Computer Basics

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Computer Basics

- Different types of computers
- Computer hardware vs. software
- Overview of file management and storage options

- Using the Microsoft Windows 10 operating system
- In-depth mouse practice
- How to shut a computer down safely

What is a computer?

A computer is made up of multiple parts that send, receive or process information electronically. Computers are widely used for everyday tasks, and can be found everywhere – from the checkout station at the grocery store to mobile "smartphones". It is likely that you encounter computers in your day to day activities, perhaps without even realizing it!

Personal computers can come in a variety of formats to meet different needs. Some factors to consider are how powerful you want your computer to be, the type of **operating system** you want, and whether or not you prefer it to be portable. Keep in mind that computers rapidly evolve as technology advances. What's considered the norm today might look totally different a year from now, but if you gain an understanding of the basics you'll be able to keep up!

What kind of computer is best for you?

Desktop		A stationary set-up, consisting of a separate computer case, monitor, keyboard and mouse. This is a good choice for those who don't need to take their computer outside their home. Desktops are often the most powerful personal computers.
Laptop		A computer with the electronic components, monitor, keyboard and mouse all encased in a light-weight, battery-powered, portable unit which can fit on your lap. They are also sometimes referred to as "notebooks."
Tablet		Smaller and lighter than a laptop, usually designed to have long lasting batteries and be used on the go. Less functionality than a laptop or desktop. Ideal for browsing the web, reading e-books, and playing basic games.
Hybrid (2-in-1, All-in-1)		Relatively new, hybrid personal computers are quickly gaining in popularity. These include "2-in-1s" – which can convert from a laptop to a tablet – and "All-in-1s" – which are similar to a desktop, except the computer case and monitor are combined.

Hardware refers to the physical components that make up a computer. Desktop computers including the following pieces of hardware:

Computer tower: The case that holds all the electronic components of the computer. On the outside of the case is where you can plug in headphones, microphones and USB devices. These ports are usually found on the front of the case. The ports for network cables, printers and power cords are usually found in the back.

Monitor: Similar to a television, the monitor displays text, pictures, and other items from the computer on a screen. The monitor usually has its own power button that must be turned on separately.

Keyboard: The set of typewriter-like keys you use to type text into the computer. Some important buttons on the keyboard include:

- *Enter* – tells the computer to execute a command
- *Shift* – hold down to make capital letters and punctuation marks
- *Backspace* – removes text behind (to the left of) the blinking mouse cursor
- *Space bar* – to insert a space when typing

Backspace

Shift

Enter

Space bar

Right button
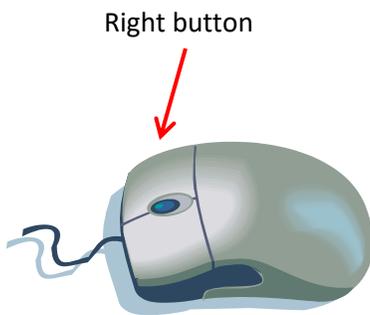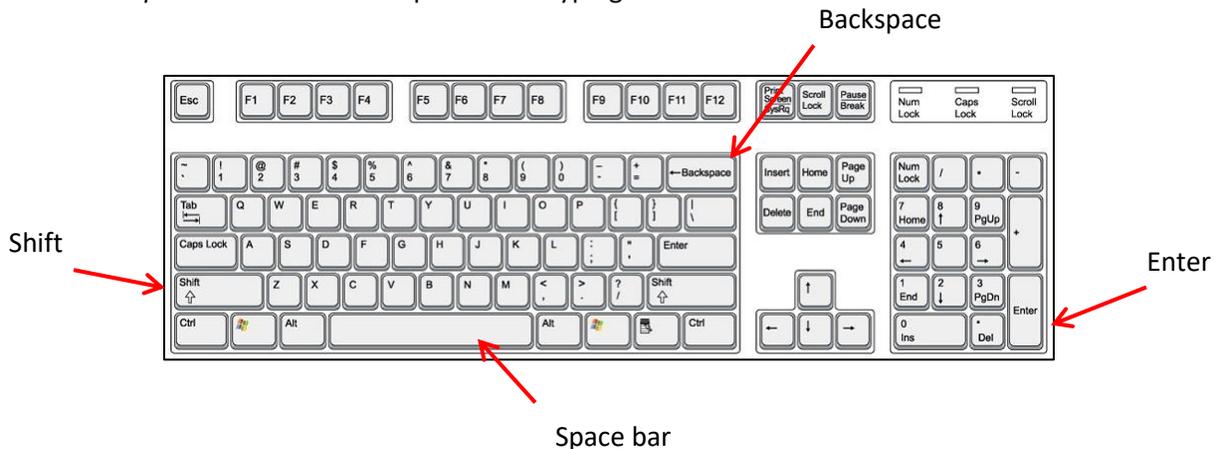
Mouse: The device that controls the movement of the pointer displayed on the screen. These are most commonly used with desktop computers. Laptops use a built-in touchpad for a mouse. You can use a separate USB powered mouse with a laptop if you prefer not to use the touchpad. Tablets, smartphones and some newer laptops and desktops are controlled by tapping your fingers on the screen (a.k.a. they use a "touch screen").

