الجمهورية الجزائرية الديمقراطية الشعبية
REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE
وزارة التكوين والتعليم المهنيين
Ministère de la Formation et de l'Enseignement Professionnels

Centre National de l'Enseignement Professionnel à Distance (CNEPD)

المركز الوطني للتعليم المهني عن بعد (م.و.ت.م.ب)

COURS D'ANGLAIS

SÉRIE 03

OBJECTIF PÉDAGOGIQUE : À la fin de cette série, le stagiaire doit être capable de connaitre les termes techniques de la langue anglaise.

PLAN DE LA LEÇON :

I- A COMPUTER DESCRIPTION

II- INSIDE THE SYSTEM

III- BITS AND BYTES

I- A COMPUTER DESCRIPTION:

What's a computer?

Computers are electronic machines which can accept data in a certain form process the data and give the results of the processing in a specified format as information.

Three basic steps are involved in the process. First, data is fed into the computer's memory. Then, when the program is run, the computer performs a set of instructions and processes the data. Finally, we can see the results (the out put) on the screen or in printed form.

Information in the form of data programs is known as **software**, and the electronic and mechanical parts that make up a computer system are called **hardware** .A standard computer system consists of three main sections: the central processing unit (CPU),the main memory and the peripherals.

Perhaps the most influential component is the **central processing unit**. Its function is to execute program instructions and coordinate the activities of all the other units. In a way, it's the "brain" of the computer. The **main memory** holds the instructions and data which are currently being processed by the CPU. The peripherals are the physical units attached to the computer .They include storage devices and input/out put devices.

Storage devices (floppy, hard or optical disks) provide a permanent storage of both data and programs. Disks drives are used to handle one or more floppy disks. **Input devices** enable data to go into the computer's memory. The most common input devices are the **mouse** and the **keyboard. Output devices** enable us to extract the finished product from the system .For example, the computer shows the output on the **monitor** also called **screen** or prints the results onto paper by means of **printer**.

On the rear panel of the computer there are several ports into which we can plug a wide range of peripherals –modems, fax machines, optical drives and scanners.

These are the main physical units of a computer system, generally known as the **configuration**.

PRACTICE N° 01: Match the terms in the box with appropriate explanation or definition below.

a-software	b-peripherals	c-monitor	d-floppy disk
e-hardware			
f-input	g- port	h-output	i-central unit

1. The brain of the computer .
2. Physical parts that make up a computer system.
3. Programs which can be used on a particular computer system.
4. The information which is presented to the computer.
5. Results produced by a computer.
6. Hardware equipment attached to the CPU.
7. Visual display unit.
8. Small device used to store information .Same as “diskette”.
9. Any socket or channel in a computer system into which an input/output device may be connected.

II- INSIDE THE SYSTEM:

Here is an example of a PC advertisement with the technical specifications:

- Pentium 4 microprocessor at 2GHz (2,000MHz)
- 256 megabytes of RAM, up gradable to 1.5GB
- 80GB hard disk
- Comes with Microsoft Windows

Read the following text carefully in order to understand.

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What's inside the PC?

The nerve centre of a PC is the central processing unit or CPU. This unit is built into a single microprocessor chip –an integrated circuit– which executes program instructions and supervises the computer's overall operation. The unit consists of three main parts:

- The **control unit** ,which examines the instructions in the user's program interprets each instruction and causes the circuits and the rest of the components-disk drives, monitor, etc.-to be activated to execute the functions specified;

- **The arithmetic logic unit** (**ALU**), which performs mathematical calculations (+,-,etc.) and logical operations (and ,or, etc.);

- The **registers,** which are high-speed units of memory used to store and control information. One of these registers is the program counter (PC) which keeps track of the next instruction to be performed in the main memory. Another is the instruction register (IR) which holds the instruction that is currently being executed.

One area where microprocessors differ is in the amount of data –the number of bits –they can work with at a time. There are 16, 32 and 64 bit processors. The computer's internal architecture is evolving so quickly that the new 64-bit processors are able to address 4 billion times more information than a 32-bit system.

The program and data which pass through the central processor must be loaded into **the main memory** (also called **the internal memory**) in order to be processed .Thus, when the user runs an application ,the microprocessor looks for it on secondary storage devices (disks) and transfers a copy of the application into the RAM area. RAM (random access memory) is temporary, i.e. its information is lost when the computer is turned off. However, the ROM section (read only memory) is permanent and contains instructions needed by the processor.

Most of today's computers have internal **expansion slots** that allow users to install adapters or expansion boards, and internal modems.

