LESSON 18: ADVANCED INTERNET CONCEPTS

The Conversation Prism: Developed in 2008 by Brian Solis, The Conversation Prism is a visual map of the social media landscape. It's an ongoing study in digital ethnography that tracks dominant and promising social networks and organizes them by how they're used in everyday life.

Communication Technologies:

- E-mail
- Instant messaging
- Video or audio conferencing (chat rooms)
- Podcasts
- Blogs and vlogs
- Wikis
- Voice over Internet Protocol (VoIP)
- Discussion board/forums, newsgroup and mailing list
- Massively Multiplayer Online Game (MMOG)
- Social Networking

→ Primary reason for the internet's popularity
→ Cheaper and faster than before
→ Connect with anyone in the world in a matter of seconds

E-Mail

There are two kinds of E-mail clients:

- **Stand-alone:** Stand-alone clients are software that you usually buy (or download), such as Microsoft Outlook (part of office) or Eudora. Usually they must be installed on a computer to be accessed.
- **Webmail**: e-mail clients such as yahoo.com, gmail.com, hotmail.com, aol.com, etc. are more common. These clients are easy to access from anywhere in the world as long as you can connect to the Internet.

How Does E-mail work?

POP: Post Office Protocol (POP) is a standard protocol for retrieving e-mails. Information is sent to the e-mail client by the POP server. The software then informs the user: "You've Got Mail".

SMTP: Simple Mail Transfer Protocol (SMTP) is a standard for sending e-mail messages. It verifies and formats the e-mail message (the recipient, sender and actual text of the message). Then it sends the message from the e-mail client to the SMTP server (which is usually a computer that holds all of this information for the ISP).

1. Your e-mail client sends the text file (your message) and the sender/recipient information (your address and your friend's address) to the Internet Service Provider's SMTP server
2. The SMTP server formats the message and attaches the formatted information
3. The SMTP server sends the message to the POP3 (current version) server
4. The POP3 server sends the message to your friend's e-mail client
5. The e-mail client alerts your friend that he/she has received mail.

Netiquette: is the etiquette of the Internet. Because you do not see the person you are communicating with, it is important that you observe netiquette so that you don't offend anyone.

Instant Messaging: a form of real-time communication. People can have a conversation by exchanging lines of text using software on their computer and the Internet. Real-time communication means that you are getting an instant or active response while you are talking to the other people.

Chat Rooms: Chat rooms allow for audio and video communication as well. The major difference (and possible danger) between chat rooms and Instant Messaging is that anyone can enter a chat room.

Podcast: is a digital media file (music, video, etc.) or series of files, that is distributed over the Internet, and can be listened to or viewed anywhere and at any time, as long as you have the media player to play it. A podcast is somewhat like radio or TV, only there are no geographical or regional limits as long as the podcast is in a stream. Podcasts are syndication feeds.

Blogs and Vlogs: A blog is a website where the owner (person or company) posts daily or weekly entries. Traditional blogs are text-based but can include other media elements, while a vlog uses video as its main content.

Wikis: a collection of Web pages that anyone can modify or add data to. All the pages in a wiki are linked to each other so that you can navigate to similar topics or even surf to different sections altogether. Wiki comes from the Hawaiian *wiki* which means 'fast'.

Voice-Over-Internet Protocol: is a method of transmitting voice over the Internet. This protocol allows you to place a phone call using the Internet network (digital) instead of your phone carrier (analog). For VoIP to work, you need a connection to the Internet and a phone. The phone connects to your Internet Service Provider's IP address, which then connects it to an online network. It is cheap, and only requires a good internet connection.

Discussion Board/Forums, Newsgroup and Mailing Lists: Internet **discussion boards** or forums are applications where people can post messages on various topics. A **newsgroup** is a type of internet forum and is a collection of articles and postings with up-to-date information on a specific topic. People post information and it serves as a bulletin board. A **mailing list** is simply a list of e-mail addresses of people interested in a certain topic. Discussions are e-mailed to everyone in the group.

Massively Multiplayer Online Game: is an environment where thousands or even millions of people can interact in a persistent game world. Entire virtual worlds (including economies and social interaction) have sprouted up.

Web Entertainment

Web entertainment is a very broad topic and can refer to music, movies, TV, games, and just about anything else you can think of. It is all available online, sometimes for a fee, sometimes free of charge. Your online entertainment options depend on your connection speed from your ISP and the type of graphics and sound cards in your computer.