Software

By itself, a computer's hardware is not very useful. You can connect it and set it in place, but it won't do anything until you have some software to perform tasks for you. **Software** refers to programs (i.e. instructions) that tell a computer what to do. Sometimes you'll hear software programs referred to as applications, or "apps," especially on tablets and smartphones. Examples of computer software are:

- Microsoft Word for word processing
- Microsoft Excel to create spreadsheets and crunch numbers
- A web browser for using the internet, such as Microsoft Edge, Google Chrome, or Mozilla Firefox
- Adobe Photoshop to edit pictures and graphics

Using the Windows Operating System

A computer's **operating system** is what manages every aspect of the computer for you, including interacting with the computer hardware, scheduling tasks, and maintaining files. There are two operating systems that run on the majority of personal computers: Macintosh OS and Microsoft Windows. From time to time the companies will update and re-release their operating systems, with the current version being indicated by a number. In 2015 Microsoft introduced Windows 10, which retains many of the classic Windows features in a modern way. Many Windows users are still using older versions and will find that their knowledge transfers readily to Windows 10. Windows 11 has been recently introduced and is available on some computers. In this class we will be demonstrating **Windows 10**, which is the operating system used on the library computers.

Windows logosthrough the years…

- **The desktop**: When you first log on to the computer, you see the desktop. The desktop is the display area you see when Windows opens. The major parts of the Windows desktop include the following:
- **Start button**: The Start button is in the lower left-hand corner of your screen. In Windows 10, the white Windows symbol is the Start button. This button opens the Start menu, which is what you can use to open programs and documents, as well as to shut down your computer.
- **Taskbar**: Located along the bottom of the screen. The Taskbar displays buttons for your open applications and windows as well as icons to open some programs.
- **System Tray**: The right-hand part of the taskbar that holds the clock, volume control, and icons for other utilities that run in the background of your system.
- **Shortcut icons**: These are small graphics that represent links to programs, files or folders that you can place on your desktop.
- **Recycle Bin**: This is where you can drag and drop any files you want to delete.

