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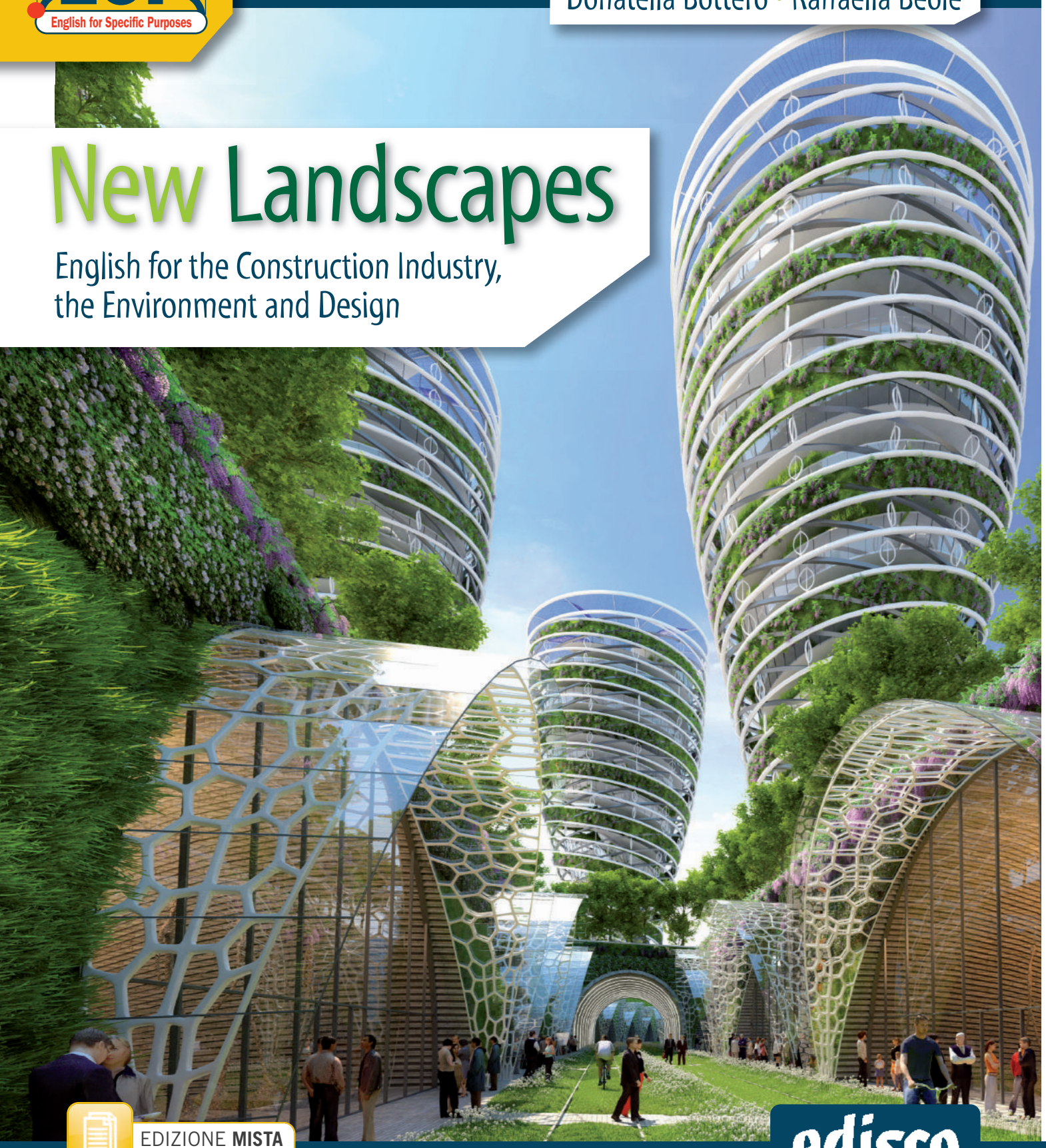
English for Specific Purposes

Donatella Bottero • Raffaella Beolé

New Landscapes

English for the Construction Industry, the Environment and Design



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Donatella Bottero • Raffaella Beolé

NEW LANDSCAPES

English for the Construction Industry, the Environment and Design

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New Landscapes

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PRESENTAZIONE

L'ARGOMENTO

New Landscapes è rivolto agli studenti del 2° Biennio e del 5° anno degli Istituti Tecnici, Settore Tecnologico, Indirizzo "**Costruzioni, Ambiente e Territorio**".
Grazie alla ricchezza del materiale proposto, ***New Landscapes*** – concepito per promuovere un apprendimento attivo basato sui contenuti (*content-based learning*) – offre la possibilità di scegliere gli argomenti sia in base ai programmi delle materie di indirizzo, sia in base agli interessi e al livello di competenza linguistica degli studenti. I contenuti sono stati ordinati secondo criteri di graduale complessità concettuale e linguistica (A2, B1, B2) e vengono esplorati utilizzando le quattro abilità in modo omogeneo ed integrato. I brani, tutti autentici, offrono un assortimento di stili, registri e livelli di difficoltà e sono tratti da fonti diverse: libri, giornali e riviste specializzate, materiale promozionale, manuali settoriali e siti internet.

GLI OBIETTIVI

New Landscapes si propone di:

- far acquisire le competenze necessarie per comprendere testi che presentano termini, espressioni, strutture sintattiche e modalità discorsive specifiche del linguaggio settoriale;
- migliorare le capacità di ricezione e produzione orale e scritta, anche tramite attività tipo PET e FCE per il conseguimento rispettivamente del livello B1 e B2 del CEFR;
- arricchire il patrimonio lessicale;
- consolidare abitudini grammaticali corrette o approfondire alcune strutture;
- stimolare l'interesse e la partecipazione attiva degli studenti, dando spazio alla loro esperienza personale e a problematiche di attualità;
- contribuire a sviluppare sensibilità per il rispetto e la protezione dell'ambiente con suggerimenti per comportamenti '*eco-friendly*'.

