Introduction to Computers

1. What is a Computer?

Definition: “A programmable machine that performs high-speed processing of numbers, as well as of text, graphics, symbols, and sound. All computers contain a central processing unit that interprets and executes instructions; input devices, such as a keyboard and a mouse, through which data and commands enter the computer; memory that enables the computer to store programs and data; and output devices, such as printers and display screens, that show the results after the computer has processed data.” (*American Heritage Dictionary*)

2. Breaking it Down: Hardware and Software

- **Hardware**
  Includes the parts of the computer itself and includes the tangible computer equipment:

  - **Central Processing Unit (CPU):** Main drive and processor
  - **Keyboard:** Input device
  - **Mouse:** Pointing device
  - **Monitor:** Display
  - **Drives:** See below

- **Drives**
  Parts of the computer which operate the disks that store information:

A: Drive: Floppy
C: Drive: Internal Hard Drive
D: Drive: CD or DVD
E:, F:, or G: Drives: Drives used for **other devices**

Other devices include:
External Hard Drives
Cameras
MP3 Players
Flash Drives

- **Software**
  The information and programs the computer uses to get the job done. Any document you compose, any graphic you design, any email you send, or anything you create with your computer you do with software.

  - **System software** runs the computer and is often referred to as the Operating System. An operating system is the program (software) on top of which all programs run. It controls or *operates* the system and the relationships of the hardware and software. Microsoft *Windows* is the Operating System for most PCs.
  - **Application software** that allows users to accomplish tasks. Word processing software like Microsoft Word, spreadsheet software like Microsoft Excel, graphics programs like Adobe Photoshop, games like RuneScape, and internet browsers like Internet Explorer are all examples of application software.

Computer components are further defined and illustrated on page 2:

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Monitor

The **monitor** displays the text and graphics generated by the computer.

Central Processing Unit (CPU)

The **CPU** houses the brain of your computer, including the memory, power supply, and central processor. All other components are considered *peripheral.*

Keyboard

The **keyboard** allows you to enter (or input) information into your computer. It's similar to a typewriter but has some different keys that perform special functions.

Mouse/Touch Pad

The **mouse** is a pointing device that allows you to select and manipulate objects you see on your monitor. The mouse is operated by "clicking" the top left and right buttons. The middle wheel allows you to "scroll" up and down the page. The **touch pad** functions similarly with left and right buttons to click, but you move your finger on the pad to move the mouse arrow cursor.

Hard Disk (C: drive)

The **hard disk** is located inside the CPU and is similar to a floppy disk. The only differences are it cannot be removed, can store more data or files, and contains important files or programs. The operating system is also stored on the Hard Disk.

Floppy Disk (A: drive)

Floppy disks go in the **A: drive** of you computer. All disks need a drive to get (read) the information it has stored or to put information on it (write). Disks are removable storage on which your computer can read or write files. Specific disks have specific drives. Floppy disks have less storage capacity and are used less often today than CDs and Flash drives (see below).

CD/DVD (often D: Drive)

CDs and DVDs are inserted into a disk drive. Some drives can only read from discs, but commonly drives are both **readers** and **recorders**. Recorders are often called **burners** or **writers**. CD-R (Recordable) and CD-RW (Rewritable) disks can save text, photos, and music if your disk drive also a CD "burner" and your computer has a software program to rewrite CDs.

USB Connector & Port

USB (Universal Serial Bus) is a plug-and-play interface between a computer and add-on devices (such as audio players, digital cameras, joysticks, keyboards, telephones, scanners, and printers). USB has become the standard connection method. The USB connects to the computer at a **port** (see above).

USB Flash Drive (often E: or F: Drive)

A **USB flash drives** also are called *thumb drives, jump drives, pen drives, key drives, tokens,* or simply *USB drives*. Flash drives are small, portable flash memory cards that plug into a computer's USB port and functions as a portable hard drive.

