Main fields of computing

Computing is an umbrella term whose main fields are computer science, ICT, IT and digital literacy.

Sometimes these terms can overlap or may be used in the wrong way.

■ Computer science

The term computer science, or **CS**, was used for the first time in 1961 by the mathematician George Forsythe.However, the most complete definition was provided by the Linux Information Project (LINFO) in 2004. It is the study of the storage, transformation and transfer of information. It includes both the theoretical study of algorithms (design, efficiency and application) and the practical aspects of implementing them for computer hardware and software. In short, computer science studies how computers work and how to write algorithms, solve problems and create computer programs.

■ Information and communications technology

Information and communications technology, or **ICT**, refers to the evolving digital technology and the aspects of gathering, storing, retrieving, processing, analysing and transmitting information and data at the right speed and with accuracy and security. So, it deals with data representation and management by computers. The acronym has been used worldwide since 1997, although in 2014, in the UK, it was replaced by the word *computing*•.

■ Information technology

Information technology, or **IT,** is sometimes used as a synonym of ICT, but while ICT refers to digital communication (e.g. the Internet, Wi-Fi, smartphones and communication systems), IT deals with the development of hardware and software.

■ Digital literacy

Digital literacy refers to multiple literacy competences and skills recognised as fundamental for lifelong learning. In other words, being digitally literate means being good netizens, i.e responsible citizens of the cyber world. For this reason, new graduate programmes have been designed in order to develop new competences to be able to access, analyse, create, reflect and act using digital tools, texts and technology.

So, digital literacy•• refers to the way in which people understand digital information and interact with it safely and appropriately.
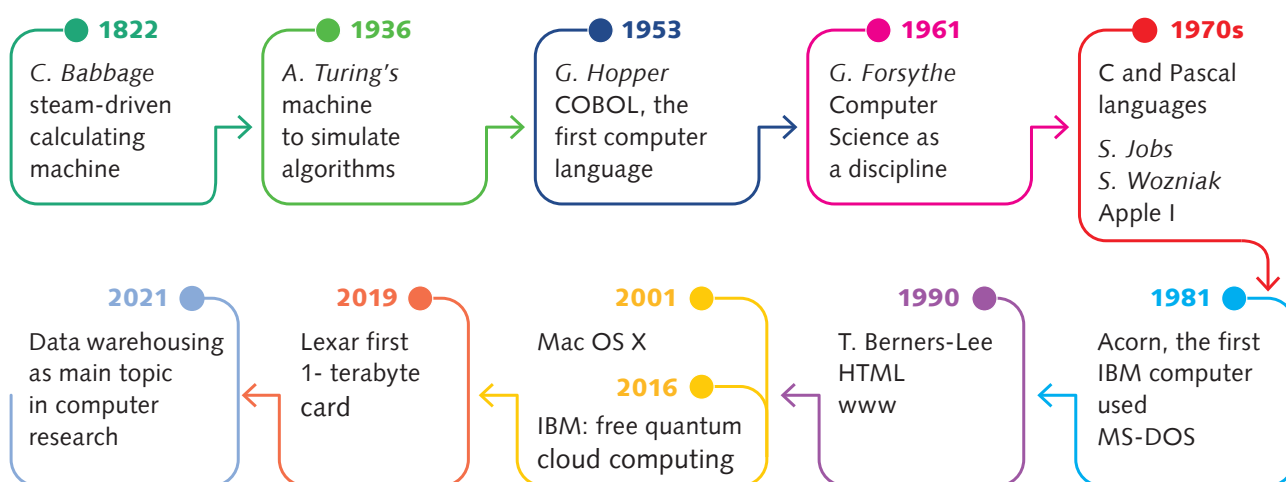
○• The new British School Curriculum from September 2014 identifies three core areas of computing: computer science, information technology (IT), and digital literacy.

○•• The gap between the people who have access or benefit from digital technology and those who do not is called *digital divide*.

1 📄 **Decide if these statements describe CS, ICT or digital literacy (DL). Note that in some cases two answers are possible.**

	CS	ICT	DL
1. Implementing algorithms for computer hardware	☐	☐	☐
2. Designing an algorithm	☐	☐	☐
3. Reflecting on the use of digital tools	☐	☐	☐
4. Storing data	☐	☐	☐
5. Being a good netizen	☐	☐	☐

	CS	ICT	DL
6. Implementing algorithms for computer software	☐	☐	☐
7. Gathering data	☐	☐	☐
8. Dealing with the development of hardware systems	☐	☐	☐
9. Transmitting data	☐	☐	☐
10. Managing data	☐	☐	☐

2 📄✏️ **Look at this brief timeline of computer science and decide if the statements are true or false. Correct the false ones.**

1822 — *C. Babbage* steam-driven calculating machine →
1936 — *A. Turing's* machine to simulate algorithms →
1953 — *G. Hopper* COBOL, the first computer language →
1961 — *G. Forsythe* Computer Science as a discipline →
1970s — C and Pascal languages *S. Jobs S. Wozniak* Apple I →

2021 — Data warehousing as main topic in computer research ←
2019 — Lexar first 1- terabyte card ←
2001 — Mac OS X / **2016** — IBM: free quantum cloud computing ←
1990 — T. Berners-Lee HTML www ←
1981 — Acorn, the first IBM computer used MS-DOS

	T	F
1. Tim Berners Lee launched Apple I.	☐	☐
2. Turing's machine simulated computer algorithms.	☐	☐
3. Lexar, the first gigabyte card, was made in 2019.	☐	☐
4. COBOL, Pascal and C are programming languages.	☐	☐

	T	F
5. In 2001 computer science was recognised as a scientific discipline.	☐	☐
6. Data warehousing was discovered in 2021.	☐	☐
7. IBM launched the OS X system in 2001.	☐	☐
8. IBM free quantum cloud computing was created in 2013.	☐	☐

3 👥 PAIR WORK **What does it mean to be digitally literate? Are you digitally literate?**