

## COMPUTER BASICS

The *Computer Basics* training session is a two (2) hour course designed to familiarize students with the basic concepts underlying the basic workings of the computer, terminology, hardware, software, input and output devices, and the importance of file management.

### *Objectives:*

- Describe the importance of computers in today's world
- Explain the basics of computer performance and how it relates to productivity
- Explain the role of memory
- Identify the primary hardware components of a computer
- Define the term program
- Describe what an operating system is and its role
- Define the term network and identify the benefits of networking
- Define the term Internet
- Describe the different types of productivity programs and their uses
- Describe the different types of communications programs and their uses
- Manage files and folders in Windows Explorer
- Perform basic file operations
- Perform proper shutdown procedures Identify the steps for starting a computer
- Identify the different groups of keys on a keyboard
- Perform different tasks by using a mouse

### *Why is it important to know how to use a computer?*

Computers are everywhere and everyone is using them! Computers are in our cars, our kitchens, our living rooms, our stores and, most importantly, in our workplaces. They are used to communicate, to play, and to make everyday tasks easier (once you know how to use them!). The ability to use a computer and eventually navigate the internet will enable you to keep in touch with friends and family, perform routine tasks like paying bills more efficiently, and research health and other information quickly. Perhaps most importantly, computers can also help you achieve personal goals like finding a job and enhancing your career.

*What is a computer?*

A computer is an electronic device that accepts data (input), manipulates the data (process), produces information based on the manipulation (output) and stores the results (storage).

The computer performs 4 basic functions which make up the information processing cycle.

- Input .....
- Process .....
- Output .....
- Storage .....

*Human Brain Analogy:*

- Input = eyes, ears, mouth & nose
- Processing = brain
- Output = verbal & non-verbal reactions
- Storage = you have control / important keep / not imp. Delete

What types of things can you do, already do or want to do on the computer? Can we do these things without a computer?

YES... so...

The question is, "Why pay so much money for a machine that does things we can already do without the machine?"

*Why do we use computers to do things we have always been able to do without a computer?*

- Speed: Computers can process data much faster than we can.
- Accuracy/ Reliability: Computers don't get sick (without help!), they are not distracted by loving or hating you, they don't care what you look like etc...
- Memory: Computers are able to store and retrieve huge amounts of data much faster than we can.

*5 Basic Components of a Computer*

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1. **Input:** A device we use to put information into the computer. List as many as you can think of.....  
.....

2. **Output:** A device we use to see the results of the computer’s manipulation of the data we input. List as many as you can think of.....  
.....

\*\*\*List as many devices as you can think of that are both input and output.  
.....

3. **Central Processing Unit (CPU=Control Unit and Arithmetic Logic Unit):**

Control Unit interprets the instructions (traffic cop)

Arithmetic Logic Unit performs the arithmetic and logical functions (addition, subtraction, multiplication, division, equals, not equal, equal to or greater than, equal to or less than, greater than, less than...)

4. **Memory:** RAM (Random Access Memory)

This is where the computer holds data while it is needed for processing. It is volatile in that it loses its contents when the machine is turned off.

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ROM (Read Only Memory): a set of chips that contain instructions that help a computer prepare for processing tasks. These instructions are permanent. The only way to change them is to remove the chips and replace them.

5. **Storage:** Hard Drive, Floppy Disk Drive, CD drive, Memory Sticks, etc...

Discuss pros and cons of each storage method.

## Computer Programs

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A computer program is a set of step-by-step instructions that tell the computer how to perform a specific task. Without computer programs your computer is merely a really expensive paper weight!

**System Software:** Software that works with the operating system to control the interaction between the user, software and hardware.....  
.....  
.....

**Application Software:** Software the computer uses to carry out a task as specified by the user.

- *Word Processing (Microsoft Word is a popular example of this):* enter, edit, format and print documents containing primarily, but not limited to text.
- *Spreadsheet (Microsoft Excel is a popular example of this):* enter, edit, format, print, sort and calculate primarily numeric data.
- *Communications:* email and the internet
- *Education and Entertainment:* Tutorials, Testing, Simulation, and Games (multimedia)

## Input Devices

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### Mouse

- Click .....
- Double Click.....
- Right Click.....
- Click and Drag .....
- Drag and Drop .....

### Keyboard

- QWERTY .....
- Function Keys .....
- Modifier Keys .....
- Directional Keys.....
- Numeric Keypad .....
- Other Keys .....
- Hot Keys / Shortcut Keys.....

