

# Great tools: computers

## ■ Forerunners

The abacus was maybe the first computing device, and others followed, but the first “real” computer dates back to the 1830s, when Charles Babbage invented his Analytical Engine. Its size was similar to that of a house and had the innovative key function of the **conditional statement**, based on the formula: *if x, then y*.

## ■ First generation

We had to wait until the 1940s for the appearance of the first devices able to perform more complex calculations, like ENIAC and UNIVAC, based on **vacuum tube** technology.

## ■ Second generation

In the decade between 1955 and 1964, vacuum tubes were replaced by transistors and a new generation of computers appeared. They were smaller than the previous ones – even though still very big – and had magnetic memories.

## ■ Third generation

The production of integrated circuits (microchips) gave rise to the third generation of computers in the following decade. They were not suitable for home use yet, as they were still very expensive and bulky – as big as the whole floor of a building.

**to back-up:** *fare una copia di riserva*  
**conditional statement:** *frase condizionale*  
**in its turn:** *a sua volta*  
**vacuum tube:** *tubo a vuoto*



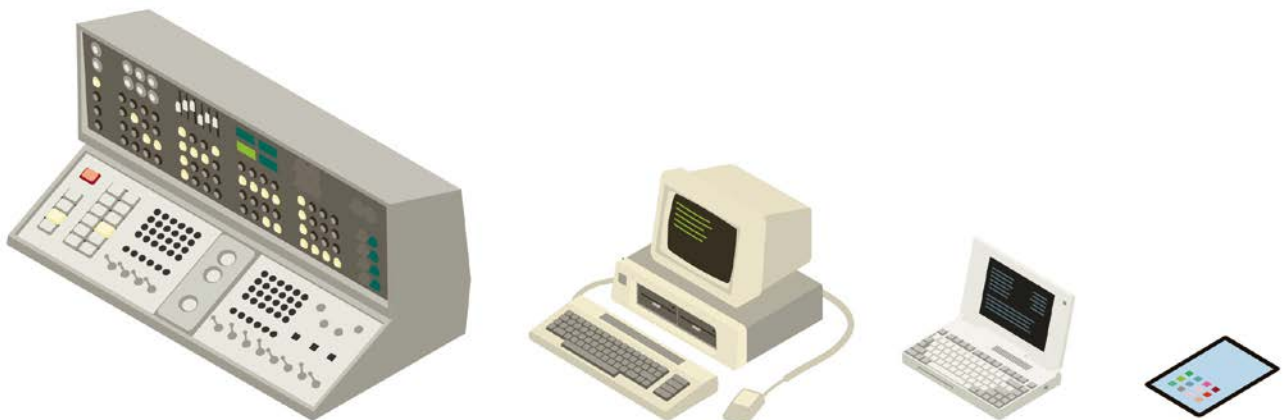
Abacus

## ■ Fourth generation

The development of the first single-chip microprocessor at INTEL Corporation allowed the passage to a very different generation, which lasted from the early 1970s to the early 1980s. In 1981 IBM released its Personal Computer, named *Machine of the year* by *Time* magazine in January 1983. The PC, which was much smaller, faster, cheaper and more user-friendly, revolutionised the market.

## ■ Fifth generation and the Internet

While the focus of technological research had been on the hardware up to then, the fifth generation shifted it on software. More and more sophisticated software packages have been created so as to fulfil the growing needs of the market created by the spread of the Internet. At the same time, software based on artificial intelligence, nano- and 3D technology, **in its turn**, has required more and more portable, high-performance and powerful computers.



## 1 Complete the passage with the missing sentences.

- |   |  |
|---|--|
| <p>a. communicate with each other</p> <p>b. controls all the movements of data</p> <p>c. electrical hardware joined together:</p> <p>d. is non-volatile,</p> <p>e. loss or damage</p> | <p>f. secondary storage devices,</p> <p>g. the computer is turned off.</p> <p>h. There are two types:</p> <p>i. to produce or input sounds,</p> <p>j. while the computer is working,</p> |
|---|--|

### What's in a Computer?

A computer system consists of all the pieces of **1.** ....: motherboard, processor, internal memory, video and sound cards and storage devices.

The **motherboard** connects all the components, which plug into it and **2.** .... via the BUS network.

Calculations and data processing are carried out by the processor or **Central Processing Unit** (CPU for short), which also **3.** .... to and from the memory.

Data need to be stored, and that's the work of the internal memory. **4.** .... **RAM** (Random Access Memory) and **ROM** (Read Only Memory). The first

is a fast memory, which stores the information **5.** .... but it's volatile, so all information is cancelled as soon as **6.** .... The second, instead, stores all the instructions to give to the computer to make it work and **7.** ...., so the information is not lost when the computer is turned off.

To show images on the monitor there are **graphics cards** and, **8.** .... there are **sound cards**. Finally, data and programs not needed by the computer when it's working are kept by **9.** ...., which also **back-up** data in case of **10.** .... of original copies.

## 2 Write the main characteristic of each generation of computers.

- |   |   |
|---|---|
| <p>1. 1<sup>st</sup> .....</p> <p>.....</p> | <p>4. 4<sup>th</sup> .....</p> <p>.....</p> |
| <p>2. 2<sup>nd</sup> .....</p> <p>.....</p> | <p>5. 5<sup>th</sup> .....</p> <p>.....</p> |
| <p>3. 3<sup>rd</sup> .....</p> <p>.....</p> |   |