

Computer Basics: Instructor's Guide

Objective: This class is intended for patrons with very little computer experience. Explains what a computer is and includes an overview of computer parts. Videos will demonstrate the motherboard and how to correctly utilize the computer mouse. Students will navigate the Windows 8.10 desktop and browse the World Wide Web.

Materials:

- Computer Basics Google slideshow
- Computer Basics handout
- HP ProDesk handout
- 5 Things to consider when buying a PC handout
- Common Computer Terms handout
- Common Online Icons handout
- Keyboard functions / shortcuts handout
- Bits & Bits handout
- The Cloud cartoon handout (optional)

Set-up

- Mouse tutorial & puzzle games on student desktop
<https://www.gcflearnfree.org/mousetutorial/>
<https://www.jigsawplanet.com/?rc=play&pid=353f0d27b1a7>
<https://tvokids.com/preschool/games/bees-and-honey>
- Plugs and Ports Interactive <https://www.gcflearnfree.org/computerbasics/buttons-and-ports-on-a-computer/1/>
- Slideshow
- Videos

★ TODAY'S CLASS

- What is a computer
- Parts of a computer
- What's inside the computer
- Computer Mouse
- Windows 8.10 Operating System
- Navigating Windows
- Web Browsers
- Go Online!

★ WHAT IS A COMPUTER?

<https://youtu.be/7cXEOWAStq4>

****Pass out Computer Basics handout****

WHAT IS NEEDED TO USE A COMPUTER?

Explain to class: When we say computer, we are referring to the entire component. [tower, monitor, keyboard, mouse, speakers, applications, operating system, etc.]

★ SYSTEM UNIT- Where all the storage and processing is done!

[Refer to handout]

SYSTEM UNIT—what's inside the System Unit

- **Hard Drive**--Storage device.
 - Permanently stores and retrieves data.
 - Keeps data when computer is powered down.
- **RAM** (Random Access Memory)—Computers temporary memory.
 - Used when running a program.
 - Only works when computer is on.
 - RAM is erased when computer is turned off.
 - Allows computer to work with more info at the same time.
 - Runs quicker than the hard drive.
 - The more RAM, the more memory, the quicker your computer runs.
 - 2 gigabytes is the lowest RAM you can buy. 4 GB is recommended.
 - You can update RAM
- **HOW IT WORKS:** Open Internet Browser→ it is loaded from your hard drive and placed into RAM so it can work faster. Anything you save on your computer is sent to the hard drive for storage.
- **CPU** (Central Processing Unit)—considered the Computer's brain.
 - Carries out all functions of the computer.
 - A chip located on the motherboard.
 - Handles all instructions received from hardware & software on computer.
 - CPU needs software to know how to do anything.
 - **Desktop Case: Horizontal (we have these)**
 - **Tower Case: Vertical**
 - **Desktop vs. Vertical tower**
 - Desktop drive bays are turned 90 degrees so that they are oriented parallel to the surface of the desk.

System Unit
Types

- Desktop cases are typically equivalent in size to a mid-tower computer turned on its side.
- Desktop case covers more desktop space than a tower computer and is sometimes reinforced so that a monitor can sit on top of it to conserve space.
- Desktop cases usually have less cooling efficiency than mid or full tower cases since they mount fewer fans.

★ **VIEW VIDEO:** What's Inside a Computer: <https://youtu.be/4eNTIwvnhss>
Shows Motherboard—RAM—Hard Drive—CPU

★ **HARDWARE**--the stuff you touch (speakers, keyboard, monitor, printer, mouse)

★ **HARDWARE FOR INPUT**-- we control the Input

★ **HARDWARE FOR OUTPUT**--The output is the processed data!

★ **SOFTWARE**--the stuff you cannot touch. Includes programs that tell the computer what to do. (MS Word, Internet Explorer, Google Chrome)

★ **Ask:** How do we communicate with a computer?
Computers only understand 1's and 0's.

Binary Numbers--Computers Read 0's & 1's ! That's it! **1—ON—White // 0—OFF—Black**

******Pass out Bits & Bites handout******

★ **OPERATING SYSTEM**— It sends the software information to the hardware.

- Most important software that runs on a computer.
- It manages the computer's memory and processes, as well as all of its software and hardware.
- It allows you to communicate with the computer!
- Computers speak with 0's & 1's.

Different types of operating systems

Option: Play Video <https://youtu.be/pTdSs8kQqSA>

- Usually come pre-loaded on any computer you buy.
 - Three most common types: Microsoft Windows, Mac OS X, and Linux.
- We use Windows 8.10 Operating System designed by Microsoft.
- The operating system makes it possible to complete everyday tasks on your computer (email, Internet, play games, create documents).

★ Ask: Anyone LOOKING TO PURCHASE A COMPUTER?

