

Learning what parts of your computer....do!

HARDWARE

The hardware are the parts of computer itself including the Central Processing Unit (CPU) and related microchips and micro-circuitry, keyboards, monitors, drives (floppy, hard, CD, DVD, USB). Other extra parts called peripheral components or devices include mouse, printers, modems, scanners, digital cameras and cards (sound, color, video) etc... Together they are often referred to as a personal computers or PCs.

Central Processing Unit (CPU) - Though the term relates to a specific chip or the processor, a CPU's performance is determined by the rest of the computers circuitry and chips.



Currently the Pentium chip or processor, made by Intel, is the most common CPU though there are many other companies that produce processors for personal computers.

With faster processors the clock speed becomes more important. Compared to some of the first computers operated at below 30 megahertz (MHz) the Pentium chips began at 75 MHz in the late 1990's. As of mid 2003 speeds now exceed 3000+ MHz or 3 gigahertz (GHz) (check your local computer store for the latest speed). It depends on the circuit board that the chip is housed in, or the motherboard, as to whether you are able to upgrade to a faster chip. The motherboard contains the circuitry and connections that allow the various components to communicate with each other.



Keyboard - The keyboard is used to type information into the computer or input information. There are many different keyboard layouts and sizes with the most common for Latin based languages being the QWERTY layout (named for the first 6 keys). The standard keyboard has 101 keys.

Disk Drives - All disks need a drive to get information off - or read - and put information on the disk - or write. Each drive is designed for a specific type of disk whether it is a CD, DVD, hard disk, floppy disk, or USB. 512 Mb USB can hold as much data as over 350 floppy disks. You can check with the store you bought your computer from, but most computers still come with an A Drive (3 1/2" floppy), the C Drive or Hard Drive. Lots come with CD-ROM, and lately dealers are switching to CD-RW Drives. USB ports are available on all computers. Often the term 'disk' and 'drive' are used to describe the same thing but it helps to understand that the disk is the storage device which contains computer files - or software - and the drive is the mechanism that runs the disk.





Mouse - Most modern computers today are run using a mouse-controlled pointer. Generally if the mouse has two buttons the left one is used to select objects and text and the right one is used to access menus. One type of mouse has a round ball under the bottom of the mouse that rolls and turns two wheels that control the direction of the pointer on the screen. Another type of mouse uses an optical system to track the movement of the mouse.



Monitors - The monitor shows information on the screen when you type. This is called outputting information. When the computer needs more information it will display a message on the screen, usually through a dialog box. Monitors come in many types and sizes from the simple monochrome (one color) screen to full color screens. Most desktop computers use a monitor with a cathode tube and most notebooks use a liquid crystal display (LCD) monitor. In this classroom, our monitors are LCD.

Printers - The printer takes the information on your screen and transfers it to paper or a hard copy. There are many different types of printers with various levels of quality. The three basic types of printer are; dot matrix, inkjet, and laser.

- Dot matrix printers work like a typewriter transferring ink from a ribbon to paper with a series or 'matrix' of tiny pins.
- Ink jets work like dot matrix printers but fires a stream of ink from a cartridge directly onto the paper.
- Laser printers use the same technology as a photocopier using heat to transfer toner onto paper.

Peripherals

Scanners allow you to transfer pictures and photographs to your computer. A scanner 'scans' the image from the top to the bottom, one line at a time and transfers it to the computer as a series of bits or a bitmap. You can then take that image and use it in a paint program, send it out as a fax or print it. With optional Optical Character Recognition (OCR) software you can convert printed documents such as newspaper articles to text that can be used in your word processor. Most scanners use TWAIN software that makes the scanner accessible by other software applications.

Digital cameras allow you to take digital photographs. The images are stored on a memory chip or disk that can be transferred to your computer. Some cameras can also capture sound and video.

Speakers are usually a part of the desktop set up. We

don't use them in the Library but they can provide a good bit of enjoyment to your computing experience.

SOFTWARE

The software is the information that the computer uses to get the job done. Software needs to be accessed before it can be used. There are many terms used for process of accessing software including running, executing, starting up, opening, and others. Computer programs allow users to complete tasks. A program can also be referred to as an application and the two words are used interchangeably.

Operating Systems

All computers need some sort of Operating System (OS). The majority of modern home computers use some form of Microsoft's Windows operating systems. The original Microsoft operating system was called DOS (Disk Operating System). A few computers use IBM's O/S2. Apple's Mac uses their own operating system.

The operating system controls the input and output or directs the flow of information to and from the CPU. Much of this is done automatically by the system but it is possible to modify and control your system if you need to.

When you turn your computer on it first needs to load the operating system sometimes referred to a booting up. Basically the computer starts from scratch every time you turn the power on. It checks all its components and will usually display a message if there is a problem. Loading the system is usually automatic. Once the system is loaded the user can start the application or program that they are going to use.

Any document that you create, graphic you design, sound you compose, file you make, letter you write, email you send or anything that you use to create on your computer is referred to as software. All software is stored in files.

There are millions of different pieces of software available for almost every conceivable need. Software is available commercially through stores and mail order and also available on the Internet.

The three basic types of software are: commercial, shareware and open source software. Some software is also release into the public domain without a license.

Commercial software comes prepackaged and is available from software stores and through the Internet.

Shareware is software developed by individual and small companies that cannot afford to market their software worldwide or by a company that wants to release a demonstration version of their commercial product. You will have an evaluation period in which you can decide whether to purchase the product or not. Shareware software often is disabled in some way and has a notice attached to

explain the legal requirements for using the product.

Open Source software is created by generous programmers and released into the public domain for public use. There is usually a copyright notice that must remain with the software product. Open Source software is not public domain in that the company or individual that develops the software retains ownership of the program but the software can be used freely. Many popular Open Source applications are being developed and upgraded regularly by individuals and companies that believe in the Open Source concept.

HEALTH AND SAFETY

Health and Safety is crucial to the effective operation of a computer. Stress is widely accepted as a common and possibly the most dangerous aspect of using a computer. It is possible to use a computer safely if a few simple rules are maintained.

Musculoskeletal problems can occur when improper office equipment is used. Chairs should be adjustable so that legs are at a right angle. The back should have good support for the spine and lower back. The seat should swivel and be made from fabric that is porous.

Eye strain can be caused by staring at a fix object for extended periods of time (like a computer). People who use glasses may have to get their prescriptions changed and people who use bifocals can find that the line interferes with the screen and trifocals triple the problem. Regular users of computers may develop focusing problems. Temporary color distortion has also been reported.

Stress is caused by many things including poor or inadequate training, monitoring, fear of new technology, lack of control over work, physical problems, hardware problems causing delays, poor layout of work space and the myriad of other problems that people experience that combine to create stressful situations.

A safe working environment is crucial. Ventilation is an integral part of the new technological workplace. Taking breaks are very important, too. There are many other issues to be discussed around computer health and safety but it is important to understand that there are problems and solutions to those problems that the user, administrator and manager must address.