



# Computer Basics



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# PCs & their parts

## What is a PC?

“PC” stands for personal computer. A PC is meant to be used by one person at a time, and is relatively small.

A PC performs four basic functions:

1. Accepts data (input)
2. Manipulates data (processing)
3. Produces some result (output)
4. Stores data (storage)

PCs come in all shapes and sizes, but the majority of them look like what’s in front of you today, which is a desktop computer.

Computers are made up of two things, hardware and software. Most of what we will cover today is hardware; our other classes generally cover software.

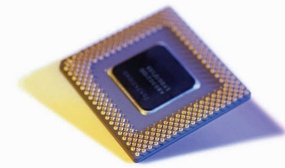
## Hardware

Hardware is all the physical components of the computer system. The case, the monitor, the keyboard, and the mouse are the most common, but **any part of the computer you can physically touch is hardware.**

## The Central Processing Unit

The CPU, also called the system unit, is the box that contains the working parts of a computer. CPU components typically include:

- ▶ A hard drive
- ▶ A motherboard
- ▶ A microprocessor (pictured right)
- ▶ Memory



and other things to manage network connections, removable storage, video, audio and more. There is no magical elf in the CPU, just a lot of electronic circuitry.

## Hard drive

Every system unit has its own hard drive, a small case of magnetic storage discs that is generally not removable. It is used to store the programs that make the computer run; it can also be used to store files. A computer recognizes its own hard drive as the C drive (written C:).



Storing a file on the hard drive is a good way to access it quickly and easily. However, hard drives can “go bad.” When they do, anything stored on them is gone.



## Other hardware

Other computer hardware might include:

- A printer
- A memory-card reader
- An external hard drive
- A scanner

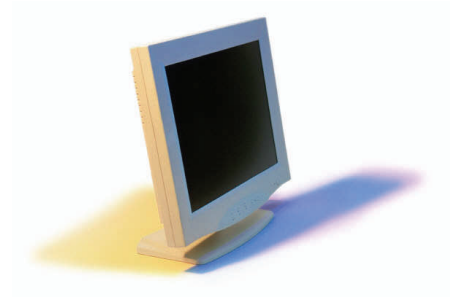
And many other things! These non-essential parts of a computer are often called “peripherals.”

### The monitor

The monitor is also called a screen or display. There are two main types of monitors, CRTs and LCDs (also called flat screens). Almost all the computers in the library have LCDs. You can adjust most monitors for brightness and contrast, and usually for tilt and height.



A CRT monitor



An LCD monitor

### The keyboard

The keyboard is an input device used to type or “key in” data.



This keyboard has a special ergonomic configuration.



### The mouse

The mouse is an input device used to select icons and objects on the screen, and for navigation. A standard mouse has two buttons; some have a scrolling wheel between the buttons.



# Hardware: Storage devices



To be extra safe, store important files and documents several ways: on your hard drive, on a floppy disk and on a CD, for example.

## Removable media (still hardware!)

You can save your files to removable media, which you carry with you and can use in other computers. Removable media include floppy disks, CDs, DVDs and USB flash drives.

### Floppy disks

A floppy disk is a piece of thin plastic, coated with iron oxide so that it can record data magnetically. The disk is enclosed in a 3½" plastic case, and is often called an A disk (written A:). Many new computers do not include floppy drives, and they are not a reliable way to store data.



### CDs and DVDs

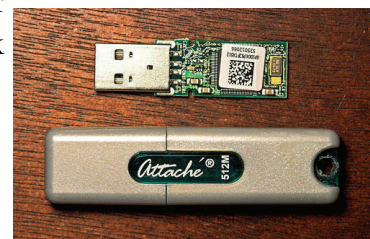
CDs are non-magnetic, digitally encoded disks that are read (and sometimes written) by a laser in your computer. Most computers label a CD as either the D or the E drive (written D: or E:). Almost all modern computers can read a CD. However, a computer must have a CD burner to save files to a disk, a process often called “burning” a disk. Most library computers do **not** have CD burners. (It’s a different type of laser.)



DVDs work much the same way, but hold more data. Most library computers cannot read DVDs.

### USB flash drives

Flash drives have more in common with your computer’s hard drive than with a floppy disk or a compact disc. USB flash drives plug directly into a USB port on a computer; the computer sees it as part of the CPU, so reading and writing is very quick. The label assigned to a flash drive depends on how many other drives a computer has installed.



Flash drives come in many shapes, sizes and price points.



# Hardware: Storage capacity

A 3½" floppy disk holds about 1.44 MB of data. A CD holds about 700 MB. A DVD holds about 4 GB.

USB drives can hold from 32 MB up to 8 GB or more.