****Pass out How to pick a new computer****

Review Handout as a class

LAPTOP vs. DESKTOP

- **Desktop**
 - Set on workstation
 - Not portable
 - Does not have built in mouse, keyboard
 - Cheaper than laptops
 - Can be easier to upgrade
 - More expansion features
 - Monitors can be larger
- **Laptop**
 - Built in monitor, keyboard, mouse (track pad)
 - Runs on external battery--still need power cable for charging
 - Keyboard typing can be challenging.

****Pass out HP ProDesk Front/Back Panel Handout****

★ DESKTOP BUTTONS AND PORTS

Option: Play video: <https://youtu.be/94IT9Ywuhd4>

★ FRONT SIDE OF DESKTOP COMPUTER

1. Optical disc drive
 - a. aka: CD ROM/DVD ROM drive)
 - b. Notice eject button
 - c. Can also use DVD-R to write or burn data onto them.
2. USB 2.0 Port (black port)
3. USB 3.0 Port (blue port)
 - . Difference between 2.0 and 3.0. Data transfer speeds.
 - a. 3.0 port is newest and fastest.
 - b. Soon all devices will use the 3.0 cable.
 - c. 2.0 cable can work in 3.0 ports
4. Microphone connector
5. Headphone connector
6. Power button
7. Hard drive activity light
8. Media card reader. Read SD cards (pictures on cameras, phones)

★ BACK OF DESKTOP COMPUTER

1. Mouse Connector--(green)(old school)
2. Ethernet Connector
 - a. connects to internet or router for wireless connection
 - b. Wider than a telephone port
3. Serial Connector (connect old printers/scanners)
4. USB 2.0 Port (black)
5. Line in audio connector (blue)--microphones, music instruments
6. Power Cord connector
7. Keyboard Connector (purple)(old school)
8. Monitor connector
9. VGA monitor connector
10. USB 3.0 Ports (blue) -- transfers data faster than 2.0 black ports.
11. Line out audio device - (green) -- speakers, headphones

★ COMPUTER CABLES {Option: DEMO CABLES}

- USB cable (universal serial bus)--connect computer to scanner/printer
- VGA cable (video graphics adaptor)--connect monitor to computer
- Power connector cord--connect computer to power
- Ethernet connector--port resembles telephone jack. Connect to network for internet.

★ Option: LET'S CONNECT THE CABLES!

<https://www.gcflearnfree.org/computerbasics/buttons-and-ports-on-a-computer/1/>

★ INTERNET CONNECTION

Modem: provides access to the internet

Router: joins multiple computers together

Internet → Internet Service Provider (ISP) → Modem → Router → Computer & devices

★ EXTERNAL STORAGE DEVICES {Option: DEMO Storage devices}

- Portable Hard Drive
- Flash Drive / Thumb Stick
- Memory Card
- DVD-R

★ THE CLOUD

Ask if they have heard of “The Cloud”. Ask if they know what it is.

Explain:

- “The Cloud” is a buzzword
- It is a physical infrastructure
- Uses multiple resources to store info instead of one machine (your computer)
- Distributes storage load across multiple servers.
- It constantly updates to run efficiently and dependably.
- If one server crashes, others will pick up the slack.
- Questions to Ponder: Is it private? Is it secure? Who does the content belong to?

****Pass out Keyboard Functions & Shortcuts Handout****

★ KEYBOARD FUNCTIONS (handout)

- NumLock
- Scroll lock--Not used often. Example usage: Excel spreadsheet
- Caps lock
- Esc
- Ctrl
- F1-F12 Function Keys (functions depend on operating system and software)
- Print screen
- Home
- Page up
- Page down.
- Windows Key
- View Shortcut Vines to reinforce shortcut actions.
<https://www.gcflearnfree.org/techsavvy/keyboard-shortcut-vines/1/>

★ COMPUTER MOUSE

Explain: Use the mouse to input information to the computer. Move along a flat surface to move objects on a computer screen. Uses a laser (older models use a ball to send information to the computer.) Mice can be wireless or connected through a wired cable. You tell the mouse what to do through clicking.

★ **LEFT CLICK**--Action! Use it to select or open a program.

★ **RIGHT CLICK**--Options! Click to reveal a menu of choices.

★ **SCROLLING WHEEL**--quick way to move up or down the page.

- ★ **MOUSE POINTER/Cursor**: comes in different shapes
- **The Arrow**--regular shape of pointer. Indicates where you are at on the screen.
 - **The I-bar**--can enter text.
 - **The pointing hand**--can click on a link.

Demo the mouse shapes on website www.pueblolibrary.org

★ Demo Single Click vs. Double Click on desktop

Single Click vs. Double Click

Single click when selecting in the web browser while on the internet.

Double click on icons on the desktop.

Single click when selecting from the window taskbar

Double click to open files and folders



Mouse
vs.
Mouses
vs.
Mice

Talking about a single mouse:
“mouse”

Talking about two or more:
“mice” or “mouses”.

