CAPACITARTE

Es ser líder de tu vida

Output devices:

Examples of Output Devices

CRT Monitor	TFT Monitor	Laser Printer	Inkjet Printer
Dot Matrix Printer		Speakers	
Plotters		Multimedia Projectors	

Display Screens

a- CRTs and LCDs

The screen of a computer is often known as the monitor, or VDU (Visual Display Unit). Inside the computer, there is a video card which processes images and sends signals to the monitor.
When choosing a monitor, you have to take into account a few basics.

- **Type of Display:** The choice between a CRT or an LCD screen.

CRT   LCD

Cathode Ray Tube (CRT) of a monitor is similar to a traditional TV set. It has three electron guns (one for each primary colour) that strike the inside of the screen, which is coated with substances called phosphors, which glow and create colours. CRTs are cheap, but they are heavy, can flicker and emit radiation.

A liquid Crystal Display is made from flat plates with a liquid crystal solution between them. The crystals block the light in different quantities to create the image**. Active-matrix LCDs** use **TFT (thin film transistor)** technology, in which each pixel has its own transistor switch. They offer better quality and take up less space, so they are replacing CRTs.

- **screen size:** the viewing area is measured diagonally; in other words, a 17" screen measures 17 inches from the top left corner to the bottom right

CRT

LCD

Measurement INCLUDES plastic case

Plastic case NOT INCLUDED in measurement

Flat CRT

Slim CRT

LCD

30" CRT
Depth 23"

30" CRT
Depth 16"

32" LCD
Depth 13"

- **Resolution:** the clarity of the image depends on the number of pixels (short for picture elements) contained on a display, horizontally and vertically. A typical resolution is 1,024x768. The sharpness of images is affected by dot pitch, the distance between the pixels on the screen, so a dot pitch of 0.28 mm or less will produce a sharp image.
- **Brigthness:** the luminance of images is measured in ed/m2 (candela per square metre).
- **Colour depth:** the number of colours a monitor can display. for example, a VGA monitor produces 256 colours, enough for home use; a Super VGA can produce up to 16.7 million colours, so it is ideal for photographic work and video games.
- **Refresh rate:** the number of times that the image is drawn each second. If a monitor has a refresh rate of 75 hertz (Hz), it means that the screen is scanned 75 times per second. if this rate is low, you will notice a flicker, which can cause eye fatigue.

b- Big screens: plasma and projection TVs

Students can use a video projector in geography lessons, by preparing audiovisual presentations in their latop and then connecting it to a **front-screen projector** which displays the images on a distant screen or white wall.
Business people can use a portable DLP projector for their business presentations. This is a **digital light-processing** device which creates the image with millions of microscopic mirrors arranged on a silicon chip.

Home users can set uo a system ith a DVD recorder, speakers for surround sound, and a **rear projection** TV, which has the video projector and the screen within a large TV box. Also, they can have a 52-inch **plasma display** and really enjoy its advantages; high-contrast images and bright colours, generated by a plasma discharge which contains noble (non-harmful) gases. Gas-plasma TVs allow for larger screens and wide viewing angles, which is perfect for movies!!

Printers

Printing is the final stage in creating a document. since the results you can obtain with different types of printer will vary substantially, there follows a description of each type of printer.

To begin with, you should take into account that printers vary in cost, speed, print quality, and other factors such as noise or printing method. technology is evolving so quickly that there is always a printer for every application or need.

Laser Printer   **Dot Matrix Printer**   **Photo and Document printer**

Dot-matrix printers use pins to print the dots required to shape a character. They can print text and graphics; however, they produce relatively low resolution output, 72 to 180 dots per inch (dpi). they are used to print multi-part forms, self-copying paper and continuous-form labels. They are slower than laser printers but much cheaper.

Laser printers produce output at great speed and with a very high resolution of 1,200-2,400 dpi. They scan the image with a laser beam and transfer it to paper with a special ink powder called toner. In terms of speed and image quality, laser printers are preferred by experts for various reasons; for instance, they have a wider range of scalable fonts than inkjets, can emulate different language systems, and can produce high-quality graphics; however, they are still expensive for home users.

Thermal Photo Printer   Inkjet Printer

Inkjet printers operate by projecting small ink droplets onto paper to form the required image. inkjets are fairly fast, quiet, and not as expensive as laser printers. Nevertheless, you can still expect high quality results because there are some inkjet printers on the market with a resolution of 2,400 dpi.

Thermal transfer printers are used to produce colour images by transferring a wax-based ink onto the paper. They are popular for printing bar codes, labels and medium-resolution graphics

Imagesetters produce very high-resolution output (up to 3,540 dpi) on paper or on the actual film for making the printing plates. In addition, they are extremely fast. Imagesetters are most often used in Desktop Publishing (DTP). Although they produce the highest quality output, they have one important disadvantage: they are too expensive for homes or small offices.

In modern lithographic printing, images are created on a DTP computer and then output directly to the printing plates, without requiring film as an intermediate step. This technology is called computer to plate, or CTP, and the machine used is called a **platesetter**.

Finally, we have **plotters**. They use ink and fine pens held in a carriage to draw very detailed designs on paper. They are used for construction plans, engineering drawings and other technical illustrations. Nowadays, traditional plotters are being replaced with wide-format inkjets.

Technical details of a printer

- The output on paper or acetate sheets is called **printout or hard copy**.
- A **print spooler** stores files to be printed when the printer is ready. It lets you change the order of documents in the queue and cancel specific print jobs.
- The output quality, or resolution, is measured in **dpi** or **dots per inch**.
- The speed of your printer is measured in **pages per minute (ppm)**
- A program in your computer, called **printer driver**, converts data into a form that your printer can understand.
- In a network, users can share a printer connected to a **print server**, a computer that stores the files waiting to be printed.