1. Read the passage and give a simple explanation of the following terms.

1. Hardware ....

2. Software ....

3. Program ....

4. Personal computer ....

5. Embedded computer ....

6. Mainframe computer ....

1. Types of Computers

When we speak about computers we can refer to any device used to perform calculations with numbers, even a simple abacus. However, nowadays we normally think of a computer as an electronic device which carries out tasks or calculations by following a specific series of instructions called 'a program'. A computer is a combination of hardware and software. **Hardware** refers to all the pieces of equipment that you can see and touch, for example the keyboard, the screen and, most important of all, the Central Processing Unit (CPU), a microprocessor which functions as the brain of the computer controlling all its actions. **Software** refers to all the programs which tell the hardware what to do.

Computers come in all shapes and sizes, from a tiny embedded computer built inside a microwave oven to a gigantic mainframe computer which can be as big as an entire room. Embedded **computers** are microchips found inside a variety of machinery and equipment, including pocket calculators, smartphones, car engines and video game consoles. They are pre-programmed to carry out a very specific, limited number of tasks. Mainframes are large powerful super computers with thousands of linked microprocessors, used by governments and universities to perform highly complex calculations. The most common type of computer is called a 'personal computer' because it is designed to be used by one person at a time, and has developed into a number of different forms.

GLOSSARY

Abacus: abaco
Screen: schermo
Built inside: costruito all'interno
Embedded: integrato
Mainframe: elaboratore centrale
At a time: alla volta, per volta

2. Choose the correct name (A-I) for the computer in each picture.

A. Notebook/Laptop   ......

B. Smartphone   ......

C. Personal computer   ......

D. Desktop   ......

E. PDA (Personal Digital Assistant) ......

F. Tablet   ......

G. Device with embedded

    computer   ......

H. Mainframe computer   ......

I. Netbook   ......

1   2   3   4   5   6   7   8   9

5. Match each word or expression (1-15) with the correct definition (A-O).
Orally report to the teacher the Italian translation of the words.

1. Back up

2. Bluetooth

3. To configure

4. To crash

5. To digitise

6. To erase

7. Driver

8. Hertz

9. High-definition

10. To log on

11. Peripheral

12. Portable

13. Universal Serial

    Bus (USB)

14. To upgrade

15. Wi-Fi

A. A copy of the information held on a computer, stored separately from the computer.

B. A piece of hardware, such as a printer, which is external to a computer but connected to it and controlled by it.

C. A piece of software which allows a peripheral device to work with a computer.

D. Technology allowing two electronic devices which are close together to communicate using radio waves and without wires.

E. A unit of frequency equal to one cycle per second.

F. A way of connecting a device to a computer using wires so that they can work together.

G. A way of connecting computers or electronic devices to a network without using radio waves.

H. Having a high quality screen which can show images in great detail.

I. Light and easy to carry.

J. To arrange a computer or other electronic system so that it works with other equipment.

K. To connect a computer to a computer system so that you can start working.

L. To make a device or program better and be able to do more things.

M. To remove information from a computer memory.

N. To suddenly stop functioning.

O. To translate information into a digital form.

2. The Computer System

A computer is a complex device consisting of many different components. This hardware can be divided into four groups corresponding to the **four basic computer functions**.
The computer
• takes in data;
• processes the data according to the instructions in the programs;
• shows the results of this processing to the user;
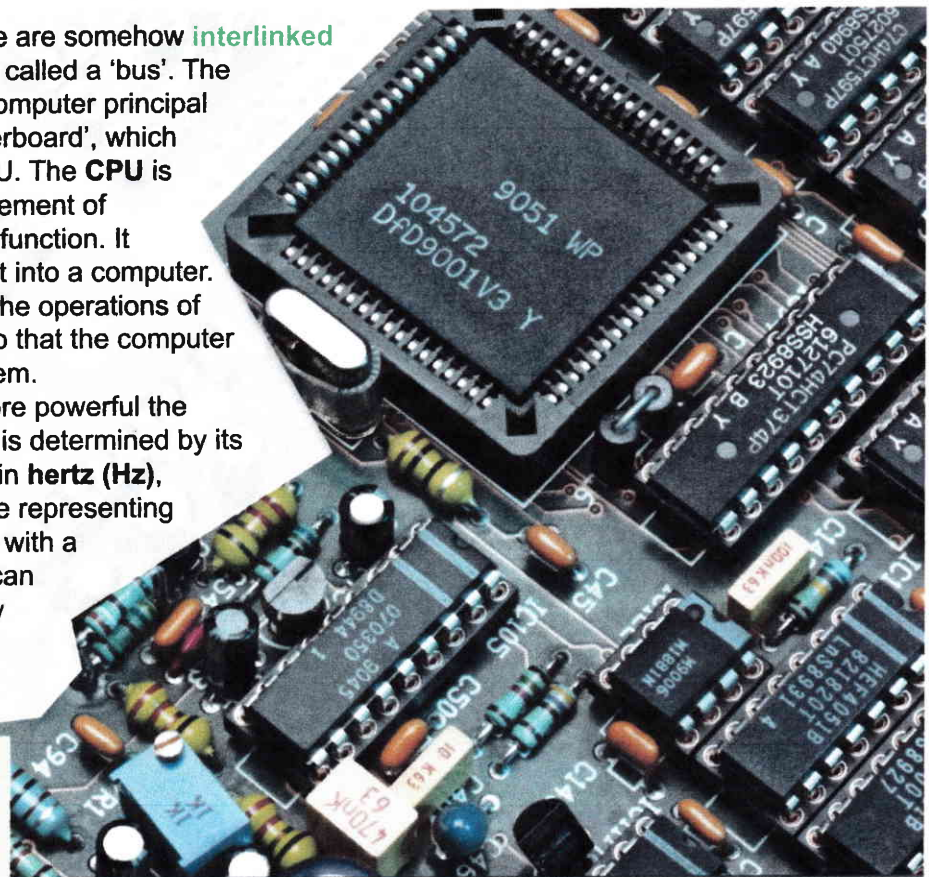• stores these results in its memory.