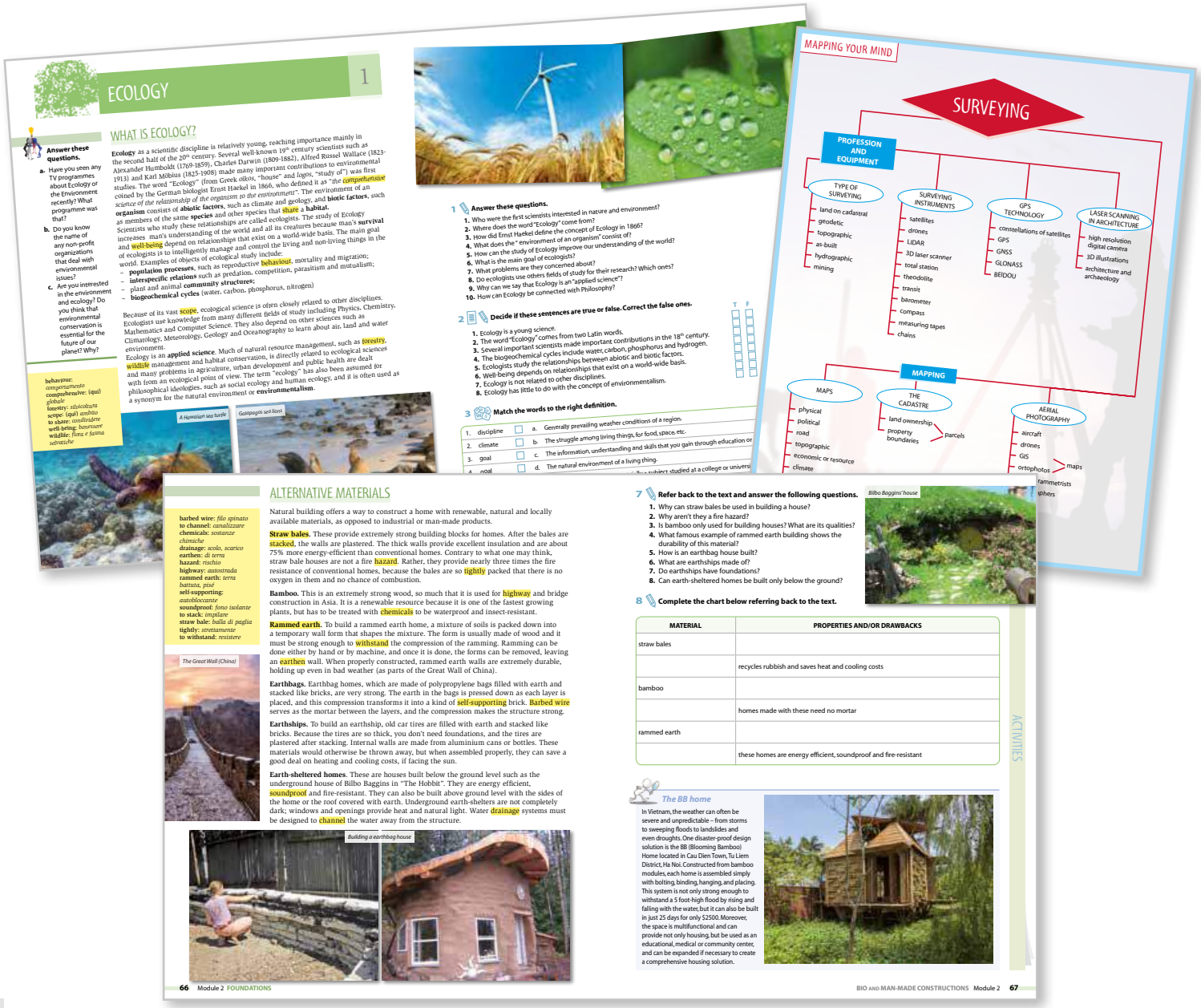
LA STRUTTURA

New Landscapes è diviso in otto Moduli, ognuno dei quali è ripartito in cinque sezioni:

1. **FOUNDATIONS** (**Contents Section**) – Divisa in **Unità**, contiene testi e attività che riguardano i contenuti specifici della specializzazione già affrontati in L1. Ogni Unità è suddivisa in brevi **Capitoli** per favorire non solo uno studio più parcellizzato, ma anche la scelta antologica da parte dell'insegnante. I testi vengono affrontati in modo graduale, attraverso esercizi di *warm-up*, esplorazione del lessico specifico, comprensione scritta e/o orale, globale e specifica. Brevi '**box**' permettono di ampliare le conoscenze sugli argomenti:

 per approfondimenti generali;  per analisi di fatti e dati.

Al termine di ogni Modulo è presente una **mappa concettuale** (***Mapping Your Mind***), strumento utile per rappresentare la rete di relazioni tra i vari argomenti del Modulo, a partire da quello di partenza. Un ricco **apparato iconografico** correda i brani di lettura, per ognuno dei quali è previsto un esauriente **glossario**.



2 **BRICKS AND MORTAR** – Si occupa di contenuti inerenti alla disciplina ponendo particolare attenzione all'arricchimento **lessicale** e **strutturale**.

3 **SCAFFOLDING** – Offre testi e attività di consolidamento dei contenuti appresi per sviluppare le abilità di **Listening**, **Speaking** e **Writing**.

4 **FINISHING TOUCHES** – Propone **clip di opere cinematografiche** che offrono spunti di riflessione e svago su aspetti contenutistici e linguistici del Modulo.

5 **IN-DEPTH STUDY** – Approfondisce tematiche presentate nei Moduli tramite quattro **Building Higher Corner** (che sviluppano argomenti di discipline come Diritto e Economia, Geopedologia, Arte e Scienze), e quattro **CLIL Corner** (che si collegano a discipline curriculari generali del Secondo Biennio e Quinto Anno, come Storia, Letteratura, Educazione Fisica e Matematica). Questo per favorire una didattica cross-curricolare che permetta di studiare il medesimo contenuto da diverse prospettive.

TEACHER'S GUIDE

Soluzioni degli esercizi – Audioscripts delle attività di ascolto – Note didattiche – Prove di verifica formative per ogni singola Unità e sommative per Modulo.

ONLINE RESOURCES

Disponibili sul sito www.edisco.it:
– file audio formato MP3 con la registrazione delle attività di ascolto
– numerosi materiali (letture e video) per attività di approfondimento e di esercitazione
– attività per la preparazione dell'Esame di Stato.

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4. "UK housing crisis: 1.7 million families homeless"
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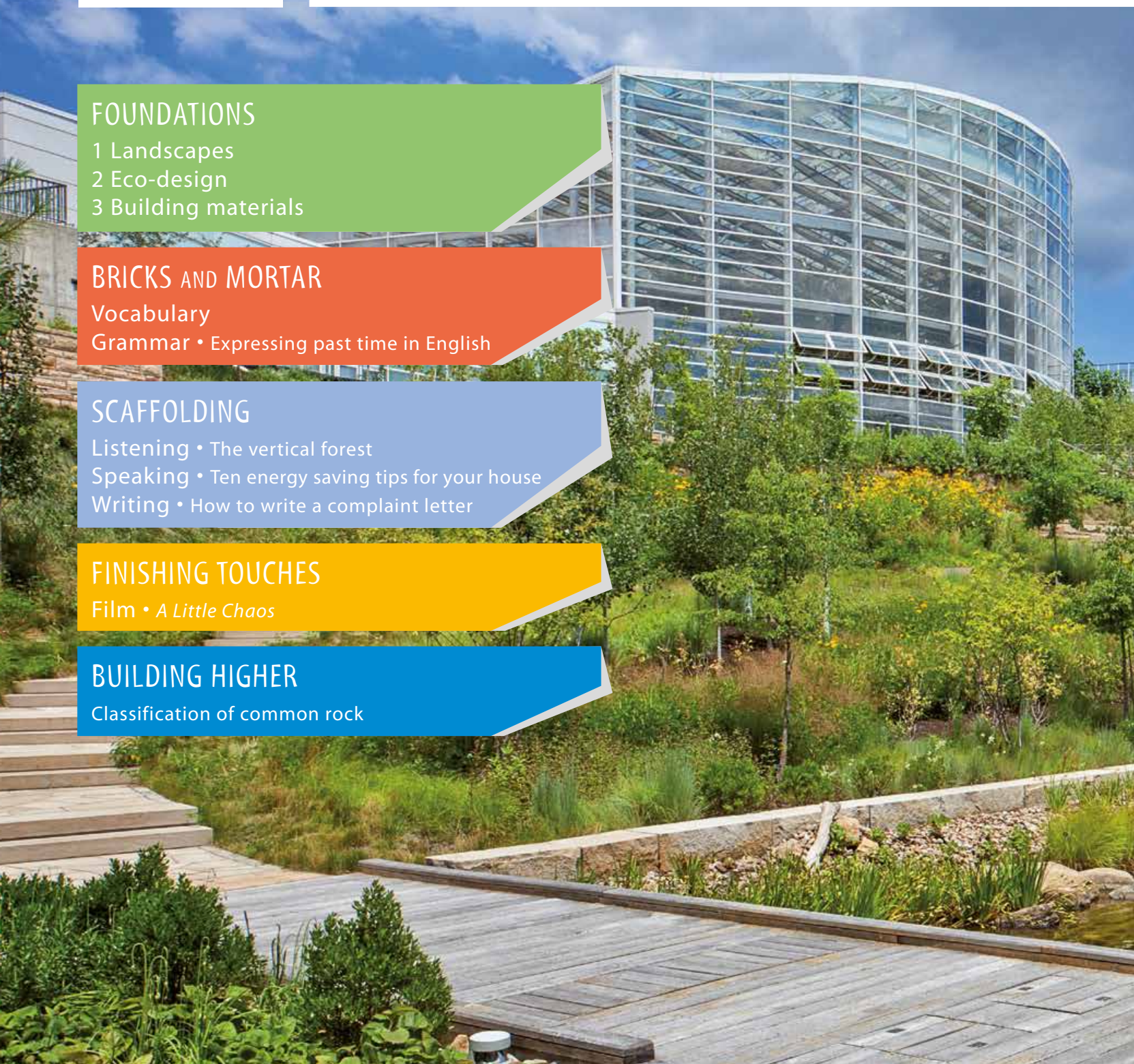
6. "How to build a brick wall"
7. "Birmingham Big City Plan – City centre Masterplan"
8. "Eero Saarinen at Cranbrook Museum, Bloomfield Hills, Michigan"

MODULE

2

BIO AND MAN-MADE CONSTRUCTIONS



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3 Building materials

BRICKS AND MORTAR

Vocabulary
Grammar • Expressing past time in English

SCAFFOLDING

Listening • The vertical forest
Speaking • Ten energy saving tips for your house
Writing • How to write a complaint letter

FINISHING TOUCHES

Film • *A Little Chaos*

BUILDING HIGHER

Classification of common rock

> *What's the use of a fine house if you haven't got a tolerable planet to put it on?*
>
> Henry David Thoreau, *Familiar Letters*

WHY STUDY THIS MODULE?