Recycle Bin

Shortcut icons

Start button

Desktop

System tray

Taskbar
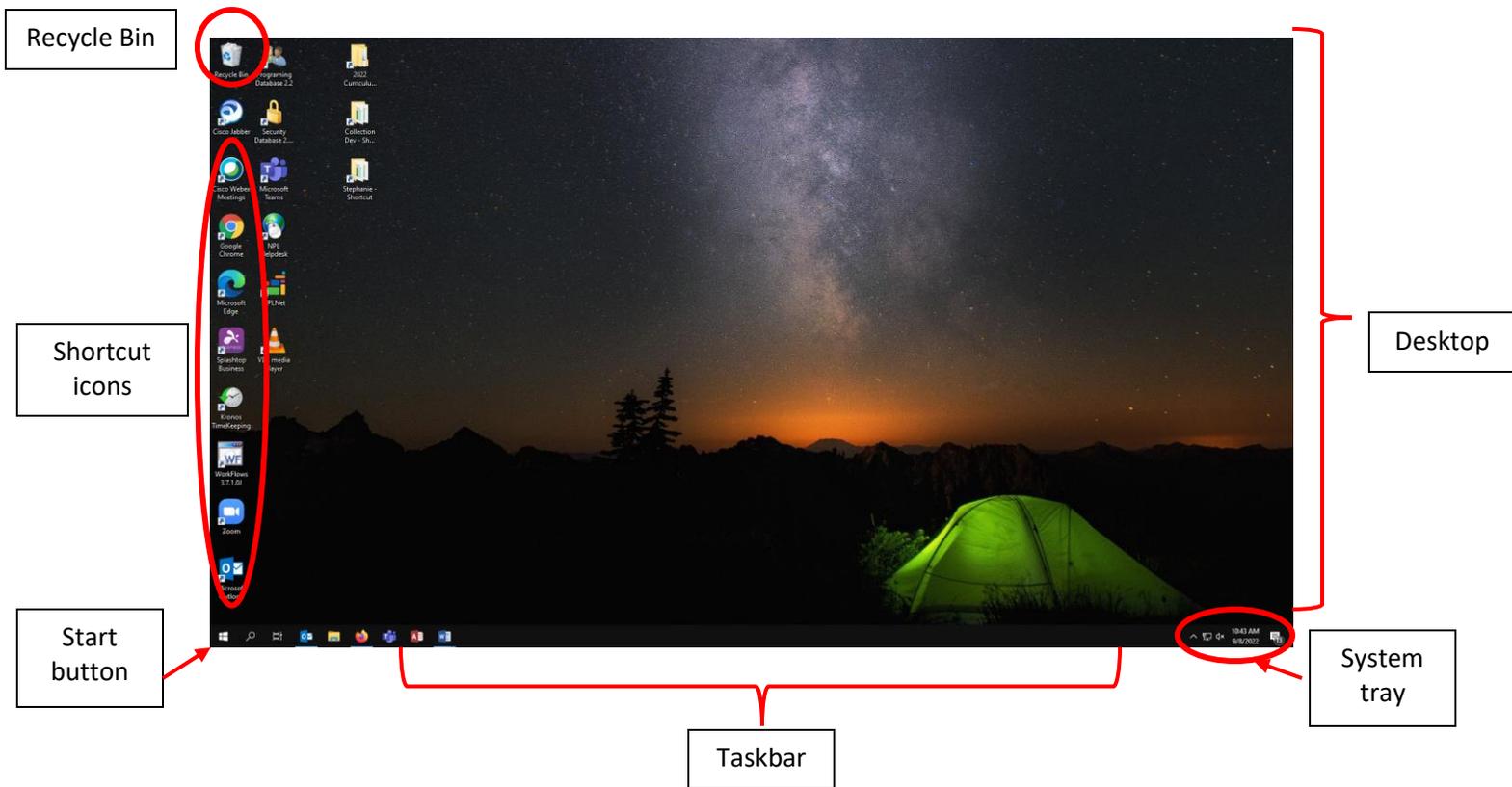
"Windows": Using the Microsoft Windows operating system, you can have more than one program, file or folder open for viewing at the same time. Each program, file or folder is in its own *window* which looks like a rectangular area on the screen. Having multiple windows open on your screen is similar to having multiple books open on a table or desk.

Each window contains different information. For instance, you can have a window open that displays a letter you are writing and another window that displays a map of the world. When you are using multiple windows, the one you are working in is called the *active window*. The active window is located on top of the other windows and is in the foreground on your screen.

Common Windows elements: Most windows have common features, so once you become familiar with one program, you can use that knowledge in another program.

- **Title bar**: The top bar of a window displaying the title of the program and the name of the document.
- **Menu bar**: The bar containing names of menus, often located below the title bar. You can select things on the menu bar to access many of the tools available in a program. On many websites and apps, the menu is now accessed by a simple graphic of several horizontal lines or three dots aligned vertically, which is called the **navigation drawer.**
- **Minimize button**: The left button (looks like a minus sign) in the upper-right corner of a window used to minimize a program window. A minimized program remains open but it is visible only as a button on the taskbar.
- **Resize button**: The middle button (looks like a square) in the upper-right corner of a window used to resize a program window. If a program window is full-screen size, that is, it fills the entire screen, the **Restore Down** button is displayed. You can use the **Restore Down** button to

reduce the size of a program window. If a program window is less than full-screen size, the **Maximize** button is displayed. You can use the **Maximize** button to enlarge a program window to full-screen size.