	Term	Rough size
—	byte	1 byte
<b>KB</b>	kilobyte	1,000 bytes
<b>MB</b>	megabyte	1,000,000 bytes <i>or</i> 1,000 KB
<b>GB</b>	gigabyte	1,000,000,000 bytes <i>or</i> 1,000,000 KB <i>or</i> 1,000 MB

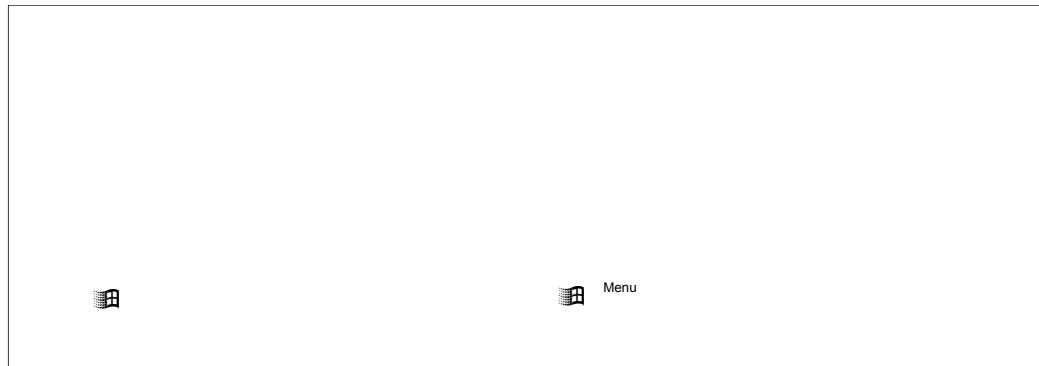
For a little bit of perspective, in a very simple program like Notepad, one character is about one byte. So the phrase

I love the library.

would be about 19 bytes: one for each letter, one for each space, and one for the punctuation at the end of the sentence.



# The keyboard in depth



The keyboard is usually the primary input device. There are several special keys found only on computer keyboards and some new uses for old favorites.



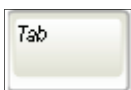
**Esc** – The **Escape** key is very rarely programmed to perform any tasks but occasionally is used to stop a running task.



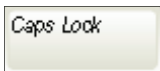
**Function Keys** – Twelve keys labeled **F1** to **F12** across the top of the keyboard. These keys do different tasks in different programs. **F1** is usually reserved to launch the **Help** dialog.



**The mostly useless keys** — These three keys used to do specific things, like print a copy of your screen or stop a process. Computers work differently now, and these keys don't do much at all.



**Tab** – The **Tabulation** key may be used for navigation between text boxes in dialogs or forms on the Internet, as a standard Tab in a word processing program, or in combination with other keys to issue commands as a keyboard shortcut.



**Caps Lock** – The **Caps Lock** key is located below the Tab key. This key toggles on and off the Caps Lock feature to type in all CAPITALS. When Caps Lock is engaged, the Caps Lock indicator light will be on.



**Shift** – There's one on each side of the letter part of the keyboard. Hold down either **Shift** key to type capital letters or the upper character on keys with 2 different symbols.



# The keyboard (con't)

Enter

**Enter** – Enters a command or moves to the next line in a word processing program.



**Ctrl (Control) & Alt** are located on both the right and left of the space bar. These are used in combination with other keys to issue commands.

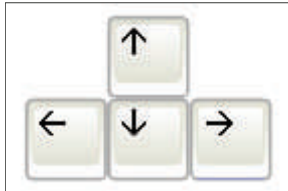
**Space bar** — The biggest key on the keyboard, located in the very middle of the bottom row.



**Directional Keys** – The way these keys operate varies somewhat from one program to another, so we'll leave them for later classes. However, notice the **Delete** key.

Backspace

**Backspace & Delete** – Used to delete characters or spaces. In word processing, Backspace will delete the character to the left of the insertion point and Delete will remove the character to the right. To remove several letters at a time, highlight what you want to remove and hit either key once.



**Navigation keys** – Four keys with arrows pointing up, down, right and left are used to move the focus or mouse pointer in the indicated direction.



**Windows key** – Located between the Ctrl and Alt keys, this key will bring up the Start Menu. Used with the navigation keys, this key lets you start a program without using the mouse.



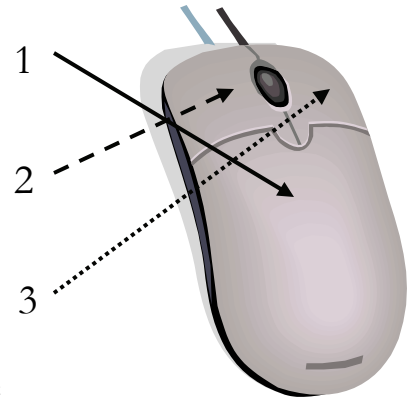
**Numeric keypad** – When Num Lock is engaged (the Num Lock indicator light will be on), these keys function like a calculator number pad for fast number entry. It is rare to ever need to turn Num Lock off, but you may find it off occasionally.