3. Powering the Computer On and Off

- **Turning ON the Computer**

To turn on the computer, press the power button on the front of the CPU. The power button has this symbol. Depress the button and the computer will begin to *boot up*. The term *boot up* refers to the loading of the operating system and other basic software. The procedure also determines what peripheral devices are connected to the computer.

  - **Powering Other Equipment**
    The **monitor** must also be powered along with any other peripheral devices (such as a **printer** or **scanner**).

- **Lights on the Front**

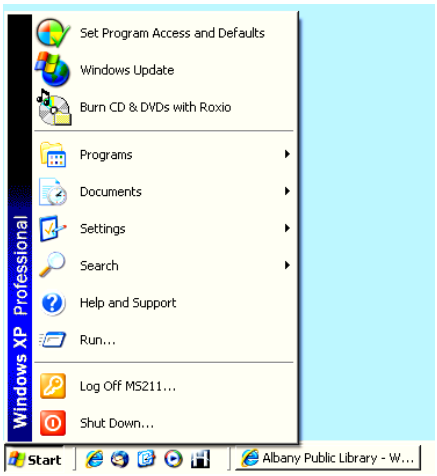
  - **Green lights** indicate that the power is on and the equipment is running.
  - **Orange lights** indicate that the equipment is in a low-power or *sleep* mode. The equipment is still *on* but not running. (To exit sleep mode, touch the space bar on your keyboard or move the mouse.)

- **Turning OFF the Computer**

  To turn off the computer, go to the Start button on the task bar at the bottom left of the screen and left click. Move your mouse to “Shut Down” and left click. A window will appear with an arrow pointing downward that will display a drop down menu with options to shut down, restart, and stand by. Choose “shut down” with a left click.

4. Start Menu

The image below is similar to what you would see if you put your mouse pointer over the Start button and gently click one time with the left mouse button. The Start menu serves as the central launching point for application and tasks.

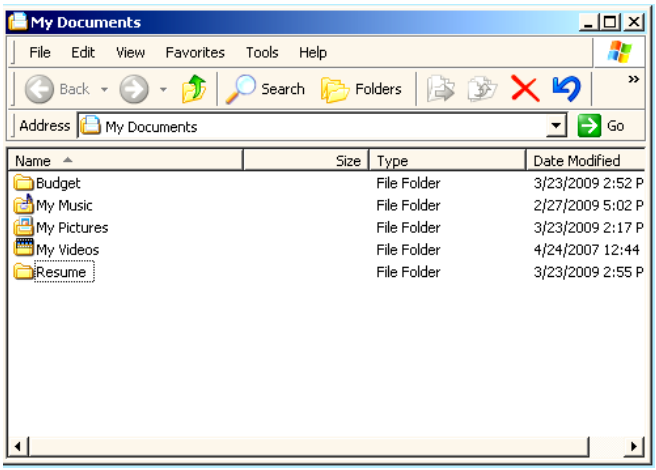


5. *Windows*

Windows is the name of an operating system. It is a multi-tasking environment and is a graphical user interface (GUI) that uses windows. The current version is called *Vista,* but your computer may have older versions like *XP* or *'98*. The Albany Public Library currently uses *XP*.

6. window

A window is an element of *Windows* and contains other computer programs, which operate independently of each other. Information can be shared between windows. Windows have frames and contain minimize, resize, and close buttons in the upper right corner.