## *File Management*

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- Importance.....
- My Computer .....
- My Documents.....
- Folders.....
- Subfolders .....
- Files .....
- File Naming Conventions .....
- File Types.....

## *Basic Computer Terminology*

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Computer: An electronic device that accepts input, processes data, provides storage and retrieval and provides output for the user.

5 basic components

- |                            |            |
|----------------------------|------------|
| 1) Input Devices           | 4) Memory  |
| 2) Central Processing Unit | 5) Storage |
| 3) Output Devices          |            |

Information Processing Cycle: The sequence of events which includes (1) input, (2) processing, (3) storage and (4) output.

Input Device: A device which allows the user to enter data into the computer.

Examples: Mouse, Keyboard, Disks, Touch Screen Monitor, Microphone, Scanner

Output Device: A device which allows the computer to communicate the results of processing with the user.

Examples: Monitor, Disks, Speakers, Printer

Operating System: Software that communicates with the hardware and allows other programs to run.

Examples: Windows (any version), MAC OS (any version)

**System Software:** The files and programs that make up the operating system.

**Device Drivers:** Software that helps the computer communicate with a particular hardware device.

**Application Software:** A computer program designed to help the user accomplish a certain task such as: word processing, spreadsheet, web browser, presentation, and email.

*Note: More information can be obtained about any of the above by typing the bold words above, along with the word define, into any search engine*

### *File Management Terminology*

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**My Computer:** The computer is the primary storage device, and it is designated “Drive C:” in most operating systems. You can think of this as the storage room for all saved files.

**My Documents:** My Documents is a folder on the hard drive of your computer or on a server. This is generally the default folder for saving files unless you instruct the computer to save the file somewhere else. You can think of this as the filing cabinet in the file storage room (Drive C:).

**Folder:** You can create as many new folders as you need to organize your files. Folders can be placed directly on Drive C:, inside the My Document folder, or on the desktop. You can think of this as a filing drawer, in the filing cabinet, in the file storage room.

**Subfolder/Directory:** Subfolders are folders inside of other folders. Again, you can create as many subfolders as you need to organize your files. You can think of these as the hanging files in the filing cabinet drawer.

**File:** Files are created when you save a document, a spreadsheet, a presentation, a webpage, a picture, a video, a song and so on... You can think of files as the papers you would put in the hanging folders, in the drawers, in the filing cabinet in the file storage room.

**File Type:** Files come in all types and sizes. Type is determined by what kind of file it is and what program created it. Example: “practice.docx” is a Word file that was created using Word 2007 or Word 2010. We know that because the file extension (everything following the “.”, “period” or “dot”) is “docx.” File extensions associate the file with the program that created it, and “docx” is associated with Word 2007 and Word 2010. If you change the file extension, the program might not be able to open it because it won’t recognize it as its file type.

## *Saving Files*

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**FILE / SAVE:** If you don't make any changes, FILE / SAVE saves the file to either the default location (usually My Documents) with a default filename (usually document 1 or the first few words of text in the document).

If the file has already been saved, FILE / SAVE saves the file in the same location with the same name.

**FILE / SAVE AS:** Allows the user to change the location of the file and/or the file name.

## *Keyboard Tips*

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**QWERTY Keyboard:** The section of your keyboard containing the standard alphabetic characters including the row of numbers, the ENTER and the SHIFT keys.

**Numeric Keypad:** Laid out using the same layout of the standard calculator. Includes symbols for addition (+), subtraction (-) multiplication (\*) and division (/).

**Modifier Keys:** SHIFT, ALT, CTRL & FN are used to modify the actions of other keys when they are pressed at the same time.

**Function Keys:** The function keys use may change from one program to another, but the F1 key generally opens the help menu for a program and the F5 key generally refreshes the active window.

**Hot Keys or Shortcut Keys:** A combination of keystrokes which, when pressed, carry out a command without using the mouse. These combinations may vary from one program to another.

**Examples:** CTRL C copies highlighted text/image

CTRL V pastes copied text/image

alt f x exits a program

CTRL f will open a Search option

**Directional Keys:**

HOME: moves the cursor to the beginning of the line it is on.

END: moves the cursor to the end of the line it is on.

PAGE UP / PAGE DOWN: moves the cursor up and down a designated amount of lines on the screen (the number of lines may vary depending on the program).

Arrow Keys: move the cursor one space or one line in the direction indicated by the key.