Great Tip! Avoid it all together!
Call it **“mouse devices”**.

Discussion:

WHY IS IT CALLED A MOUSE?

“Engineer Douglas Engelbart says that it was because it looked like a mouse with the cord coming out the back — although the design was soon changed to have the 'tail' coming from the front of the device for ease of use. An alternate theory that has been suggested was that the on-screen cursor was called a CAT at the time, and someone thought it would be whimsical to have the mouse chase the cat around the screen. We'll never know for sure — Englebert has since admitted that no one really remembers for certain where the epithet came from.” <https://www.wattelectricalnews.com/NEWS/Why-A-Computer-Mouse-Is-Called-A-Mouse:-Douglas-Engelbart/29292>

Option: LifeHacker.com <https://www.lifehacker.com.au/2015/12/why-a-computer-mouse-is-called-a-mouse-douglas-engelbart/>

★ NAVIGATING THE WINDOWS INTERFACE

- Desktop--Main workspace for your computer (aka Wallpaper)
- Taskbar
 - Windows, browsers, folder
- Volume control
- Calendar/Date/Time
- Icons/Applications--click and drag
- Files/Folders
 - Create a folder
 - Rename a folder
 - Move files into folders
 - Delete a folder
 - Tips on how to find a file
 - Recent places
 - Downloads
 - Search by name
 - Add frequently used files to desktop
 - More Demo Options:
 - Open MS Word
 - Demo icon in Taskbar
 - Minimize MS Word
 - Open MS PowerPoint
 - Demo icons in Taskbar
 - Pin to taskbar
 - NOTE: 4 things that work in All Applications:
 - File Menu
 - Cut, copy, paste (Edit menu)
 - Undo & Redo
 - Help Menu

★ WEB BROWSERS

Software used to navigate, browse and explore the Internet/World Wide Web. Connects to millions of computers worldwide. Called “Going Online”

- Google Chrome--integrates well with Youtube and Gmail
- Microsoft Internet Explorer--popular browser. Default browser for most Windows computers. Comes pre-installed when you purchase a PC.
- Apple Safari--only for Apple devices
- Mozilla FireFox-alternative to Internet Explorer

HOW TO CHOOSE A WEB BROWSER:

- Depends on what kind of device you are using.
- PC: use Google Chrome
- Android device: use Google Chrome
- MAC, iPhone, iPad, iOS device: use Safari (Chrome is okay) (Cannot use Internet Explorer on MAC or iOS device)

- NOTE: FireFox is okay for Windows, Mac, Android.

- Recommended to have 2 browsers installed on your device or computer.

★ URL: Uniform Resource Locator [refer to handout]

Optional: <https://www.gcflearnfree.org/internet-tips/understanding-urls/1/>

★ Optional: What is the Internet <https://youtu.be/Dxcc6ycZ73M>

★ Optional: Troubleshooting Tips

*****END OF SLIDESHOW*****

OPEN CHROME to www.pueblolibrary.org

Demo Mouse Pointer shapes on PCCLD site.

- Forward Arrow
- Back Arrow
- Refresh
- Address Bar
- Bookmark Bar
- How to open new windows (Tabs)
- close a Tab
- minimize page
- Hover over chrome to show the page is still there

Pass out Common Online Icons

****GO TO GOOGLE**

- Demo Searching & Parts of a website

If Time Permits--Return to Slideshow:

TROUBLESHOOTING:

1. Once you start troubleshooting, write down the steps you took. That way you will know what you have tried, and be able to explain what you did if you need to ask for further help.
2. Make note of your error messages.
3. Trouble with the mouse, printer, or keyboard.. Check your cables. Make certain everything is plugged in.
4. Restart your computer--if all else fails.

PROBLEM: Power Button will not start the computer

1. Make sure it is plugged in.
2. Make sure the outlet is working
3. Check your surge protector. Make sure it is on.
4. Make sure your laptop is charged.

PROBLEM: Computer is opening slowly.

1. Close and reopen the app.
2. Check for software updates

PROBLEM: Application is frozen

1. Ctrl+Alt+Delete on your keyboard.to open the Task Manager
2. End the task
3. Restart your computer if all else fails.

PROBLEM: Mouse or Keyboard stopped working

1. Make sure they are plugged in.
2. Make sure batteries are fresh.

PROBLEM: Sound isn't working

1. Check the volume on computer
2. Check the volume on the audio player.
3. Check the cables
4. Try connecting your headphones.

PROBLEM: The screen is blank

1. Computer may be sleeping. Move the mouse to wake it up.
2. Make sure monitor is turned on/ plugged in.
3. Make sure computer is connected to monitor.

Another Option: Google Search your problem.

Recommend self-paced learning at [GCFLearnFree.org](https://www.gcflearnfree.org)