1. Match each word listed below with its correct definition.

A. INPUT	is	1. the equipment which displays the results of the computer work (printer, screen etc.).
		2. the equipment needed to feed data into the computer (keyboard, mouse etc.).
B. PROCESSING	is	3. the hardware which functions as the computer memory (hard disk). It allows storage of data so that it can be used again in the future.
C. OUTPUT	is	4. the equipment which follows the orders of programs to transform data. The most important element is the microchip called the Central Processing Unit (CPU).
D. STORING	is	

Hardware Groups

All the different pieces of hardware are somehow interlinked through a communication network called a 'bus'. The centre of communications is the computer principal circuit board, known as the 'motherboard', which works under the control of the CPU. The **CPU** is therefore the most fundamental element of computer hardware with a double function. It processes the data the users input into a computer. At the same time, it also controls the operations of all the other pieces of hardware so that the computer functions as a single unified system.
The faster the CPU works, the more powerful the computer is. The speed of a CPU is determined by its clock frequency and is measured in **hertz (Hz)**, cycles per second, with each cycle representing one elementary operation. A CPU with a clock speed of 4GHz (gigahertz) can perform 4 billion operations every second. The faster the clock, the more instructions the CPU can execute per second.

GLOSSARY

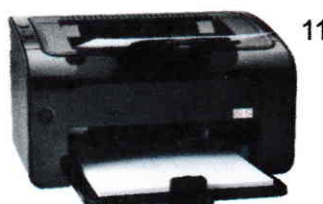**Interlinked**: interconnesso
Unified: unificato
Perform (v): compiere

2. Read the passage and match the beginning of each sentence with the correct ending.

1. A bus	A.	can be divided into four groups.
2. Computer hardware	B.	feeds data into the computer.
3. A CPU	C.	functions as the computer memory.
4. A hard disk	D.	indicates how fast the computer can work.
5. A motherboard	E.	is a communication network linking the hardware.
6. An input device	F.	is the computer central circuit board.
7. An output device	G.	processes data and controls computer operations.
8. The clock speed	H.	shows the results of the computer work.

3. Match the pictures of input and output devices (1-15) with their name (A-O).

A. Joystick	......	F. Speaker	......	K. Scanner	......
B. Monitor	......	G. Microphone	......	L. Touchscreen	......
C. Sensor	......	H. Printer	......	M. 3D-printer	......
D. Keyboard	......	I. Touchpad	......	N. External hard drive	......
E. Mouse	......	J. Modem	......	O. USB key	......

4. Match the names of input and output devices in the previous exercise with the following descriptions.

A. Joystick

B. Monitor

C. Sensor

D. Keyboard

E. Mouse

F. Speaker

G. Microphone

H. Printer

I. Touchpad

J. Modem

K. Scanner

L. Touchscreen

M. 3D-printer

N. External hard drive

O. USB key

1. In addition to the letters of the alphabet, this device also includes function keys to perform special tasks and keys to control the movement of the cursor on the screen.

2. A portable storage device which is generally used to back up computers, thus avoiding data loss.

3. Registers changes in the external environment, for example temperature or light, and converts them into digital data which can be stored by the computer or trigger it into taking action.

4. By moving this device around any flat surface, the user can direct the movement of the cursor on the screen. It can give instructions by selecting icons on the screen and clicking on a button.

5. Enables communication between computers over telephone lines by converting digital data into telephone signals and vice versa.

6. A device that uses light sensors to digitise photographs and other illustrations, translating them into numerical form for processing by a computer.

7. This device usually takes the form of a flat screen panel with a display based on liquid crystal technology. Older models use a cathode ray tube.

8. Produces output on paper. The most common types are inkjet, spraying liquid ink, or laser, using a dry ink called toner.

9. This device is usually light and small so it is very easy to carry around in your pocket and bag to store information and data.

10. Transforms digital signals into sound waves which can be heard by the user as, for example, music or speech.

11. This device enables the user to activate the computer by using a finger to touch symbols or words shown on the screen.

12. By moving a finger around a small area of sensitive plastic, the user can control the movement of the cursor on the screen, select icons and give instructions by clicking on a button.

13. This device converts sound waves into electronic signals which can be read by the computer and stored in its memory.

14. This device manufactures three-dimensional solid objects from a digital file.

15. This device has a part which can move in different directions and the movement is translated into corresponding signals to be shown on a screen or to control the actions of a robot.