In this Module you will look into the concept of landscape and understand how much it can be affected by man. You will see what eco-building is and get an overview of building materials – natural, man-made and alternative; you will also learn about their characteristics and find out how they can be effectively used in building.

LANDSCAPES 1

THE CONCEPT OF LANDSCAPE

Answer these questions.

a. What does the word landscape make you think of?

b. Which do you find more attractive: an urban or a natural landscape?

c. When do you think it is necessary to change a landscape?

to affect: *influenzare*
cactus-dotted: *punteggiato di cactus*
cattle: *bestiame*
dam: *diga*
deciduous: *caducifoglio*
ditch: *fossato*
hilly: *collinoso*
neighbourhood: *circondario*
sandy: *sabbioso*

A man-made landscape: Burj Khalifa tower, Dubai

A landscape is part of the **Earth surface** that can be seen at one time from one place. It consists of the **geographic features** that are characteristic of a particular area.
The term comes from the Dutch word *landschap*, the name given to **paintings** of the countryside in the 16th century. Geographers have borrowed the word from artists.
Landscapes can be **natural** or **man-made**.
A natural landscape is made up of different **landforms**, such as mountains, hills, plains and highlands, lakes, streams, soils and natural vegetation. A desert landscape, for instance, usually indicates sandy soil and few deciduous trees. Even desert landscapes can vary: the hilly sand dunes of the Sahara Desert landscape are very different from the cactus-dotted landscape of the Mojave Desert of the American Southwest, for instance.
A landscape that people have modified is called a **cultural landscape.** People and the plants they grow, the animals they care for, and the structures they build make up *cultural landscapes*. Such landscapes can vary greatly. They can be as different as a vast cattle ranch in Argentina or the urban landscape of Tokyo, Japan. UNESCO protects cultural landscapes from damage and identifies them as tourist destinations. The growth of technology has increased our ability to change a natural landscape. An example of human impact on landscape can be seen along the coastline of the Netherlands. Water from the North Sea was pumped out of certain areas, revealing the fertile **soil** below. Ditches and dams were built to keep water from these areas, now used for farming and other purposes. By studying natural and cultural landscapes, geographers learn how people's activities affect the land. Their studies may suggest ways that will help us protect the delicate **balance** of the Earth's ecosystems.

The Mojave Desert

1 PAIR WORK. Answer these questions.

1. What is a landscape?
2. Where does the word "landscape" come from?
3. What is a natural landscape made of?
4. What kind of landscape can be considered a "cultural landscape"?
5. What is the role of UNESCO?
6. What support has the growth of technology given?
7. What is a geographer's aim when studying natural and cultural landscapes?

2 Decide if these sentences are true or false and correct the false ones.

	T	F
1. The word landscape is taken from the art world.	☐	☐
2. Desert landscapes may be very different.	☐	☐
3. A vast cattle ranch in Argentina is considered a natural landscape.	☐	☐
4. The UN do not identify cultural landscapes as tourist destinations.	☐	☐
5. In Netherlands, fertile lands were created pumping salty water out of certain areas.	☐	☐
6. Geographers' studies are useless in protecting the Earth ecosystems.	☐	☐

3 Read the paragraph and fill it in with one of the words below.

architects • best • forms • gardens • land • people • plans • resources • science • utility

Landscape Architecture

Landscape Architecture is the profession concerned with the design, planning and management of the (1) ..... The work of landscape (2) ..... is all around us. Their concern is the (3) ..... and function of the land. The appeal and (4) ..... of our parks, roads, neighbourhoods, urban malls, (5) ..... and buildings reflect the skill of landscape architects in designing and planning to make the (6) ..... use of land (7) ..... Applying both art and (8) ....., landscape architects provide consulting services, prepare (9) ..... and support projects that create a balance between the needs and desires of (10) ..... and the limitations of the environment.

4 (2.1) Listen to a text listing different *kinds of landscape* (natural – cultural – man-made) and complete the table with the missing details.

NAME	LOCATION	KIND OF LANDSCAPE	NATURAL FEATURES	MAN-MADE FEATURES
1. Yellowstone				
2. Bergen				
3. Ayers Rock				
4. Langhe				
5. Galapagos				
6. Astana				

ONLINE RESOURCES

- Transforming the landscape: Freshkills Park (NYC)

ACTIVITIES

SOILS

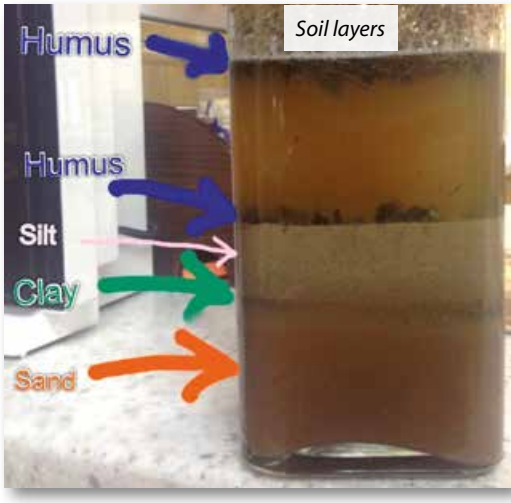
buried: *sepolto (in questo caso: tombato)*
to deal with: *avere a che fare con*
growth: *crescita*
loam: *terra grassa*
mole: *talpa*
mouse (sing.), mice (pl): *topo*
to process: *elaborare*
to release: *rilasciare*
slowness: *lentezza*
weathering: *alterazione superficiale causata dagli agenti atmosferici*

Soil, which is vital to life on Earth, develops slowly over time and is composed of many different materials: inorganic materials including **weathered rocks**, **minerals** and **organic material**. Weathering is the mechanical or chemical process by which rocks are broken down into smaller pieces. As rocks are broken down, they mix with organic materials, which are those materials that originate from living organisms. For example, plants and animals die and decompose, releasing nutrients back into the soil. Water and air are also a part of soil.

There are three basic types of soil: **sand**, **silt** and **clay**, but most soils are composed of a combination of the different types. We can consider **loam** as our fourth type of soil, it contains a balance of all three soil materials – silt, sand and clay – plus humus (organic matter).

There are six general roles that soils play:

1. Soils serve as means for growth of all kinds of plants.
2. Soils modify the atmosphere by emitting and absorbing gases (carbon dioxide, methane, water vapour) and dust.
3. Soils provide **habitat** for animals that live in the soil (such as moles and mice) and to organisms such as bacteria and fungi.
4. Soils absorb, hold, release and purify most of the water in terrestrial systems before it sinks into groundwater levels.
5. Soils process recycled nutrients, including **carbon**, so that living things can use them over and over again.
6. Soils serve as a solid base for construction of foundations, roadbeds, dams and buildings.



Soil layers

Stable, healthy and productive landscapes and soils are essential for producing most of our food, and for maintaining **environmental function**, managing water quality, sustaining our primary industries and supporting rural and urban communities.