Other Keys:

DELETE: erases the character to the immediate right of the cursor or all highlighted characters.

BACKSPACE: moves the cursor one space to the left. It will delete one character to the left of the cursor and all highlighted text.

INSERT: Enters text in place of existing text. The insert key is a toggle key which means you press it one time to turn it on and one time to turn it off.

*Mouse Tips*

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**Click:** Press the left mouse button one time to position the cursor on the screen or to activate a hyperlink.

**Right Mouse Click:** Press the right mouse button one time to open a pop out or contextual menu for the item clicked.

**Double Click:** Click the left mouse button two times quickly to select a word, open a file or a program.

**Click and Drag:** Position the cursor at the beginning of the text you want to work with, hold the mouse button down and move the mouse over the text. Release the mouse button when you have all of the text highlighted.

**Drag and Drop:** Select text or a picture and click, hold down the mouse button and move the text/picture/file to the new location and release the mouse button.

**Scroll Wheel:** roll it forward to move up on the screen and roll it back to move down on the screen.

**Cursor:** the image on the screen which indicates the location of the mouse pointer. The cursor may assume a number of different shapes depending on the user input.

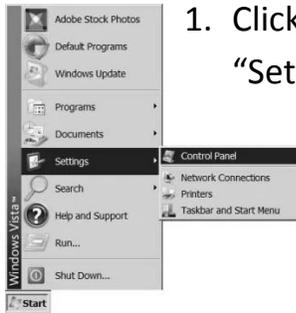
*Common Windows Cursors*

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	Normal Select		Link Select		Move
	Help Select		Text Select		Horizontal Resize
	Working in Background		Not Allowed/ Available		Diagonal Resize
	Busy		Busy		Vertical Resize

## Change Settings to Left-Handed Mouse

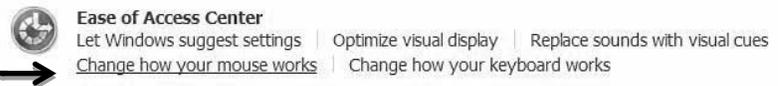
1. Click the Start button at the bottom left of your screen then click “Settings” then click “Control Panel.”



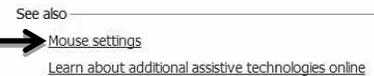
2. A new window will pop up. Look for the Ease of Access section and click on the bold “Ease of Access” link.



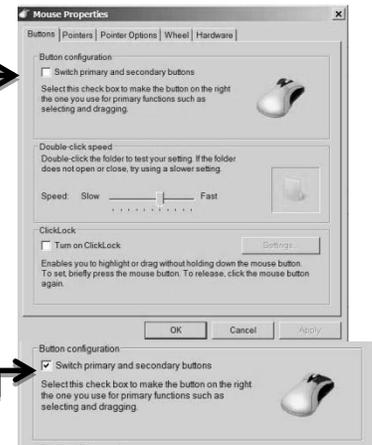
3. Click the “Change how your mouse works” link.



4. At the bottom of this window (you might need to scroll down) you will see a “See Also” section. Click on the “Mouse Settings” link.



5. A dialog box like the one to the right will appear. Click the white box next to the “Switch primary and secondary buttons” text to check it.



6. Click the “Apply” button at the bottom of this dialog box. It will only be active if you make a change in this dialog box. Then click the OK button.

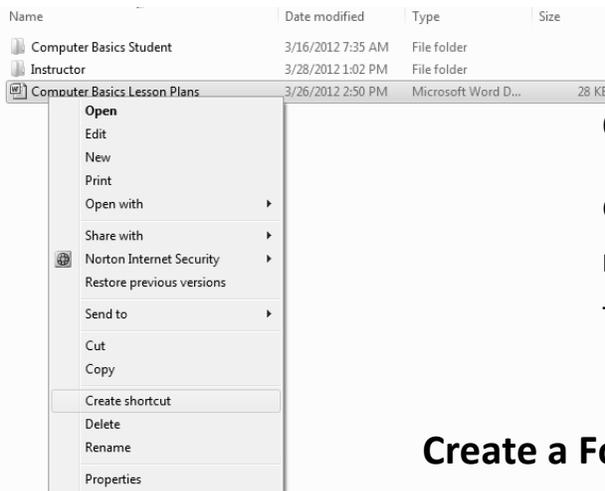
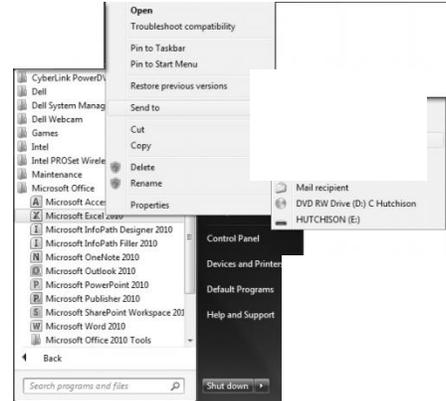
7. You may now close the remaining open windows by clicking on the x in the upper right hand corner of the window you want to close. But remember (!), the mouse buttons have been switched!