- **Close button**: The right button (looks like an "X") in the upper-right corner of a window used to close a program or document window.
- **Scroll bars**: A vertical bar on the side of a window and a horizontal bar at the bottom of the window used to move around in a document. You can use the scroll arrows to see other parts of the screen by "scrolling" up and down or left and right. If the entire document is displayed in the window, there will not be a scroll bar.

Title bar   Minimize   Resize button   Close   Menu (navigation drawer)   Scroll bar
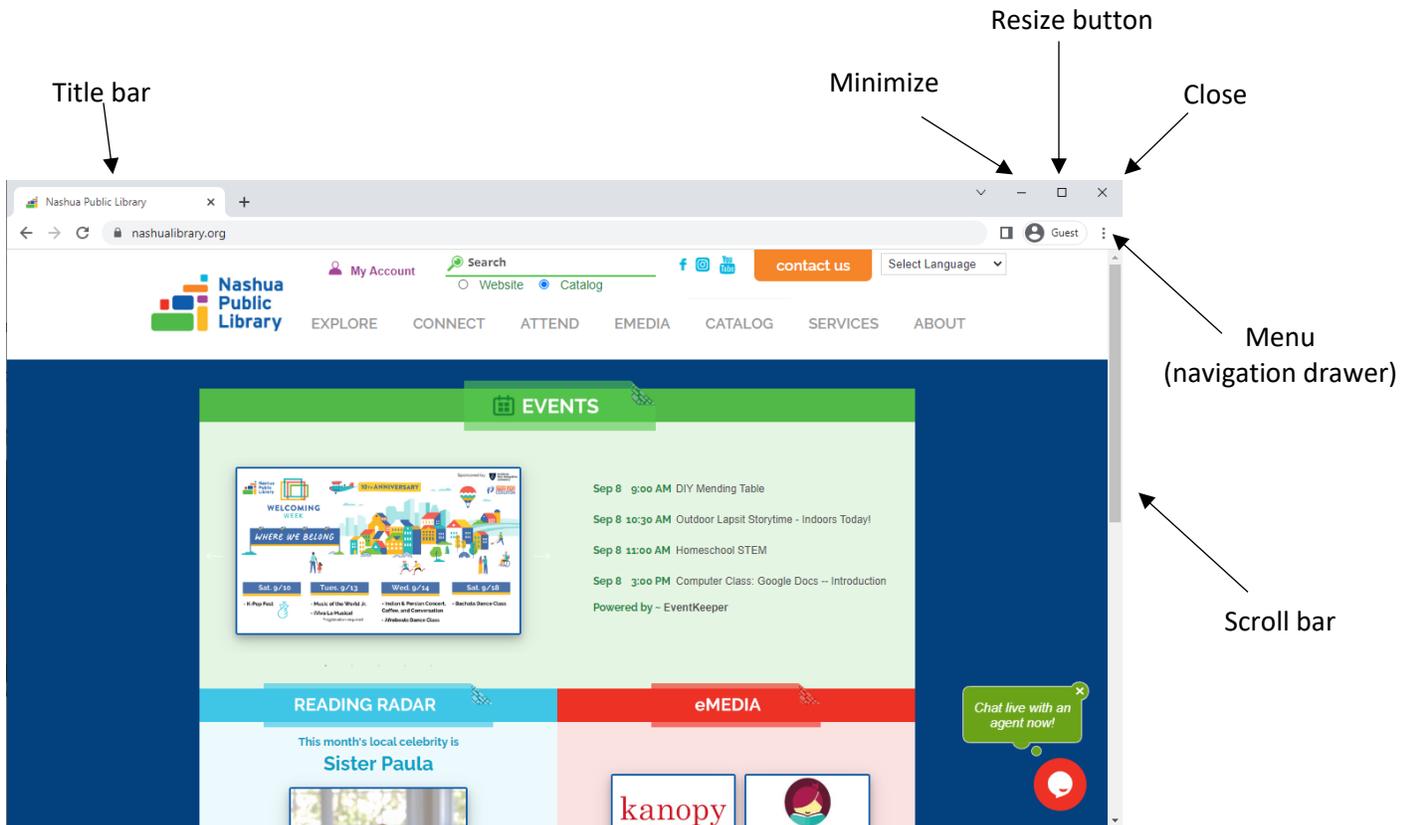

File Management

When you save something on a computer, the item you save can be referred to as a "file". File is a general term to describe saved data, and it can refer to a wide range of formats, such as pictures, videos, and documents. To access your saved files, open up your computer's file library. In Windows 10, the file library icon looks like a stack of manila folders and can be found on the left side of the task bar:

Clicking this icon will bring up the file library box, which is where you can access every file stored on your computer. In Windows 10, the file library displays a list of locations where files might be saved on the left, while the actual files are found in the main area of the box. At any point you can see where in your file library you are looking by checking the **file path**, which is displayed across the top of the window.