Erosion

Erosion by water
Rainfall - Rainfall can cause erosion when the rain hits the surface of the Earth. This is called splash erosion.
Rivers - Rivers can create a huge amount of erosion over time.
Waves - Ocean waves can cause the coastline to erode.
Floods - Large floods can cause erosion to happen very quickly.

Erosion by wind
Wind causes erosion by picking up and carrying loose particles and dust away. It also causes erosion when the flying particles crash into the land and break off more particles.

Erosion by glaciers
They are like giant rivers of ice that slowly move around. As they move, they shape mountains and also carve out valleys.

Temperature - When the temperature changes and the sun heats up a rock, it can actually expand and crack. Pieces will break off over time.

Honey/comb weathering at Altdahn Castle in the Palatinate Forest (Germany)

5 PAIR WORK. Ask and answer the following questions.

1. What is soil composed of?
2. What is meant by "organic materials"?
3. What are the basic types of soil?
4. What does loam contain?
5. What are the main goals to keep soils stable, healthy and productive?

Life in the soil

A small patch of soil, just 1 square metre in area, can hold a billion living things. These include insects, spiders, worms, centipedes, mites, fungi, and tens of thousands of bacteria.

6 Complete the table with the role of soils.

WHAT	ROLE OF SOILS
1. Plants	
2. Atmosphere	
3. Animals	
4. Water	
5. Nutrients	
6. Constructions	

7 Read the text and fill it in with the words below.

arrives • better • climate • cloudy • devastating • emergency
hydrogeological • increased • instability • involved • massive
months • obstacles • prevention • probability • problem
rain • rules • safe • streams

Flood in Vernazza (Cinque Terre) in 2011

Hydrogeological risk in Italy

Hydrogeological risk is becoming a true (1) ..... for Italy, as the number of landslides and flooding has rapidly (2) ..... and becoming more (3) ..... in recent years. Today, over two thirds of our peninsula are at risk of (4) ..... instability. Furthermore, some areas, where (5) ..... interventions on the land have been carried out without following the (6) ....., are in danger whenever the sky gets (7) ..... Genoa, Olbia, parts of Emilia Romagna and Calabria, but also big cities like Rome and Milan, where (8) ..... have been buried, are just some of the areas (9) ..... No region is (10) ..... Prediction and (11) ..... should be strategic for dealing with hydrogeological (12) ....., but there are two major problems. First, the Italian (13) ..... has changed considerably over the past few decades, and unfortunately not for the (14) ..... The number of rainy days is decreasing, and this means that rain (15) ..... all at once in a smaller number of days of concentrated (16) ....., with a high increase in the (17) ..... of severe weather phenomena.
The other (18) ..... is the bureaucratic slowness of a country that needs (19) ..... to approve work and has to cope with many (20) ..... during the project implementation.

SUSTAINABLE LAND MANAGEMENT

Sustainable land management facts

One out of every three people on earth is in some way affected by land degradation. Latest estimates indicate that nearly 2 billion hectares of land worldwide – an area twice the size of China – are already seriously degraded, some irreversibly. This includes large areas of cropland, grassland, woodland and forest areas whose degradation reduces productivity, disrupts vital ecosystem functions, negatively affects biodiversity and water resources, and increases their vulnerability to climate change.

belief: *credenza*
housing: *abitazione*
income: *reddito*
Land Trusts: *organizzazioni per la salvaguardia dell'ambiente e del territorio*

Sustainable Land Management can be defined as *"the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive functions"* .

UN Earth Summit 1992

Finding ways for people to live sustainably on Earth is becoming more crucial every year. With the world population estimated to reach 9 billion by 2050, there will be even more pressure on **natural resources** to provide food, energy**,** transportation and housing for a growing, hungry world. In addition to **health** and **food benefits**, conserving land increases property values near **green areas** and saves tax money by encouraging more **efficient development**. Several studies have demonstrated the great economic benefits of sustainable land conservation. Protecting land is more than just preserving picturesque landscapes. Land resources are used for a variety of purposes which may include **organic agriculture**, **reforestation, water resource management** and **eco-tourism projects.**
In many countries, such as the UK or the USA, national or local Land Trusts help people to respect and save the territory and community resources that come from the land, water, food security, **wildlife** and places for recreation.
Therefore to reach these goals we need to understand:

- the natural characteristics of ecosystems taking into consideration climate, soils, water, plants and animals;
- the socio-economic and cultural characteristics of people who live in a specific territory: family composition, cultural beliefs, income, education levels;
- the **environmental functions** provided by healthy ecosystems, maintenance of soil fertility, micro-climate improvement, bio-diversity preservation.

Sustainable Land Management is decisive in minimizing land degradation, rehabilitating degraded areas and ensuring the best use of land resources for the benefit of present and future generations.

Rice terraces in the Philippines

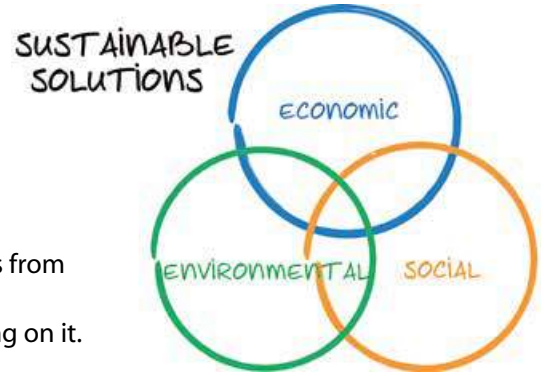
Water resources management: the Yacyretá Dam in Argentina

9 Decide if these sentences are true or false and correct the false ones.

	T	F
1. In the next decades the pressure on natural resources will become more important.	☐	☐
2. By the first half of this century, the world population will probably reach nine billion.	☐	☐
3. There are no direct connections between land conservation and economic benefits.	☐	☐
4. Land resources have limited purposes.	☐	☐
5. In many countries Land Trusts help people to respect and save the territory where they live.	☐	☐
6. GBeside the natural characteristics of a place, we should take into consideration also the socio-economic and cultural ones.	☐	☐

10 Match the words with the correct meaning.

1. transportation	☐	**a.** Increasing, expanding.
2. growing	☐	**b.** Advantage.
3. property	☐	**c.** Visually charming.
4. benefit	☐	**d.** Something people do to relax.
5. picturesque	☐	**e.** The act of moving people or things from one place to another.
6. recreation	☐	**f.** A piece of land often with a building on it.



11 2.2 Listen to the geologist William Gomez, talking about the activities and the aims of the American *Environmental Protection Agency* (EPA) at Seattle 2016 Environment Conference, and complete the statements below.

1. The most important task of the EPA is ..... and to safeguard .....

2. The EPA involves ..... people in headquarters program offices, ... regional offices, ... labs across the country.

3. People who work for the EPA are .....

4. The EPA works closely with .....

5. The EPA is responsible for researching and setting .....

6. Sanctions can be issued where ..... are not met.

7. There is a collaboration between the EPA and ..... in a wide variety of ..... and energy .....

8. In July 1970, the ..... that established the EPA was passed in response to the growing public demand for .....

12 Environmental Engineering. Read the text and choose the right option.

Would you like to get a job in the environmental field? You could choose to enrol in one of the Italian Universities that offers courses in Environmental Engineering.

Environmental Engineering is the ***branch/brunch*** of engineering focused on the application of scientific and engineering ***principles/princes*** for protection of people from the ***effects/causes*** of adverse environmental factors, protection of local and global environments ***by/from*** the potentially harmful effects of natural and human activities and improvement of environmental ***quantity/quality.*** Environmental engineering programs are designed to ***give/take*** students the knowledge, skills, and tools to prepare them ***for/to*** a wide range ***off/of*** careers in the public and private sector. There may be motivating careers in areas such ***so/as*** soil, water and air management, civil engineering, public ***policy/police***, construction and structural engineering, and ***transport/ transportation***. Environmental engineering courses offer a number of specializations to satisfy your intellectual interests and career ***goals/gaols.***

ECO-DESIGN 2

THE ECOLOGICAL PROJECT: GENERAL PRINCIPLES

Answer these questions.

a. What do you think a eco-house is?

b. Can you think of any ecological building materials?

c. In your opinion, what are the advantages of living in an eco-house?