7. Windows Buttons

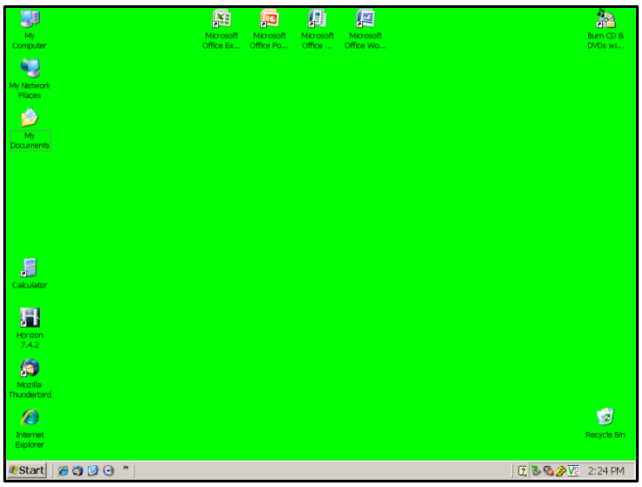
There are buttons on the screen that enable you to perform commands within a window. Buttons usually are small squares that contain an icon. Buttons are activated by moving the mouse pointer so that the tip of the pointer is pointing to the center of a button, and then clicking the mouse.

Three buttons found on almost every window are the **minimize**, **resize**, and **close** buttons. These are found in the upper right corner of each window.

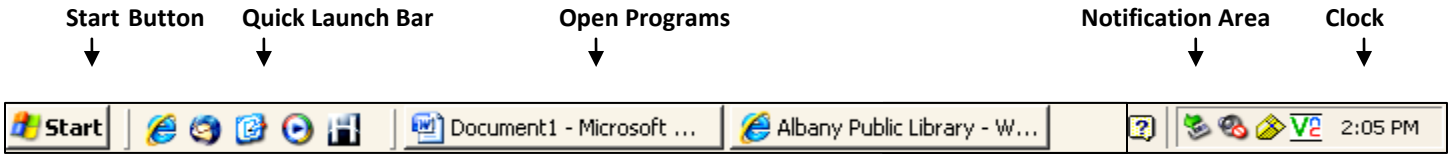
- The **minimize** button allows you to *minimize* or set aside a program, so it remains open or active, but allows you to see the Windows Desktop.
- The **resize** button (also called the **maximize** or **restore** button) allows you to change the size of the window on the screen.
- The **close** button closes the window and program. You would need to restart the program if you click on the close button.

8. Windows Desktop

The windows desktop contains various icons which access programs operating in the Windows operating system. An icon is a symbol or graphic representing a program or command.



9. Windows Task Bar



The Tak Bar at the bottom of the screen where the start button is located has these functions:

- **Start button:**
- **Quick Launch bar:** allows you to set up one-click short-cuts to frequently used programs.
- **Open Programs:** buttons display which programs and windows are currently open.
- **Notifications Area**: displays icons for system and program features (example: icons for volume control, virus protection, wireless connections).
- **Clock:** is located at the right-hand side of the task bar

10. Screen Saver

A screen saver will appear on the screen when the computer remains idle for a certain period of time. The purpose of a screen saver is to save the screen from prolonged use, which will shorten the monitor's life. The information you were viewing on the screen remains in its original location and state. To make the desktop reappear, move the mouse or press a key on the keyboard.

11. Mouse

The mouse is a pointing device that allows you to select and manipulate objects you see on your monitor. The mouse is operated by "clicking" the top left and right buttons. The middle wheel allows you to "scroll" up and down the page.

A. Holding the Mouse

Rest your hand on the mouse so that your forefinger and middle finger are resting on the left mouse button and right mouse button, respectively. Your thumb and ring and pinky fingers will rest on the sides of the mouse, and your palm will rest on the remaining portion of the top of the mouse. Do not grip the mouse. Rest your wrist on the table.

B. Moving the Mouse

The mouse should be placed on a flat surface or mouse pad, trackball facing down and buttons facing up. The mouse cursor moves when the track ball is moved across a flat surface. If the ball does not roll, the mouse cursor does not move. Try lifting the mouse off the pad and setting it down at the other side of the pad. The mouse cursor position will not change.