Popular Plug-Ins/Players and Their Uses

Plug-in/Player Name		Where You Can Get the Plug-in/Player	What the Plug-in/Player Does
	Adobe Reader	www.adobe.com	Lets you view and print Portable Document Format (PDF) files
	Flash Player	www.adobe.com	Lets you play animation and other graphics files
	QuickTime Player	www.apple.com/downloads/	Lets you play MP3 animation, music, Musical Instrument Digital Interface (MIDI), audio and videofiles
	Real Player	www.real.com	Lets you play streaming audio, video, animations and multimedia presentations
	Shockwave Player	www.adobe.com	Lets you play interactive games, multimedia, graphics, and streaming audio and video on the Web
	Windows Media Player	www.microsoft.com	Lets you play MP3 and WAV files, listen to music files and live audio, view movies and live video broadcasts on the Web

Type	Description	Examples
Music and Music Videos	You can find music all over the Internet. Some is available free for download (or to listen to - streaming). Other sites allow you to buy music and videos to add to your library. There is an issue about copyright. Pay attention to copyright notices on websites. It is illegal to download some music files if you have not paid for them. The safest way is to buy music or to watch it as a stream on YouTube or other sites such as *Yahoo!*.	YouTube Yahoo! Music Canada MSN Music Emusic Itunes Spike Google Video Muchmusic
Radio	Most radio stations have a live online feed. Often they are sorted by category (pop, country, rock, classical, and so on). Radio stations are usually free but sometimes require a membership. If you know the name of your favorite radio station, type it in a search engine and you will probably find the website. It might include a link for a streaming radio feed.	Yahoo! Music MSN Music AOL Music Radio Live 365 CBC Radio
TV Shows and Movies	Some TV shows are available online for free. Movies usually are not. YouTube also has many shows and movies online (split into parts). Make sure you are not downloading movies and TV shows illegally. You can even rent movies on the Internet. They are delivered to your door and you send them back to the rental company when you are done in an envelope they provide.	CBC Online Video Hulu YouTube Zip.ca
Games	You can play online games, either multiplayer (with other people on the Internet), or single player (by yourself). You can also download games and play offline, or buy games to play online or offline. There are thousands of websites that provide you with games. It all depends on the type of game you want to play. Most games played online will require a good connection and a good graphics card.	Yahoo! Games Canada Game Access.ca Gamespot EA

E-commerce: is the buying and selling of products or services online. Just about any item you want to buy can be purchased online. As far as services go, you can do your banking, order food and rent movies. There are even online auctions and advertisements. Both fall into the category of e-commerce.

Boolean Operators: for more extensive research

Using Boolean Operators		
Operator	Example	Results
AND	Car AND Ford	Only those documents that contain both the words **Car** AND **Ford**. Most search engines assume that the word AND is used as a default.
NOT	Car NOT Ford	Only those documents that contain the word **Car** but do NOT contain the word **Ford**. This is the most restrictive of all searches and will return the smallest number of documents.
OR	Car OR Ford	All the documents that contain either the word **Car** OR the word **Ford** OR both words. This results in the greatest number of documents.
Combination	(Car AND Ford) NOT Gerald	Will give you all the documents referring to **Cars** and **Fords**, but no documents relating to the 38th U.S. president, Gerald Ford.
Quotation Marks	"Lord of the Rings"	Will return only those documents that contain those documents that contain the string of words "Lord of the Rings" in that exact order. Without quotation marks, you would get documents containing any of those words.
Wildcard*	Psych*	Stands in the place of a series of letters. Good for those searches when you are searching for a term that can have several different endings, such as psychology or psychiatry, and you want to research all of them.
Wildcard%	Goldsm%th	Stands in the place of a single letter. Good to use when there are different spellings of the same word such as Goldsmith and Goldsmyth.

The Internet is a group of interconnected networks that spans the world. Create after the Russians launched sputnik so that they can protect themselves from a missile attack by developing their knowledge in sciences and mathematics.

E-commerce is the avenue for conducting business over the Internet through advertising, selling, and buying products.

A protocol is a set of rules that govern data formats and transmission.

A hyperlink is a text or graphical element that, when clicked, displays another area of the same Web page or displays another Web page or resource.

A Web site is a collection of Web pages for an organization or entity.

A Web page is a single document formatted to be used on the Web.

The World Wide Web is a subset of the Internet that supports graphical point-and-click navigation to information and resources.

HyperText Markup language (HTML) is an authoring language used to create Web pages.

Internet Explorer (IE) 7 is the newest version of Microsoft's browser.

A Browser is a software application used to locate and display Web resources.

An Internet Service Provider(ISP) is a company that provides access to the Internet.

You might find it useful to view Internet Explorer in full screen mode, without accompanying tabs or buttons. Press F11 to show a full screen. Press F11 again to return to the original view.

A Uniform Resource Locator (URL) is the specific address of a World Wide Web file.

The file transfer protocol(ftp) is used for uploading, storing, and downloading sharable files over the Internet.

A Domain is a name for an entity's Web site or server.

A top-level domain is a suffix that identifies the type of organization sponsoring a Web site.

A browser home page is the page that displays when you open Internet Explorer.

A temporary Internet file is a copy of a Web page that is saved onto your hard drive for ease of access later.

Frame: is a boxed area usually located at the side or top of a Web page, containing link and additional information.

Phishing: is the act of sending fraudulent e-mail in an attempt to collect personal information by pretending to be a legitimate enterprise.

Cookies: is a text file saved on your computer by a Website that you visited. They have information about your browsing preferences, your user information, and certain authentication codes. Cookies on their own are not malicious but can be used by others to track your information and browsing behavior. Many websites must use cookies in order to function, especially those websites that require users to log in.

Favourite/Bookmark: is a marker that identifies a Web page so that you can quickly display the page later.