Creating "healthy" buildings, which have little ecological impact has always been the objective of architecture. Eco-architecture is returning to those old objectives. The reason for this is the ecological emergency and an increasing preoccupation with health which started in the sixties.
Most of us spend 90% of our time within a closed environment so incorrect design and the presence of toxic elements found in some materials can be the cause of illness and common pathologies.
Indoor pollution has various sources. Materials used in constructing the building and furnishing may release harmful substances. Excessive acclimatization, humidity or dryness of the air, illumination without contrast or too strong, electrical fields by appliances, acoustic pollution and vibrations are just some examples of how living inside a house may affect our health.
The building has to be designed to last and its function is to create comfort. It should also be made not to waste energy, but to recuperate and regenerate it. An ecological building is a quality building, created without excessive attention to saving money; on the contrary, its materials last in time reducing the costs of maintenance.
The general standards of ecological design are related to a complex reality, so it is almost impossible to satisfy them all. Depending on the context and possibilities, the goal is to come as close as possible to the main objectives, which are to create harmony between the building itself and the place where it stands, to save energy and to guarantee the health of its inhabitants.
These may be taken as guidelines:

- mainly utilize materials available in large quantities "in loco"; unrefined, which need little manufacturing (to reduce energy waste), and not harmful to the human health;
- guarantee the buildings flexibility for possible future changes;
- try to design an efficient energy saving system (thermal isolation, natural lighting, etc.); depending on the local climate, use technological innovations such as solar panels and natural temperature reduction devices;
- guarantee the durability of the construction;
- use materials which can be recycled and re-used once the building is demolished;
- provide the structures with natural beauty and "sensual" comfort (sufficient lighting, natural colours, etc.);
- use "green" as an element of the design.

to affect: *influenzare*
furnishing: *arredamento*
harmful: *dannoso*
illness: *malattia*
in loco: *sul posto*
source: *origine, causa*
unrefined: *non raffinato, greggio*
waste: *spreco*

The Supertrees in the Gardens by the bay (Singapore)

1 **Complete the following sentences referring back to the text.**

1. The materials currently used in building often ..... the old principle of architecture which is .....
2. Bio-architecture represents a return to this objective, due to .....
3. The incorrect designing and the presence of toxic elements can be the cause of illness and common pathologies because .....
4. Indoor pollution can be found in .....
5. An ecological building can be defined a quality building because .....
6. The main objectives in creating such a building are .....

2 **Look at this poster and read the quote. What do you think it means?**

Plastic bags facts

- On average, plastic bags are used for 25 minutes!
- It takes between 100-500 years for a plastic bag to disintegrate (depending on the type of plastic).
- In 1 minute 1 million plastic bags are in use around the world.
- The average European uses about 500 plastic bags a year.
- 80% of marine litter is plastic.
- 3.4 million tons of plastic carrier bags are produced in the EU each year. This corresponds to the weight of more than two million cars!

3 2.3 **Listen to the following passage about *Hemp Cottage* in Devon, an example of eco-building. Then answer the questions below.**

1. When was the cottage built?
2. Who was it built for?
3. Where is it located?
4. Which natural materials were used?
5. What is the mainframe made of?
6. What is the roof insulation made of?
7. Is the original owner living in the cottage?
8. What are people reaching the cottage on foot or by bike entitled to?

THE LIFE CYCLE DESIGN

assembly: *assemblaggio*
delivery: *consegna*
disposal: *eliminazione*
environmentally sustainable: *sostenibile per l'ambiente*
long-term exposure: *esposizione continua*
manufacturing: *produzione*
off-the-shelf: *disponibile, pronto*
site: *luogo*
wildlife habitat: *habitat naturale*

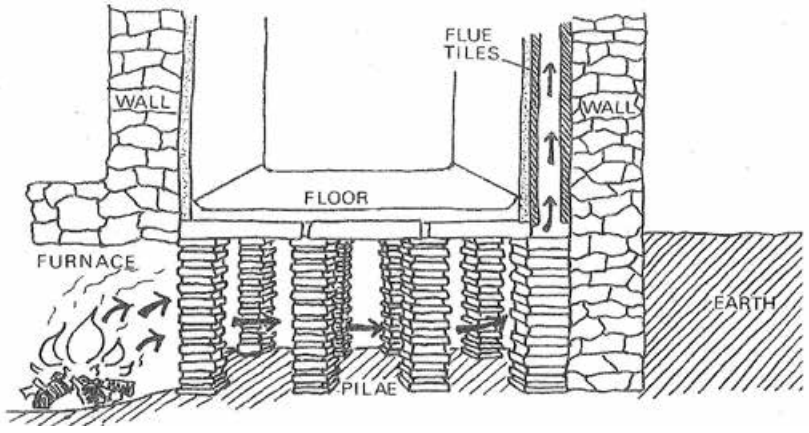
Careful selection of environmentally sustainable building materials is the easiest way to begin incorporating sustainable design principles in buildings. Traditionally, price has been the main consideration when comparing similar materials or materials designated for the same function, but the "off-the-shelf" price of a building component represents only the manufacturing and transportation costs and does not take the social or environmental costs into account.
A detailed analysis of building products, from collecting raw materials to their ultimate disposal, provides a better understanding of the long-term costs of materials. These costs are paid not only by the client, but also by the owner, the occupants and the environment. Following the principles of **Life Cycle Design** each step of the manufacturing process, from gathering raw materials, manufacturing, distribution and installation to ultimate reuse or disposal, is examined, checking on its environmental impact.
A material's life cycle can be organized into three phases: **Pre-Building, Building,** and **Post-Building**. The evaluation of building materials' environmental impact at each stage allows for a cost-benefit analysis over the lifetime of a building, rather than simply a sum of initial construction cost.

The **Pre-Building Phase** describes the production and delivery process of a material up to, but not including, the point of installation. This includes discovering raw materials in nature as well as extracting, manufacturing, packaging and transportation to a building site. This phase has the most potential for causing environmental damage. The ecological damage related to the use of natural resources and their conversion into building materials includes loss of wildlife habitat, erosion, and water and air pollution.
The **Building Phase** refers to a building material useful life. This phase begins with the material assembly into a structure, includes the maintenance and repair of the material and extends throughout the life of the material as part of the building. The material waste generated on a building construction site can be considerable. The selection of building materials for reduced construction waste, and waste that can be recycled, is critical in this phase. Long-term exposure to certain building materials may be hazardous to the health of a building's occupants.
The **Post-Building Phase** refers to the building materials when their usefulness in a building has expired. At this point, a material may be completely reused, have its components recycled back into other products, or be discarded.

Vertical Garden. Smart Building (Malaga, Spain)