# Using a mouse

Hold the mouse between your thumb and last two fingers.

1. Rest the palm of your hand on the base of the mouse.
2. Rest your first finger on the left mouse button.
3. Your second finger will rest on the right mouse button.



If your mouse has a scroll wheel, it will be between your fingers. You can use either finger to operate the scroll wheel, depending on what feels better to you.



Move your mouse and watch the arrow, called the mouse pointer or cursor, move around your screen. Try picking up the mouse and moving it around in the air; moving the mouse while holding it in the air should **not** move the pointer.

To enter commands with the mouse, you will point to a picture called an icon depicting the command you wish to give and press (or “click”) the left button with your first finger.

The basic mouse movements include:

- ▶ **Click** – Press and release the left button.
- ▶ **Double-click** – Press and release the left button twice in rapid succession. (This is usually the hardest movement to learn.)
- ▶ **Right-click** – Press and release the right button.
- ▶ **Click and drag** – Press and hold the left button and move the mouse before releasing.

Learning to use a mouse can be very frustrating. It’s a lot like riding a bike for the first time — keep practicing, and one day you’ll suddenly get it! And luckily, it can be kind of fun to practice. In fact, that’s why games like Solitaire are included on most computers.

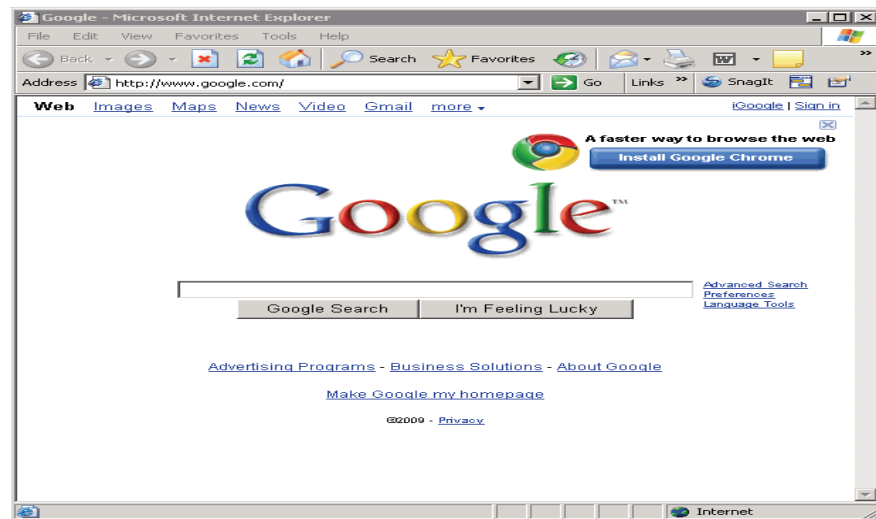


# Mouse exercises

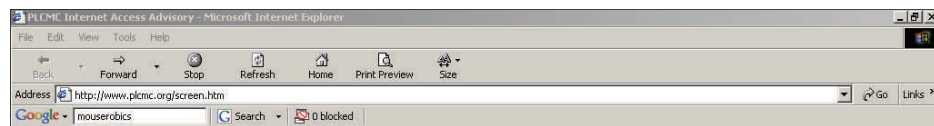


Let's do some mouse exercises together before we leave. Your instructor can help you get started, but if you're feeling adventurous, try these steps:

- ▶ Tap the **Windows Key** on your keyboard.
- ▶ You should see the Windows Start Menu in the lower left corner of your screen.
- ▶ Use the Up arrow key to highlight the Internet Explorer icon.
- ▶ Press the **Enter** key on your keyboard and wait. You should see something similar to this:



- ▶ Find the address box near the top of the screen that starts with `http://www.`



- ▶ Position the mouse cursor on top of the those letters and tap the left mouse key (with your first finger).
- ▶ Type **www.google.com** — no spaces, no punctuation except the /
- ▶ Press the **Enter** key on your keyboard.



# What's next?

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Before you take more classes, you should be comfortable using the mouse and the keyboard. The most important thing you can do is to practice!

Online practice at:

<http://mousebasics.googlepages.com>

or

<http://www.pbclibrary.org/mousing/>

Books to checkout:

- ▶ 004.16. Miller, Michael. *Absolute Beginner's Guide to Computer Basics*. C2009.
- ▶ 004.16. Botts, Ed. *Ed Bott's Your New PC : Seven Easy Steps to Help You Get Started*. C2005.