C. Common Mouse Cursors:

	**Arrow:** Points to items on desktop or program that you can select by clicking.
	**I-beam**: vertical line with dashes on top and bottom—used to show where the **text cursor** appears when the mouse is clicked.
	**Pointing Finger**: indicates a hyperlink—by left-clicking on a hyperlink, you are telling the software that you wish to view what the link is connected to.
	**Hourglass**: indicates that program is working on something and you need to wait
	**Double Arrow:** indicates borders that you are able to move to a different location on the page
	**Resize Arrow:** indicates a border that can be made larger or smaller.

D. Mouse Buttons and Operation

- **Click (or Left-Click)**
  Press the left mouse button once with your forefinger, which is resting on the button. This will move the text cursor to that location on the page. Left click to
  - select an image or icon
  - To move items around the computer's desktop
  - To navigate the cursor through a word processing program

- **Double-Click**
  Rapidly click the left mouse button twice. This is done to execute an action such as opening a program.
- **Click and Drag**
  To drag means to hold down the left mouse button and *at the same time* move the mouse on the pad.
  - Example: To highlight or select text, click (single click, left button) where you want to begin. Drag the cursor to the end of the desired text. Release the mouse button. The text is now selected. To select one word, double-click it.
- **Drag and Drop**
  Some items can be moved by clicking the item, holding down the mouse button, and dragging it to a new location.
- **Right-Click**
  Click the right mouse button once to expose shortcuts in a variety of programs.
  - **Rick-Click, then Left-Click "Open":** Will function like a double click in most cases.
- **Scroll**
  Scrolling means moving up and down within a web page or other computer window. This is done by using the mouse to move the *elevator* up and down within the scroll bar at the far right of this screen. You can do this three ways:
  - **To move one line at a time:** click on the up arrow at the top of the scroll bar or the down arrow at the bottom.
  - **To move one screen at a time:** click on the empty space within the scroll bar, above or below the elevator.
  - **To move anywhere within the document:** point to the elevator itself. Press and hold down the left mouse button. Now you can slide the elevator up or down by moving the mouse on the mouse pad. Release the button when you are in the desired location.

E. Mouse Tips:

- Keep the mouse on a flat surface, so the ball can roll smoothly.
- Hold the mouse firmly yet gently in your hand, as if you were holding a chalkboard eraser.
- Leave your index or index and middle finger over the left button to make selection easier.
- If you get to the edge of the mouse pad, just pick up the mouse and move it to another area of the mouse pad.
- **Practice, practice, practice!**

F. Online Mouse Tutorials:

- http://www.seniornet.org/howto/mouseexercises/mousepractice.html
- http://www.pbclibrary.org/mousing/intro.htm

12. What can you do on the public computers at APL (or on your home PC)?

Personal and professional computing has become commonplace in the 21st Century, and you are well on your way to participating in this fact of modern life. Once you have familiarized yourself with both mouse and keyboard basics and the opening and closing of programs and windows, you are ready to put your computer to use in more advanced and creative ways.

Here at the Albany Public Library, all of the public computers have **Microsoft Office, Internet Explorer, and Letter Chase Typing Tutor** installed for patron use. While you cannot save any of your documents to the hard drive of the public PCs, you can bring along a floppy disk or a flash drive so you can save your work. You can also purchase floppies and flash drives at the reference desk. The public computers are all connected to a black and white printer, and you can print your work at the cost of 10 cents per page.

- **Microsoft Office**
  - Microsoft Word: Create and print text documents such as college papers, letters, resumes, or flyers.
  - Microsoft Excel: Create spread sheets
  - Microsoft Publisher: Create brochures
  - Microsoft Power Point: Create "slide show" presentations.

- **Internet Explorer**
  - Browse the Internet (news, research, entertainment)
  - Email
  - Shop Online (not recommended from public computers)
  - Pay Bills Online (not recommended from public computers)
  - Play games
  - Social Networking (Facebook, MySpace

- **Letter Chase Typing Tutor**
  - Gain practice with guided tutorials to learn and master the standard "Qwerty" keyboard.

13. Any questions?