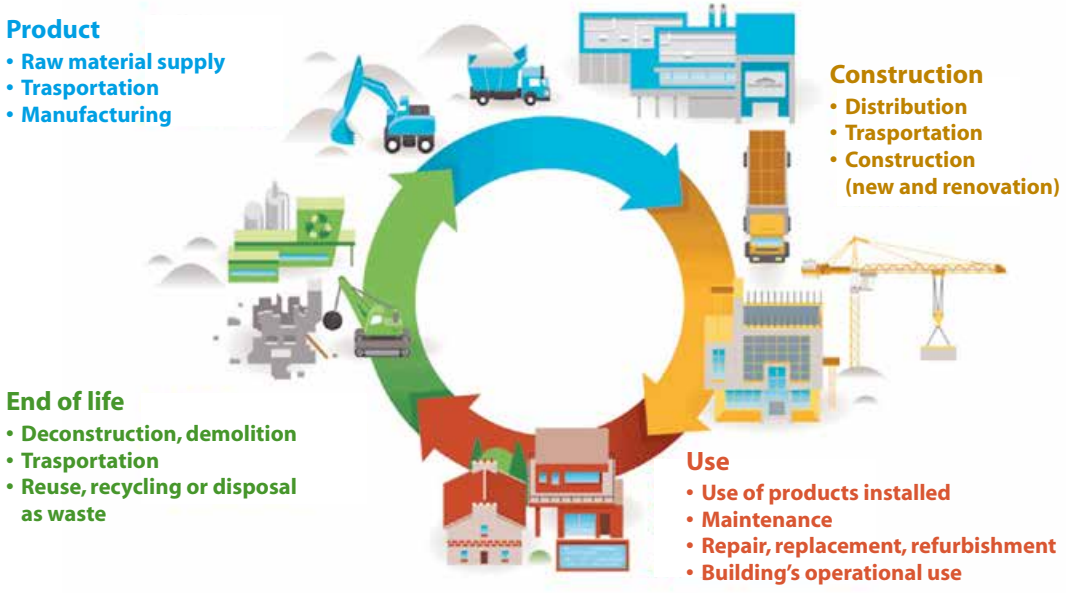
4 2.4 **Dr Pastakkaya, a Turkish researcher who worked with fellow academics in Nottingham, UK, on research titled "New Approaches to Eco House Design and Renewable Energy Applications in Sustainable Buildings", is talking about *eco-house design*.**
Listen and decide if the statements below are true or false. Correct the false ones.

	T	F
1. Eco design principles used by ancient civilizations cannot be used today.	☐	☐
2. The Greeks oriented their windows in order to catch more wind.	☐	☐
3. Houses in Egypt and Persia had devices to exploit natural ventilation.	☐	☐
4. Long before the Romans, houses had walls that could help to make living spaces cooler.	☐	☐
5. Hypocausts are systems used to make a room warmer.	☐	☐
6. Thermal comfort is one of the main requirements in a house.	☐	☐
7. At the beginning of the 20th century, systems to provide hot water were simple and efficient.	☐	☐
8. Solar-powered systems started to come onto the market in the 1930s.	☐	☐
9. Oil production made renewable energy applications more popular.	☐	☐
10. The cost of fossil fuels and environmental problems are the reasons for the comeback of eco-technologies.	☐	☐



5 **Look at the diagram below. It represents the life cycle of building materials. Describe it orally, with the help of what you read in the previous text.**

THE LCA OF A CONSTRUCTION PRODUCT



ACTIVITIES

ECO MATERIALS

Wood used as a structural and finishing material

brick: *mattone*
clay: *argilla*
cork: *sughero*
fixture: *infisso*
glue: *colla*
timber: *legname*
wax: *cera*

Building materials have the purpose of making the place where we live safe and comfortable. They satisfy our desire for beauty, respond to technical needs but also influence our health and the way we feel inside our homes.
These materials should be eco-friendly, sustainable and need to be chosen paying great attention to any negative effect on the environment, such as the production of toxic gases, water pollution and soil pollution.
They can be sorted into three groups:

- materials employed in the structure of the building (foundations, walls, attic, etc.)
- materials used to improve the performance of the building (insulations, protections, fixtures)
- finishing materials which complete the structure of the building and are the ones which come into contact with the people living in it (paints, glues, floors, etc.)

In the process of building a house, each material used should interact with the others and contribute to the global performance of the building. While it may be quite simple to identify and select eco-friendly materials, it is often more complicated to understand how one may interact with others. Natural materials can be employed within an inadequate context and this can make them useless or even harmful.
To sum up, eco-materials should:

- be biodegradable and recyclable
- minimize the effects of toxic and hazardous substances on health
- contribute to create a more sustainable environmental future.

They can do this by:

- minimising their impact on the environment
- avoiding or reducing dependence on non-renewable energy sources
- increasing indoor air quality
- increasing the efficiency of resources
- avoiding or reducing problems connected to allergies.

Encouraging the use of such materials will therefore have several social and environmental benefits as well as provide quality buildings and products.
Among the materials which can be used in bio-architecture, we can find timber, brick, stone, clay (for structures), cork, jute, cellulose fibre (used as insulating materials), natural paints and natural waxes (for finishing).

6 Decide if the following statements are true or false and correct the false ones.

	T	F
1. Building materials have the main purpose of satisfying our desire for beauty.	☐	☐
2. Bio-architecture building materials have to respect the environment as much as possible, from their production to their use.	☐	☐
3. As well as choosing natural materials, it is important to consider how each material employed interacts with others.	☐	☐
4. There are either good or bad materials.	☐	☐
5. In bio-architecture, the possibility of recycling a material is an important fact in determining its choice.	☐	☐
6. Cork is an example of an eco-friendly material used in building structures.	☐	☐
7. Natural products should also be chosen for finishing.	☐	☐

7 2.5 Listen to a description of *cork* from a website and then complete its summary.

Cork has been traditionally used for bulletin boards and bottle (1)..... and in architecture has been mainly utilized under (2)..... and as insulating material. Unlike other trees used as construction materials, cork renews constantly, because it is the (3)..... of the tree that grows back once removed. Cork pieces are heated and compressed into (4)..... or ..... without using adhesives or glues.
Owing to its (5)..... composition, cork is not easily (6)..... This makes it possible to (7)..... old pieces.
All these characteristics make cork an (8)..... -friendly material.

Cork flooring

8 Complete these notes about eco-materials.

Used for	**a.** .....
	b. .....
	c. *finishing* .....
They should	**a.** .....
	b. .....
	c. .....
They can contribute to the protection of the environment because they	**a.** .....
	b. *increase the efficiency of resources* .....
	c. .....

Vocabulary

ACTIVITIES

1 Write the correct caption under each picture.

dry-stone wall • flooding • foundations • paint • sand • soil • tensile structure • thatch • timber

.....

.....

.....

.....

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.....

2 Match each word with its definition.

1. ecosystem	☐	**a.** Part of the Earth surface that can be seen at one time from one place.
2. raw	☐	**b.** Mountains, hills, plains and highlands, lakes, streams, soils and natural vegetation.
3. soil	☐	**c.** Everything that exists in a particular environment.
4. landscape	☐	**d.** The upper layer of earth that may be dug and in which plants grow.
5. damage	☐	**e.** Involving methods that do not completely use up or destroy natural resources.
6. construction site	☐	**f.** In its natural state, not processed or purified.
7. sustainable	☐	**g.** Where something is being built.
8. landforms	☐	**h.** Bad or harmful effects on something.

3 Find the correct word(s) for these definitions.

1. As found in nature and not involving anything made or done by people. .....

2. Joining material for walls. .....

3. Wood used for building. .....

4. Combination of aggregate and cement. .....

5. The process of damaging metals over time. .....

6. Block made from a mixture of clay and water. .....

7. Buildings that are made of polypropylene bags filled with earth and stacked like bricks. .....

8. It is the capacity of a body to store heat. .....

4 Fill in the sentences with the right words.

1. Technology has had great ..... on landscape.

2. We must try to ..... the balance of the Earth's ecosystem.

3. Weathering is the mechanical or chemical process by which ..... are broken down into smaller pieces.

4. A material's .... consists of three phases: pre-building, building and post-building.

5. .... houses are built below the ground level.

6. If a material is ....., it means that it doesn't get wet when it comes into contact with water.

7. Processed materials can also be defined as ..... materials.

8. This fabric structure needs a ..... to stand.

5 (2.8) Listen to this short extract from Wikipedia about one of the skyscrapers recently built in London, The Shard. Tick the items you hear; three of them are not mentioned.