## Create Shortcuts on Your Desktop

You can customize your desktop in many ways. The most practical additions to your desktop would be shortcuts. You can create shortcuts to programs you use on a regular basis and/or folders and files you use on a regular basis.

### Create a Shortcut to a Computer Program:

Click Start > All Programs > (Navigate to the program you want a shortcut for) **Right** Mouse Click on the Program > Click Send To > Desktop (create shortcut)



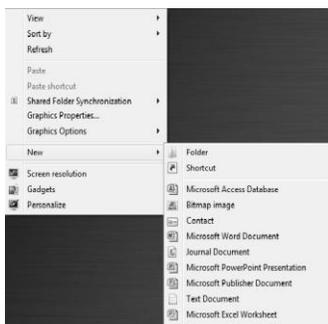
### Create a Shortcut to a File:

Go to the folder you have saved the file in and **right** mouse click on the file. Click Send To and then click Desktop (create shortcut)

### Create a Folder on Desktop

Right mouse click on any empty space on your desktop and then click New > Folder.

A new folder will appear on the desktop with the name "New folder" highlighted. Type the name you want to name this folder and it is ready to use for more convenient storage.



## *Basic Computer Maintenance*

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**Daily, Weekly & Monthly:** Like cleaning out the garage or weatherproofing the porch, you need to remove unused programs and scan your Windows Registry only occasionally. But computing also has equivalents to washing the dishes and vacuuming the living room floor--jobs you have to do all the time. Luckily, you can automate most of these tasks.

**Back Up Every Day:** Backing up your data is like brushing your teeth: You have to do it, and do it right. And you should do it every day or at least often enough to avoid losing important files! (*Note from your trainer: If you follow the file management strategies taught in class, it will be much easier to back up your files because they will all be in one folder!*) And where should you copy those files to? CD-RWs and DVD-RWs work great, but a second hard drive is the best possible choice, especially if it's an external model that you can detach from the PC.

**Weekly Scans and Updates:** Antivirus software is useless if you don't keep it up to date. It's likely that your antivirus software can update itself automatically whenever you're connected to the Internet. But if it doesn't, do it yourself once a week.

Scan your hard drive for new viruses once a week, too. Every antivirus program is different, but you should be able to find a control that lets you do a manual scan. Most programs will also let you schedule weekly scans so you don't have to remember to do them yourself.

Of course, not all online evildoers use viruses; some exploit security holes that Microsoft left in Windows. You need to plug those holes. Luckily, Microsoft supplies the cement in the form of regular, downloadable patches. To see if there's one you need--and to download it if there is--just connect to the Internet and click the Windows Update icon that's near the top of the Start menu.

**Scan your hard drive for errors:** In Windows XP and 2000, open My Computer, right-click your hard drive, and select *Properties*. Click the Tools tab, then the Check Now button. In Windows 98 or Me, select *Start, Programs, Accessories, System Tools, ScanDisk*.

**The Monthly Defrag:** About once a month, you should defragment your hard drive.

Over the course of regular PC use, your files get fragmented--spread out all over your hard drive. That photo you just loaded may appear to be all in My Photos, but physically, bits and pieces may be spread out and mixed up like carrot slices in a well-tossed salad.

When everything is working well, this fragmentation doesn't do any harm. But should disaster befall your drive, your chances of recovering a fragmented file are a lot worse than your chances of recovering a contiguous one.

*Keep it Physically Clean:*

**Step 1: Inside the Case:** If you see dust or other debris accumulating around the vents of your desktop or laptop, you can bet there's more inside. To remove it, you'll need to open the case. That may sound more intimidating than it really is. Before you begin, make sure the computer is turned off and disconnected from the power source.

One more consideration: Manufacturers' policies vary, but, in some cases, opening your computer case may void your warranty. You may even encounter a warning sticker on the case. Review your warranty terms before continuing.