File path

Search box

File locations

Files
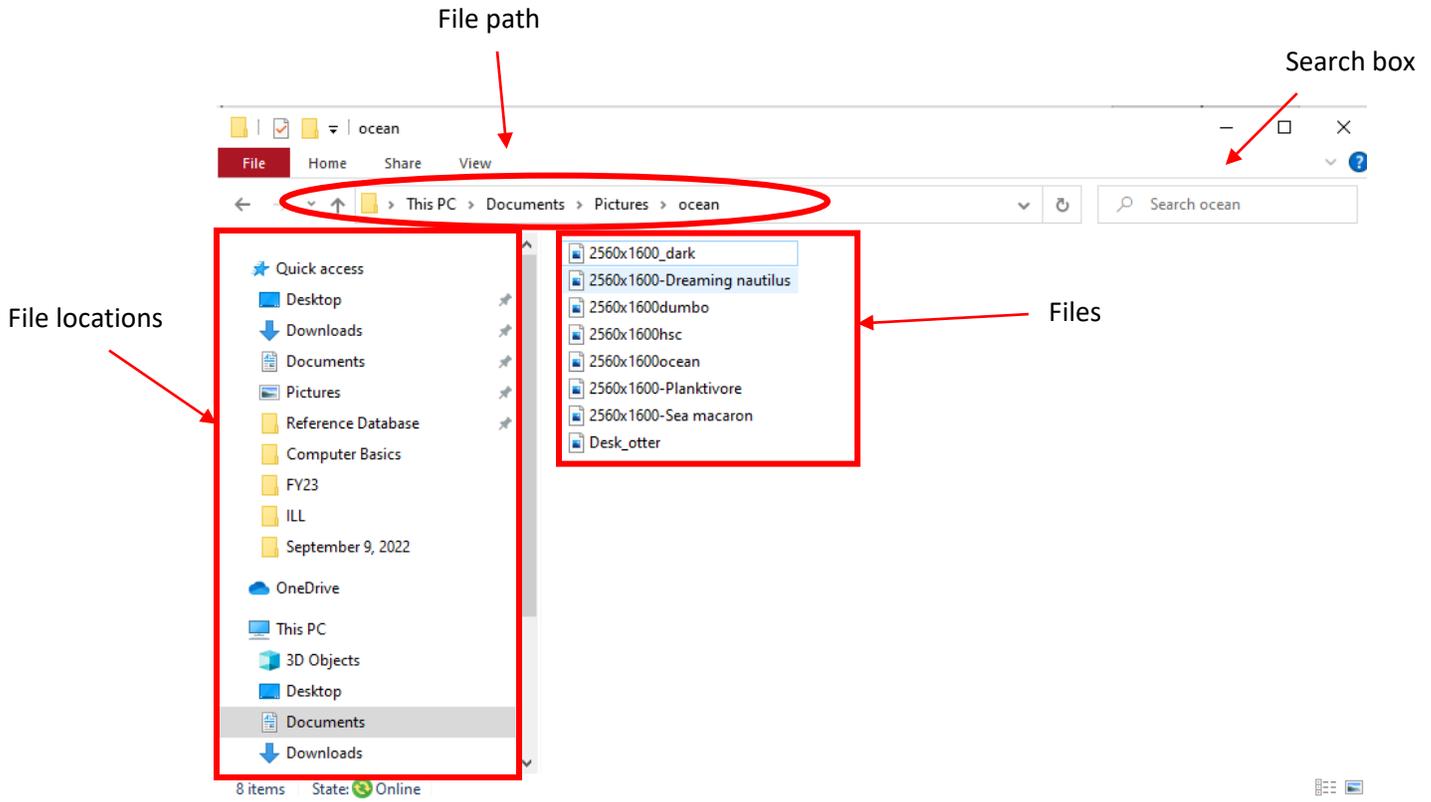
Whether you are saving a file for the first time or trying to access something you have already saved, be sure to pay attention to the file location. For example, you might want to save a newly typed Microsoft Word document to your "Documents" folder. You could later locate that file by opening up the file library box and selecting "Documents" from the list on the left and then double clicking on your file to open it.