☐ building	☐ concrete	☐ design
☐ energy efficiency	☐ façades	☐ fuel
☐ glass	☐ height	☐ hot water
☐ iron	☐ panes	☐ project
☐ site	☐ skyline	☐ steel
☐ structure	☐ surface area	☐ wood

View of London from the Shard

Grammar

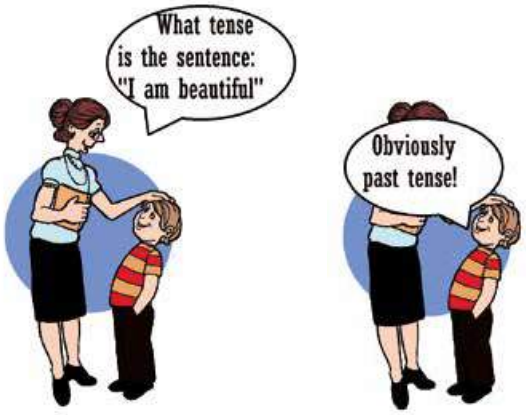
EXPRESSING PAST TIME IN ENGLISH

FORM

TENSE	AFFIRMATIVE	NEGATIVE	QUESTIONS
PRESENT PERFECT	I / we / you / they have designed, built he / she / it has designed, built	I / we / you / they haven't designed, built he / she / it hasn't designed, built	Have I / we / you / they designed, built? Has he / she / it has designed, built?
PAST SIMPLE	I / he / she / it / we / you / they designed, built	I / he / she / it / we / you / they didn't design, build	Did I / he / she / it / we / you / they design, build?
PAST CONTINUOUS	I / he / she / it was designing, building we / you / they were designing, building	I / he / she / it wasn't designing, building we / you / they weren't designing, building	Was I / he / she / it designing, building? Were we / you / they designing, building?
USED TO	I / he / she / it / we / you / they used to live	I / he / she / it / we / you / they didn't use to live	Did I / he / she / it / we / you / they use to live?

USE

PRESENT PERFECT	PAST SIMPLE	PAST CONTINUOUS	USED TO
MEANING 1: The action has just ended. **Time expressions:** *already*, *just*, *yet*. **Example:** He has already built it. **MEANING 2:** Reporting how things have developed by now. **Time expressions:** *by now*, *so far*, *never*, *ever*, *several times*. **Examples:** So far they have built two houses. **MEANING 3:** The action has lasted for some time by now. **Time expressions:** *for a year*, *since*, *lately*. **Example:** He has lived here since 1995.	**MEANING:** The happened (started and ended) in the past. **Time expressions:** *yesterday*, *last week*, *last year*, *in 2009*, *two hours ago*, *four years ago*. **Examples:** I saw the project an hour ago. They visited the yard last week. **Note:** The Past Simple is used for completed and finished actions and with *What time...?* and *When...?* **Example:** What time / When did you get up?	**MEANING:** The action was going on (1) when another past action happened or (2) at some point of time in the past. **Time expressions:** while, when, at five o'clock, yesterday. **Examples:** When he came in, I was looking at the project. We were decorating the house yesterday at three pm.	**MEANING:** The action/state was a habit/ routine in the past but it isn't now. **Time expressions:** once, when I was younger, in the past. **Examples:** People used to live in wooden houses in this area. They used to transport bricks on carts.



1 Fill in the blanks with the right form of the verbs given.

1. Yesterday, while I ..... (*go*) to school, I ..... (*walk*) past the new hospital building yard.
2. Tents ..... (*be*) home for nomadic groups all over the world.
3. They ..... (*work*) for two years and they ..... (*not finish*) building the house yet.
4. **A –** ..... you ..... (*see*) the Vertical Forest in Milan?
   B – Yes, I ..... (*go*) to Milan last month and I ..... (*see*) it. It's amazing!
5. They ..... (*not use*) eco materials when they built our school in the '60s.
6. My parents ..... (*never move*) from this town since they ..... (*get*) married.
7. While the builders ..... (*complete*) the exterior of the house, my dad ..... (*work*) in the garden.
8. When ..... (*you buy*) the house where you are living?
9. When I was younger, I ..... (*not care*) about protecting the environment but now I do.
10. That architect ..... (*project*) more than ten skyscrapers so far.

2 Choose the correct option.

Model made with Lego bricks (National Museum of Scotland)

Where were LEGO bricks invented?

In 1932, a carpenter named Ole Kirk Kristiansen (1) ..... a company in Billund, Denmark, that (2) ..... wood stepladders, ironing boards and toys. He (3) ..... the company LEGO, a word (4) ..... by combining the first two letters of the Danish words "*leg godt*", meaning "play well". Soon, Kristiansen (5) ..... only high-quality toys out of wood. After World War 2, LEGO (6) ..... producing plastic toys. In 1949, the company (7) ..... Automatic Binding Bricks, the first interlocking construction blocks. In the 1950s, the name was changed to LEGO GROUP, and the company (8) ..... the LEGO System of Play, which (9) ..... 28 sets and 8 vehicles. It also began selling the toys outside Denmark for the first time. In 1958, LEGO received a patent for the modern bricks that are famous today. The new bricks not only (10) ..... studs on top, but tubes inside that locked onto the studs of other bricks to hold them securely together.

1.	**a.** built	**b.** made	**c.** costructed	**d.** set up
2.	**a.** built	**b.** formed	**c.** did	**d.** cut
3.	**a.** meant	**b.** named	**c.** entitled	**d.** branded
4.	**a.** built	**b.** done	**c.** formed	**d.** created
5.	**a.** were making	**b.** made	**c.** has made	**d.** was making
6.	**a.** started	**b.** continued	**c.** ended	**d.** tried
7.	**a.** threw	**b.** pulled	**c.** launched	**d.** founded
8.	**a.** came out with	**b.** went on with	**c.** put on with	**d.** went away with
9.	**a.** involved	**b.** included	**c.** consisted	**d.** showed
10.	**a.** a. was	**b.** were	**c.** has	**d.** had

ONLINE RESOURCES

- **Using Past Simple Tense (William the Conqueror)**

Listening

THE VERTICAL FOREST

1 2.9 **Listen to the recording and fill in the chart.**

Name of the building	
Location	
Architect/s	
Number of floors	
Height of the two towers	
Irrigation supplied by	
Trees chosen according to	

2 **Listen again and answer the questions.**

1. How will the system described balance the microclimate?
2. What will the plants filter and what will they produce?
3. What has the architect noted about the project?
4. What is BioMilano?
5. How were the plants used for the building treated?
6. How will the building promote bio-diversity?

ACTIVITIES

Speaking

TEN ENERGY-SAVING TIPS FOR YOUR HOUSE

1. Use Fluorescent Bulbs. Replace conventional incandescent light bulbs with compact fluorescent light bulbs (CFLs). They cost a little more, but last up to 10 times longer, use two-thirds less energy and give off percent less heat.
2. Look for the AAA Label. AAA-qualified home appliances use about half as much energy as old and unqualified ones.
3. Get Unplugged. Many home electronics still consume energy even when they are turned off. Many devices with a "stand-by mode" will continue to use power. Also, chargers and power adapters continue to draw power from the wall socket even if the device is not attached. Unplug these devices to make sure that you aren't wasting energy.
4. Double-Up on Windows. Replacing old single-pane windows with double pane-windows helps reduce heat loss in winter and heat gain in the summer.
5. Turn Down the Thermostat. Lowering your thermostat by just one degree can reduce costs by about four percent.
6. Sustainable Floors. Cork or bamboo floors are natural insulators.
7. Earth-Friendly Decks. A lot of deck material comes from tropical forests. These woods look great and are resistant to the weather for a very long time.
8. Low-Flow Taps. They reduce water consumption and water heating costs by as much as 50 percent.
9. Buy Renewable Energy. Check with your local company and see if you can buy renewable energy.
10. Recycle! After you replace all those inefficient windows and fixtures, make sure you recycle all that metal and glass.

HINTS

A. Complain about your last electricity bill and ask for advice.
B. Say that you've found an article about how to save energy in your house and that you've started doing what was suggested.
A. Ask for examples.
B. Say you replaced old bulbs with new ones.
A. Say you also have to buy a new washing machine because the old one is not working.
B. Give advice about energy-saving home appliances, and warn about the stand-by mode.
A. Express surprise. Say you didn't know.
B. Ask about A's windows (single-pane or double-pane?).
A. Answer. Ask why.
B. Answer.
A. Ask if B has any suggestions for saving money on heating the house.
B. Answer. Add suggestions about insulating floors.
A. Ask about how to save water.
B. Answer. And give advice about renewable energy and recycling.
A. Thank.

deck (AmE): *pavimento esterno*
gain: *guadagno*
to give off: *rilasciare, emettere*
household: *domestico*
light bulb: *lampadina*
pane: *(lastra di) vetro*

ONLINE RESOURCES
- Energy star

Writing

HOW TO WRITE A LETTER OF COMPLAINT

When writing a letter of complaint you should:

- describe your problem and the outcome you want
- include key dates, such as when you purchased the goods or services and when the problem occurred
- identify what action you've already taken to fix the problem and what you will do if you and the seller cannot resolve the problem
- ask for a response within a reasonable time
- attach a copy of any supporting relevant documentation such as a receipt or invoice.

