

# **How The Computer Works**

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## a. How the Computer Works

A computer consists of many different parts that make it work. It is a device used for calculations, though it can also perform many other complex tasks.

To use a computer you must first boot it or turn it on. When the computer is turned on, it starts the operating system, software that performs the most basic instructions (software will be discussed more in-depth in the next section). Some of the instructions tell the computer what is inside it and how much power it has. All computers require an operating system, some names of common operating systems are Windows, Mac OS, and UNIX.

Once the operating system has loaded and the computer is on, the user can use programs and software. Common types of programs used in businesses are discussed in the next section, although there are many other different types. Most programs can be accessed from the desktop, the screen that appears when the computer is finished loading the operating system.



## b. Parts of the Computer

There are many parts of the computer. Some of the most common are the processor, memory, hardware, software, storage, and input/output devices.

### **Processor**

The processor of the computer is similar to the brain of a human. It transfers letters and numbers into useful information that the user is able to read. The Central Processing Unit, or CPU, is where calculations and logic decisions take place. The circuit board is a tiny rectangular card that connects the processor to other parts of the computer. The circuit board is connected to the motherboard, the main circuit board of the computer. Sound cards and video cards are type of circuit boards. A sound card produces sound and a video card produces images or graphics.

### **Memory**

There are two types of memory, Random Access Memory and Read Only Memory. Random Access Memory, or RAM, determines how fast the computer is. When the user turns off the computer, the RAM is lost. Read Only Memory, or ROM, contains instructions that tell the computer how to get started. You can read these instructions but you cannot change them.

## **Hardware**

Hardware is all of the electrical and mechanical parts of the computer that you can touch. Some common types of hardware are the system unit and modem. The system unit is a box that holds the CPU, and peripherals (hardware that allows you to add other optional devices to the computer) are connected to it. The modem is a device that allows your computer to communicate with other computers. More will be discussed in later sections.

## **Software**

Software, also known as a program, is a large group of instructions that make a computer do something. The method of making a program or software is called programming. There are many different programs that you can buy at a shop or download from the Internet, such as word processors and graphics editors and many others.

## **Internet Browsers**

The Internet (or World Wide Web) is the most common way people communicate using a computer. The Internet is a network that connects computers around the world. Anyone can make a website, which is a collection of several files linked to each other. You can put pictures or drawings on the page, stories, articles, games, and many other things. Often businesses or companies have websites that you can visit to learn more about them or even to purchase items from them, without even leaving your house. The browser is the program that allows you to view this information. Some common browsers are "Internet Explorer", "Firefox", and "Opera".



## **Word Processors**

You use the keyboard (an input device) to make words appear on the monitor (called typing). Some common word processors are "Microsoft Word", "WordPad", and "Notepad".



## **Graphics Editors**

These programs are used to manipulate photos or create images. Some common word processors are "Microsoft Paint", "Adobe PhotoShop", and "Paint Shop Pro".

Storage and Input/Output Devices will be discussed in the next two sections.

## **c. Information Storage**

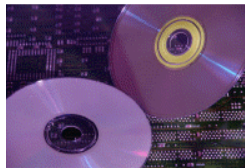
Storage is where program files and related data are kept while they are being used. There is more room in storage than in memory; storage is like

a large cabinet or dresser, you can store lots of information in it. Memory is more like a small box; less information is stored in it. When the computer is turned off, the contents of the storage are saved but memory is not.

Some types of storage devices are floppy disks, Compact Discs (commonly referred to as a CD), Digital Versatile Disk (DVD), and hard drive.

### ***Floppy Disks***

A floppy disk, or diskette, is a small, flat, square shaped device that can be inserted into a slot on the computer. You can save files on the disk and take the disk out of the computer and insert it into another computer.

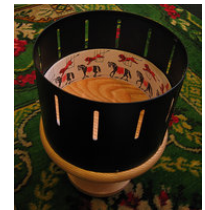


### ***Compact Disc (CD)***

CDs are similar to floppy disks, but they are circular and go into a different slot in the computer. They also can store much more information.