TIP: **If you forget where you saved something, use the handy built in search box in the top right to search by the title or keywords.**

File Storage

When you save a file, remember that unless you specify otherwise, it will only be accessible from the computer you are working on. If you would like to be able to get to your file from other computers you will need to save it to *portable* or *cloud based* storage instead.

Some things to consider when choosing how to store your files are whether you would like to be able to access them from multiple locations, the level of privacy and security you are comfortable with, and if you have reliable access to the internet.

Portable storage – CDs and DVDs are one option for storing files. These are not widely recommended due to the size limitations they have, as well as their ability to break or scratch. Another downside is that many of the newer computer forms, such as tablets, don't include a built-in CD/DVD drive.

The primary type of portable storage device used currently is called a **USB Drive** (a.k.a. flash drive, memory stick, jump drive, thumb drive). USB drives can be plugged directly into the USB port on any computer. They are small, durable, inexpensive, and able to hold a lot of data.

Cloud Storage – Instead of saving items to a physical storage device or hard drive, you can choose to save your items in the 'cloud'. Cloud storage simply refers to data that is saved remotely and accessed through a network, usually the internet. In fact, if you've ever used internet based e-mail, you've already used the cloud. You can learn more about it in our Introduction to The Cloud class.
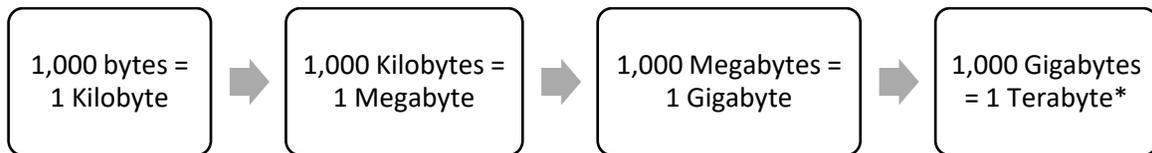
There are many companies that offer cloud storage, most of which you would access by signing up for an account. Some popular cloud storage services are Microsoft OneDrive, Google Drive, Apple iCloud, and Dropbox.com, all of which offer a range of account options with some amount of storage included in a basic free account. Anything you save to your cloud account will be accessible from any computer with internet access. *Be sure to remember your account username and password!*

TIP: **If you have a free e-mail account with Google's Gmail or Microsoft's Outlook.com, you can use your existing account log-in to access their cloud storage services.**

File Size, or, what the heck is a byte?

We measure data in a unit called "bytes."

Most common files are measured in Kilobytes (KB), Megabytes (MB) or Gigabytes (GB).

1,000 bytes = 1 Kilobyte	1,000 Kilobytes = 1 Megabyte	1,000 Megabytes = 1 Gigabyte	1,000 Gigabytes = 1 Terabyte*

Basic text uses a lot less space than media files. A five page document might be around 100 KB while an average 4 minute song in digital format would be around 4 MB.

An 8 GB USB drive can hold about 3,000 pictures or 1,500 songs of average size, though this can vary widely based on factors like the quality of your files. Higher quality files take up more space.

USB drives can be commonly found in sizes ranging from 512 MB to 64 GB. For comparison, a CD can only hold about 700 MB and a DVD 4 GB.

*Terabytes used to be rarely seen in personal computing, but as technology improves it is becoming more common to find computers and storage devices that can offer such a large capacity. Expect to see more TB size storage!

Using the Mouse

Getting comfortable using the mouse is essential for beginning computer users. While it may seem a little awkward at first, maneuvering the mouse will soon become intuitive with a little practice.

Parts of the Mouse: At the top of the mouse, there are two major buttons: the **left button** and the **right button**. (Some mice also have a **small roller**, referred to as the *scroll wheel*, which can also be used to

move up and down on a page.) Remember: the buttons on the mouse should always be pointing away from you!

Holding the Mouse:

- With the buttons on the mouse pointing away from you, hold the sides of the mouse with your thumb, ring finger and pinkie.
- Place your index finger on the left button and your middle finger on the right button.
- Rest your wrist on the desk or mouse pad.
- The mouse should stay on the mouse pad. If you run out of space on the mouse pad, you can lift up the mouse and reposition it back onto the mouse pad.