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The power and performance of a computer is partly determined by the speed of its microprocessor. A **clock** provides pulses at fixed intervals to measure and synchronize circuits and units. The clock speed is measured in MHz (megahertz) or GHz (gigahertz) and refers to the frequency at which pulses are emitted. For example, a CPU running at 1,600 MHz (1,600 million cycles per second) will enable the computer to handle the most demanding applications.

A RAM chip:

The RAM capacity can sometimes be expanded by adding extra chips. These are usually contained in small circuit boards called single in –line memory modules (DIMMs), which allow for a wider data path.

PRACTICE N° 02:

Read the text above and say if the following statements are true (T) or false (F) and rewrite the false ones to make them true.

1. The CPU directs and coordinates the activities taking place within the computer system.
2. The arithmetic logic unit performs calculations on the data.
3. 32 –bit processors can handle more information than 64-bit processors.
4. A chip is an electronic device composed of silicon elements containing a set of integrated circuits.
5. RAM, ROM and secondary storage are the components of the main memory.
6. Information cannot be processed by the microprocessor if it is not loaded into the main memory.
7. ‘Permanent’ storage of information is provided by RAM (random access memory).
8. The speed of the microprocessor is measured in gigahertz or megahertz. One GHz is equivalent to one thousand MHz. One MHz is equivalent to one million cycles per second.

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KEYS TO ANSWERS

PRACTICE N°01:

1 i, 2 e, 3 a, 4 f, 5 h, 6 b, 7 c, 8 d, 9 g

PRACTICE N°02:

1 T, 2 T, 3 F, 4 T, 5 F, 6 T, 7 F, 8 T

III- BITS AND BYTES:

The table following gives some prefixes commonly used in computer science .Knowing the meaning of these prefixes will help you understand new words.

Prefix	Meaning	Example
Deci-	Ten	Decimal,decimalize,decibel
Hexadeci	Sixteen	Hexadecimal
Kilo-	One thousand(1,000)	Kilocycle,kilogram(me),kilowatt
Mega-	(1,024 in binary:2^{10}	Megahertz,megalith,megaton
Giga-	Large;one million	Gigantic,gigabyte,gigahertz
Mini-		Minibus,minimum,minimize
Micro-	Very large:one	Microfilm,microphone,microwave
Bi-	thousand	Bidirectional,bidimensional,binary
Tri-	million	Tripartite,tricycle,trilingual
Multi-	Small	Multi-racial,multiuser,multitasking
mono	Very small	Monologue,monosyllable,monolingual
	Two	
	Three	
	Many	
	one	

Bites for Pictures

Did you know that?

1. Bits can also be used to code pictures?
2. The information displayed on the computer screen corresponds, **dot by dot** (point par point) ,with bits held in the main memory?
3. On colour systems, if you have 8 bites per primary colour, the palette of your computer can obtain 16.7 million colours?

Each tiny dot on the screen of a computer is called a picture element or **pixel**. Images and text are formed by combining a large number of pixels.

In a bit-mapped display, the dots displayed on the screen correspond, pixel by pixel, with bits in the main memory of the computer. The bits are held in an area of the memory called the 'refresh buffer' and are stored in groups that represent the horizontal and vertical position of the pixels on the screen and whether the pixels are on or off.

On monochrome systems, one bit in this "map" represents one pixel on the screen and can be either "**on "**or **"off"** (black or white).

On colour systems, each pixel is a certain combination of the three primary colours; red, green and blue. The total number of colours which can be shown on the screen is called the **colour palette** .The size of this palette depends on the graphics adaptor, a separate video card that converts the bits into visual signals.

A graphics adaptor with 1bit per primary colour can generate up to 8 , or 2^3 colours, whereas, a graphics adaptor with 8 bits per primary colour can generate 16.7 million or $(2^3)^8$ colours.

Colour	Red	Green	Blue
Black	0	0	0
Blue	0	0	1
Green	0	1	0
Cyan	0	1	1
Red	1	0	0
Magenta	1	0	1
Yellow	1	1	0
white	1	1	1

One bit per primary colour

Practice N°1: Match the following terms in the box with the appropriate explanation or definition.

a- pixel b- bit c- bit-mapped display

d- primary colours e- palette

1. The menu of colours available on a graphics system; its size depends on the hardware.
2. Red, green and blue (RGB) in computers.
3. The smallest element of a display surface.
4. A display on the screen which corresponds, pixel by pixel, with bits stored in memory cells.
5. The acronym for “binary digit”; one of the digits (0 and 1) used in binary notation.

ANSWER KEY

PRACTICE N° 01:

1e - 2 d – 3 a – 4 c – 5 b