### ***Digital Versatile Disk (DVD)***

A DVD looks just like a CD but it can store different information. A CD can hold text, images, and many other kinds of files, but DVDs can hold movies and there is much more room. A movie (originally called moving pictures) is a form of a very advanced zoetrope. They are a series of pictures that change so quickly they appear to be moving and telling a story. With a DVD, these movies can be displayed on the monitor of the computer.



### ***Hard Drive***

A hard drive is a storage device that is usually non-removable (it stays with the computer, though some hard drives are removable). You can hold much more data on a hard drive than you can on a floppy disk and this is why software or programs are usually stored on the hard drive rather than a floppy disk.



## **d. Input / Output Devices**

### **Input Devices**

An input device is a method to give the computer information or instructions. Some common input devices are the keyboard, mouse, and scanner.

## ***Keyboard***

The keyboard is similar to a device that will be commercially produced in the 1870s, a typewriter. The typewriter is a machine with letters, numbers, and symbols (characters) on it, called keys or buttons. If you press a button, the character is marked on a paper in ink. The difference between a keyboard and typewriter is that the words on the keyboard show up on a display screen, the monitor (an output device).



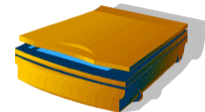
## ***Mouse***



The mouse is a small device that the user moves around a desk or table with his hands to control the computer. There is an arrow on the monitor (called a cursor) that follows the mouse movements. There are usually two buttons on a mouse. The left mouse button is most commonly used when you want to click on something on the monitor, similar to pressing a button.

## ***Scanner***

A scanner can come in several sizes and shapes; they can be short and flat or large and box-shaped. A paper or object is placed on the scanner. A picture of this object is sent to the computer as an image that can be edited or viewed.

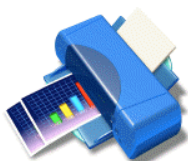
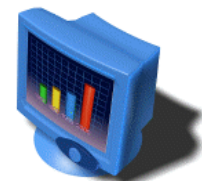


## **Output Devices**

An output device is a way that the computer can show you information. The most common output devices are the monitor and printer.

## ***Monitor***

The monitor is a box with a screen that displays images and words; it is often just referred to as the screen. This is where you can see what you are doing with the computer. When you first start the computer, you will usually see the desktop on the monitor.



## ***Printer***

The printer is a machine that makes a copy of the on screen words and images and puts it on a paper in ink. The process of printing something is very easy; most programs have a button that says "Print". After pressing the button, you only have to wait; the printer does all the rest.

## **e. Impact on Society**

### ***How Computers are used in Modern Times***

Computers are used almost everywhere today. Businesses, schools, and homes will often have access to computers.

In businesses, computers are used to keep track of company history, financial information, and other important things. Computers in schools are used to teach children and for research. Home computers can be used for most things you can do on business and school computers as well as for fun and games.

### ***Impact it would have on Their Lives***

If the people of the 1850s were able to use computers, they would be able to perform tasks quicker and easier. Instead of writing out a letter to a friend, you could type it up on the computer and print it out. It is also much easier to read typing than handwritten words.

Letters and messages can be sent to other people over the Internet. The messages arrive immediately and you can even talk to other people using *chat programs* where you can type short messages back and forth.

### ***Disadvantages of the Computerized Generation***

Though there are many advantages to computers, there are also some disadvantages. Some people develop back or neck pains from sitting in the same position and using the computer for long amounts of time. Headaches, burning eyes, or poor vision can also result from extended use of computers.

The newest computers are expensive and not everyone can afford them. Children who do not have access to computers outside of their school may not be able to complete assignments that require the use of a program or the Internet.

Most people of the 1990s and 2000s are used to having computers and it is difficult to imagine life without them. We rely on computers so much that when they don't work or aren't available, people don't know how to do things that were done by hand ten years ago, because now it is always done by computers.