Pointing and Clicking: The most common mouse operation is pointing and clicking. Simply move the mouse along a flat surface so that the cursor is pointing to the object you want to select, and then click the left mouse button once. Pointing and clicking is an effective way to select menu items, directories, and files.

Double-Clicking: If you're using a Windows Operating System, you'll need to double-click an item to open programs or files. This involves using the mouse to point at something on the screen with the cursor and then clicking the left mouse button twice in rapid succession. For example, to open programs, simply double-click a specific icon.

Right-Clicking: When you select an item and then click the *right* mouse button, you'll often see a pop-up menu. This menu, when available, contains commands that directly relate to the selected object. This is sometimes referred to as a shortcut menu.

TIP: **Remember, when it comes to the mouse buttons….**

<div align="center">

Left = Actions, Right = Options

</div>

Dragging and Dropping: *Dragging* is a variation of clicking. To drag an object, point at it with the cursor and then press and hold down the left mouse button. Move the mouse without releasing the mouse button, and drag the object to a new location. When you're done moving the object, release the mouse button to drop it onto the new location.

Hovering: When you position the cursor over an item without clicking your mouse, you're *hovering* over that item. Often when you hover over an icon or menu item a small label will appear telling you what action will be taken by clicking that object.

Why is the mouse so important anyway? It controls the onscreen movement of the pointer, or **cursor**, which is essential to using a computer. The cursor can change depending on where it is. Get to know the different cursor styles you may encounter:

Arrow: used for basic operations like point and click

I-beam: appears over an area where you can potentially type

Hand: appears when hovering over an internet link

Circle: a rotating blue circle indicates the computer is "thinking"

Shutting Down Windows and Your Computer

The best way to turn off your computer is to tell the computer to shut down. Do not turn off your computer by pressing the button on the computer case. By doing so, you could lose data and settings that are temporarily stored in your system's memory! To shut down Windows and turn off your computer, follow these steps:
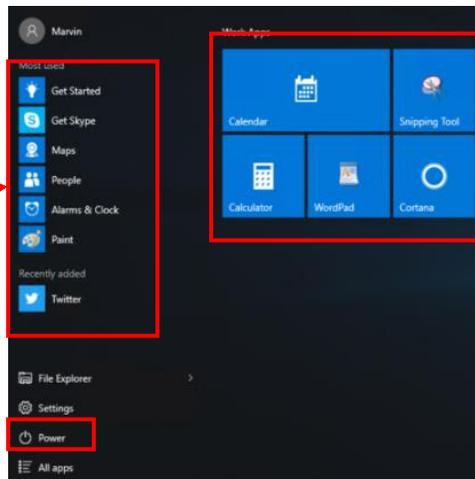
1. Save and close any files you have open.
2. Click the **Start** button (Windows Logo) in the lower. left-hand corner of your screen to display the Start menu.
3. Click the **Power** button.

Live tiles

Frequently used programs

Power

All apps/programs

Additional Resources

Check out these free resources to continue building your computer knowledge:

- Mousercise, an excellent tutorial for using the mouse:
  - www.pbclibrary.org/mousing/mousercise.htm
- Typing Club, a fun and interactive way to learn how to type:
  - www.typingclub.com/
- GFC LearnFree, a wonderfully comprehensive website with everything from mouse practice to more complex computer programs:
  - www.gcflearnfree.org/technology
- Universal Class, for use with your Nashua Public Library card. Hundreds of online courses are available in many different areas, including a hefty amount of computer classes that range from basic to advanced:
  - Go to www.nashualibrary.org, hover over *Explore* in the top menu, mouse over *eLearning*, and then click Universal Class. You can then browse the courses or create an account to get started. You will need your NPL library card number and pin for this one.
- Other NPL computer classes!
  - We offer regular classes on additional topics such as using Google, and Google programs, using Microsoft Office programs like **Word** and **Excel (classes resuming this winter)**, how to get started with **genealogy** databases, an overview of **cloud storage**, and more! All of our classes are free and open to anyone. Stop by the Information Desk for a schedule or look online for the current schedule and class descriptions at www.nashualibrary.org/attend/computer-classes/