LETTER OF COMPLAINT TEMPLATE

[Your name] .....

[Your address] .....

[Email and/or phone] .....

Dear Manager

COMPLAINT ABOUT ..... [INSERT NAME OF PRODUCT OR SERVICE]

PURCHASED AT ..... [INSERT BUSINESS NAME] ON ..... [INSERT DATE]

State that you have a problem with goods or services bought from the business at a particular location and date and that you want the problem fixed.
Explain the key details of the problem including when you discovered it and any other steps you've already taken to get it fixed, such as a telephone call or a visit to the store. Note who you spoke to and any results of your efforts.
State that you have enclosed copies of relevant documents, such as a receipt of bank statement for proof of purchase.
State the steps you want the business to take to fix the problem.

State that you expect to hear from the business with a solution by ..... [insert date or within 10 days].
Describe what you intend to do if the business fails to fix the problem – such as making a formal complaint to the consumer protection agency in your country.
List your business and after hours contact details.
Yours sincerely

..... [Your name]

Enclosed: Copy of the receipt for ..... [insert name of product or service]

ACTIVITIES

1 **Now write a letter of complaint using the following details, completing it with your personal data.**

Business name: Electroshoponline
Goods: box of 24 fluorescent bulbs type XL60W
Purchased online on: May 12th
Problem: 4 bulbs are not working, discovered when opened the box, tested the bulbs
Steps taken: phone call to customer care, spoken to Mr Spencer
Enclosed: receipt of bank statement
You want: whole box to be replaced.

A Little Chaos

A SYNOPSYS

The year is 1682. Sabine De Barra, is a talented landscape designer who works in the gardens and countryside of France. One day, she is unexpectedly invited to the court of King Louis XIV. The King's landscape artist André Le Notre is initially disturbed by Sabine's distinctive eye and forward-thinking nature, but then he chooses her to build one of the main gardens at the King's new Palace of Versailles. With time, Le Notre recognizes the value of a little chaos in Sabine's work. While pushing herself and her workers to complete the Rockwork Grove as an outdoor ballroom, Sabine has to face the rivalries and intricate etiquette of the court. As she challenges gender and class barriers, she surprisingly gains the trust of the King himself and is supported by the King's brother, Philippe. As she gradually comes to terms with a tragedy in her past, Sabine's professional and personal interactions with André bring out honesty, compassion, and creativity in both of them.

PRODUCTION	UK 2014
DIRECTOR	Alan Rickman
STARRING	 Katie Winslet (Sabine De Barra), Mattias Schoenaerts (André Le Notre), Alan Rickman (King Louis XIV), Stanley Tucci (Philippe, the King's brother)

BEFORE VIEWING

1. After reading the synopsis, surf the net to find information about King Louis XIV.
2. The Royal Gardens of Versailles are among the most famous in the world, but there are some beautiful and well known gardens in Italy too. Can you name any of them?
3. What kind of activities do you think took place in the Royal Gardens of Versailles?

FILM CLIP

1 Now watch the film clip and decide if the following statements are true or false.

	T	F
1. Le Notre agrees with Monsieur Sualem's and Monsieur De Ville's opinions on the King's demands.	☐	☐
2. The soil is rich in water at Versailles.	☐	☐
3. Madame De Barra will not need much help with the project.	☐	☐
4. Le Notre has implemented Madame De Barra's sketch.	☐	☐
5. Madame De Barra knows about the intended use of the area.	☐	☐
6. Le Notre is confident about Madame De Barra's skills as a gardener.	☐	☐
7. Madame De Barra will have as much time as she needs.	☐	☐
8. Madame De Barra will have to keep to the budget.	☐	☐

2 Watch the film clip again and answer the questions.

1. What are Monsieur Sualem and Monsieur De Ville building? Why?
2. What will Madame De Barra have to consider in her work?
3. What is the attitude of Monsieur Sualem and Monsieur De Ville to the requests of the King?
4. What does Le Notre say about the landscape?
5. What number is Madame De Barra's project?
6. Is the area concerning the project a hill?
7. What kind of garden do they want to build?
8. How will the area be used?

ONLINE RESOURCES

- After viewing activities
- The Royal Gardens of Versailles

BUILDING HIGHER

CLASSIFICATION OF COMMON ROCK

A rock is a natural aggregate of minerals and certain non-mineral materials, such as fossils or glass. Just as minerals are the building blocks of rocks, rocks in turn are the natural building blocks of the Earth's **lithosphere** (the crust and mantle, down to a depth of about 100 km), **asthenosphere** (although this layer, in the depth range from about 100 to 250 km, is partially molten), **mesosphere** (the mantle in the depth range from about 250 to 2900 km), and even part of the **core** (while the outer core is molten, the inner core is solid). Most rocks now exposed at the surface of the Earth formed in or on the continental or oceanic crust. Many rocks, formed beneath the surface and now exposed at the surface, were brought to the surface from great depths in the crust and in rare cases from the underlying mantle. There are two general ways that cause rocks to be exposed at the surface:

- formation at the surface (e.g., crystallization of lava, precipitation of calcite or dolomite from sea water)
- formation below the surface, followed by tectonic uplift and removal of the overlying material by erosion.

There are three major classes of rocks: **igneous**, **sedimentary**, and **metamorphic**, with the following characteristics:

- **igneous rocks** form by crystallization from a material called *magma*. There are two subclasses of igneous rock: *volcanic* (sometimes called extrusive), and *plutonic* (sometimes called intrusive). Volcanic rocks form at the Earth's surface. They cool and crystallize from magma which has spilled out onto the surface from a volcano. At the surface, the magma is more familiarly known as *lava*. Plutonic rocks form from magma that cools and crystallizes beneath the Earth's surface.
- **sedimentary rocks** form from material that has accumulated on the Earth's surface. This material consists of the products of weathering and erosion, and other materials available at the surface of the Earth, such as organic material.
- **metamorphic rocks** form when a sedimentary or igneous rock is exposed to high pressure, high temperature, or both, deep below the surface of the Earth. The process produces fundamental changes in the mineralogy and texture of the rock. Because all metamorphic rocks form below the surface, to become exposed at the surface, they must undergo tectonic uplift and removal of the overlying material by erosion.

beneath: *al di sotto*
cool: *raffreddare*
crust: *crosta*
depth: *profondità*
mantle: *mantello*
molten: *fuso*
overlying: *sovrastante*
removal: *rimozione*
spill out: *fuoriuscire*
subclasses: *sottoclassi*
tectonic uplift: *sollevamento delle zolle tettoniche*
texture: *struttura interna*
undergo: *sottostare a, subire*
underlying: *sottostante*
weathering: *effetto degli agenti atmosferici*

1 Fill in the following charts.

EARTH'S LAYER	EXTENDING FROM/TO

CLASSES OF ROCKS	FORMED BY/WHEN

Limestone

Chert

Arkose

Shale

Sandstone

Conglomerate

2 Answer the following questions.

1. What is a rock?
2. How do rocks become exposed to the surface?
3. What are the two subclasses of igneous rocks?
4. What is magma?
5. What does the accumulated material on the Earth's surface consist of?
6. What happens when a sedimentary or igneous rock is exposed to high pressure, high temperature, or both, deep below the surface of the Earth?

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New Landscapes è un corso di inglese rivolto agli studenti degli Istituti Tecnici e Professionali, indirizzo **Costruzioni, Ambiente e Territorio**.

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