Touch as little as possible inside the computer—keep your fingers away from cards and cords. Look for any dust bunnies or other bits of fluff in the nooks and crannies. Pick these out carefully with tweezers or a cotton swab. Blow compressed air around all of the components and along the bottom of the case, keeping the nozzle at least four inches away from the machine. Blow air into the power supply box and into the fan.

Try to aim the stream of pressurized air in such a way that it blows debris out of and away from crevices and recesses, rather than driving it deeper in. Take particular care when blowing the delicate fans. Overspinning them with excessive pressure can crack a blade or damage the bearings. Position the compressed air can well away, and use short bursts of air rather than a steady blast. As a precaution, you might also carefully immobilize the fan blades with your fingertip or a cotton swab while using the air can.

Lastly, blow air into the floppy disk, CD or DVD drives, and I/O ports—but again, not too aggressively. Wipe the inside of the cover with a lightly moistened cloth, and dry it before replacing it.

**Step 2: Outside the case:** Run a cotton swab dipped in rubbing alcohol around all of the openings on the outside of your case. Give them one swipe with the damp end of the swab and one swipe with the dry end.

**Step 3: Keyboard:** Turn the keyboard upside down and gently shake it. Most of the crumbs and dust will fall out. Take a can of compressed air and blow into and around the keys. Next, take a cotton swab and dip it in rubbing alcohol. It should be damp, but not dripping wet. Run the cotton swab around the outside of each key. Rub the tops of the keys. Don't be stingy with the swabs. Discard them when they start to get dirty, and switch to a fresh one. If you have a laptop, follow the same procedure but take extra care with your machine—treat it as gently as you would a carton of fresh eggs. If your laptop has a touchpad, use the damp swap to wipe it clean, as well. Do this keyboard cleanup monthly.

It's tempting to use a vacuum cleaner to suck the debris out of the keyboard and other parts of the computer, but technicians warn that it can create a static electrical charge that can actually damage the computer's sensitive electronics.

Worried about spills? If a spill happens, immediately turn off your computer, disconnect the keyboard, and flip it over. While the keyboard is upside down, blot the keys with a paper towel, blow compressed air between the keys, and leave it to air dry overnight.

Check to ensure that all traces of moisture have evaporated before using the keyboard again. Laptop spills need more attention because liquid can easily penetrate the keyboard and damage internal parts. For laptop spills, immediately turn off the computer and remove any external power source and other items plugged into it. Turn the laptop over, remove the battery, and then bring it to your nearest repair center to check for internal damage. Simply blowing compressed air into the keyboard and letting your computer air dry upside down overnight aren't enough, because liquids can sit inside a laptop for days.

For all spills, be aware that anything other than plain water may cause severe damage, and never attempt to dry a keyboard or laptop in a microwave or conventional oven.

*Step 4: Mouse:* Disconnect the mouse from your computer. Rub the top and bottom of your mouse with a paper towel dipped in rubbing alcohol. Scrape hard-to-remove grime with your fingernail. If you have an optical mouse, ensure that no lint or other debris obscures the light-emitting lens on the underside of the mouse.

If you use a mechanical mouse, open the underside of the mouse and remove the ball. (In most cases, you simply need to rotate the plastic ring encircling the ball one-quarter turn counterclockwise.) Wash the ball with water, and let it air dry. To clean inside a mechanical mouse, dip a cotton swab in rubbing alcohol and rub all of the interior components, paying particular attention to the little rollers, where gunk tends to collect. Finally, blow compressed air into the opening and ensure that the interior is dry. Replace the ball and the cover.

*Step 5: Monitor:* For liquid-crystal display (LCD) laptop and flat-panel monitor screens, slightly moisten a soft, lint-free cloth with plain water. Microfiber cloths are excellent for this purpose. Avoid using paper towels, which can scratch monitor surfaces. Do NOT spray liquid directly onto the screen—spray the cloth instead. Wipe the screen gently to remove dust and fingerprints. You can also buy monitor cleaning products at computer-supply stores.

For glass CRT (television-style) monitors, use an ordinary household glass cleaning solution. Unless your manufacturer recommends differently, don't use alcohol or ammonia-based cleaners on your monitor, as these can damage anti-glare coatings. And never try to open the housing of a CRT monitor. Capacitors within can hold a dangerous electrical charge—even after the monitor has been unplugged.

Clean the monitor weekly. Finally, make sure that everything is dry before you plug your computer back in.