our customers are asking for **a** refund; 2. Should unemployed people protest more with the government?; 3. **The** ABD Ltd Bulletin is published three times a year; 4. Taking a boat on **the** Thames in London is too expensive; 5. Spring is **the** ideal time to launch our product; 6. We have a branch here in George Street and another one in Atlanta; 7. We export to Africa, to Thailand and to the US at least once a month; 8. Kim's **a** personnel manager but she's attending a course in accounting, too; 9. Don't worry, everybody makes mistakes and the boss is very understanding; 10. We only serve wines from Napa Valley in our restaurant.

27.
1. 0; 2. 0; 3. the; 4. the; 5. a; 6. a; 7. 0; 8. 0; 9. the; 10. the; 11. the; 12. 0; 13. the; 14. a; 15. the; 16. 0; 17. 0; 18. 0; 19. 0; 20. the; 21. the; 22. the; 23. 0; 24. 0; 25. 0; 26. 0; 27. a; 28. 0; 29. the; 30. 0.

Pages 386-387

28.
1. prohibition; 2. permission; 3. probability; 4. necessity; 5. offer; 6. deduction.

29.
1. may I; 2. can't; 3. are allowed to; 4. shouldn't; 5. doesn't have to; 6. could.

30.
1. a; 2. c; 3. b; 4. b.

31.
1. won't be able to; 2. Would you answer the; 3. mustn't/can't feed; 4. Expenses have to; 5. could/may try the new strategy; 6. don't have to send.

Pages 388-389

32.
1. correct; 2. may have lost; 3. could have reached; 4. correct.

33.
1. must have found; 2. was able to have; 3. shouldn't have rejected; 4. did you have to interview; 5. weren't allowed to enter; 6. needn't have asked.

34.
1. T; 2. F; 3. F; 4. T; 5. T; 6. T.

Pages 390-391

35.
1. It was organised; 2. She has spent £3,000; 3. The will deal with it; 4. The invoice is being given to Mary/Mary is being given the invoice; 5. They should have written it; 6. The form is going to be filled in; 7. The manager was being called; 8. The parcel had been sent him/He had been sent the parcel; 9. I have checked the figures; 10. They delivered the furniture on time; 11. A new catalogue will be printed; 12. You must complete the report by Friday.

36.
1. You should have someone mend the seed drill/You should have the seed drill mended; 2. They had the order sent by courier/The had a courier to send the order; 3. The landowner let his labourers leave an hour earlier; 4. He got his

boss to invest in his project; 5. Brexit made the British currency drop in its value; 6. They had an architecture firm to design their new premises/ They had their new premises designed by an architecture firm.

37.

1. are; 2. /; 3. make; 4. being; 5. been; 6. /; 7. got; 8. repainted.

Pages 392-393

38.

1. Johanna said to the Mr Rossi (that) she had worked in Napa Valley in California up to the previous year/the year before, then she had moved there and she was currently looking for a new experience; 2. Carol said to Sam/told Sam (that) she had just told her customers that there had been a problem with the couriers, then asked what she should tell them if they decided to cancel the order; 3. Jim said (that) those costs were too high for their farm and (that) they were going to ask another provider for a new quotation; 4. Mr Constable told Anna not to answer that email yet because he wanted to ask his lawyer first. Then he told her to call him; 5. Ms Clondy said to Kim/told Kim that she needed to get to New York the following week/the week after and (she told her) to book her a flight but not to book the hotel she had booked the month before/the previous month because it had been awful; 6. Mr Williamson said he was calling from Sydney but he was flying to Madrid the following Saturday/the Saturday after. (He added that) He was going to meet all his representatives there.

39.

1. e, to send; 2. d, to send; 3. a, sending; 4. g, sending; 5. c, to send; 6. f, to send; 7. h, to send; 8. b, to send.

40.

1. c; 2. b; 3. b; 4. c.

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