Pop-up: is an uninvited browser window that appears in front of an active browser window

Pop-under: is an uninvited browser window that appears when an active browser window is closed

Caches: Each time you visit a Web page, Internet Explorer stores, or *caches* a copy of the page on your hard drive.
A search engine is a Web site that provides search tools so that you can find information on a topic.

A Keyword is a word or phrase that describe information that you want to retrieve.

E-mail is the transmission of messages over a communication network.

Windows Mail is an e-mail program included with Windows Vista.

Windows Contacts is a Windows Vista feature that stores information about people with whom you communicate electronically.

An Attachment is a file that is sent along with an e-mail message.

An instant message is a form of online communication that enables you to type messages to and receive messages from others who are online at the same time.

A Blog is a personal journal entry that is posted online.

LESSON 19: ADVANCED COMPUTER CONCEPTS

Laptops **vs.** **Desktops**

- Portable
- More expensive
- Slower CPUs
- Limited Battery life

- Cheaper
- Faster CPUs
- More expandable
- Better value

What Basic Specifications Come With a New Computer?		
Name	**Definition**	**Example**
Processor Type	The CPU brand and its model.	▪ Intel Pentium Dual-Core E2160 ▪ AMD Athlon 64 X2 Dual-Core 6000+
Processor Speed	How fast the CPU works measured in gigahertz (GHz).	▪ 3.0GHz ▪ 1.8GHz
RAM	The amount of Random Access Memory (volatile).	▪ 3GB ▪ 2GB
Graphics Card	The type of graphics card (also known as video card) the computer has. Enables you to see things on the monitor or play games and more.	▪ NVIDIA GeForce ▪ Intel Graphics Media Accelerator 945GC ▪ NVIDIA GeForce 8500 GT ▪ Integrated
Optical Drives	The type of storage disk drives the computer has.	▪ CD Burner ▪ Dual-Layer DVD Burner w/ LightScribe ▪ Blu-ray
Hard Drive Speed/Capacity	The Hard Drive storage capacity (where you store all your files) measured in gigabytes (GB).	▪ 640GB 7200RPM ▪ 500GB 7200RPM

Screen/Monitors: Today's LCDs take up little space and they come with glossy and shiny layers so that the picture looks as realistic and clear as possible. The shinier ones are more expensive, but more and more computers now come with LCDs.

Processor: Almost all computers today have a dual-core processor. This just means that there are two processors (two brains) on one chip. This of course means that your computer will work much faster than in the past.

Optical Devices: Most computers today come with a DVD burner as the primary optical drive, although Blu-ray drives are becoming popular.
Memory: If you are buying a computer for entertainment or computer science purposes, then remember that you need a good amount of memory. Most computers now come with at least 2GB of RAM. However, newer technologies are causing our files to get bigger, usually because of graphics and advanced functions. RAM is a relatively cheap way to upgrade your computer's performance.

*__Note:__ Processor Speed, RAM, Hard Drive, Graphics Card and Battery Life really impact the performance of your computer. But remember, the faster and bigger these specs are, the more expensive the computer will be.

Laptops:

- **Mainstream:** or 'true' notebooks are typically between 5 and 7 pounds with a screen size of around 14 or 15 inches. They usually have lower specifications than most desktop computers, but make up for this by being conveniently portable.
- **Desktop Replacement:** notebooks are larger. They can get quite heavy (over 10 pounds) and have large screens (over 17 inches). They are called desktop replacements because advances in technology (miniaturized components) have made it possible for these machines to have all the capabilities of a desktop. However, all these components do take a toll on battery life, and make these laptops less 'portable' for most people. This also makes them expensive.
- **Subnotebooks (Microbooks or Ultraportables):** are the smallest portable computers. They are usually less than 5 pounds in weight and can have very small screens. Specifications and components are usually quite a bit lower than a comparable desktop.

Laptop Vs. Desktop

Laptop	Desktop
Portable – size and weight	Not Portable – sits on a desk
Smaller display, keyboard	Bigger display, full-sized keyboard
Touchpad is the main pointing device	Mouse is the main pointing device
Built-in wireless adapter	No built-in wireless adapter
More expensive due to smaller parts	More affordable
Typically less durable	Longer durability
You can have a computer anywhere you want	Bigger devices (mouse, keyboard, monitor), thus easier to use
You have can have Internet anywhere where there is a wireless network	Bigger display is better for eyes
The whole computer is in one small component	You can get a great computer for a low price
Difficult to upgrade specific components	Upgrading is easy
Less choice of specifications	Easier to 'build' the computer to your specifications

Laptop or Desktop?

Do you:	Type of Computer
Only need to work on your homework or do research?	Desktop or Laptop
Need to take notes or research at school or work?	Laptop
Need to manage your home budget or maintain electronic files?	Desktop or Laptop
Need to work from home?	Desktop or Laptop
Need to connect a computer to the TV or stereo system for various events?	Laptop
Need a computer for presentations at workshops, classes, or miscellaneous events?	Laptop
Need to program applications or websites?	Desktop
Need an inexpensive computer with a printer?	Desktop

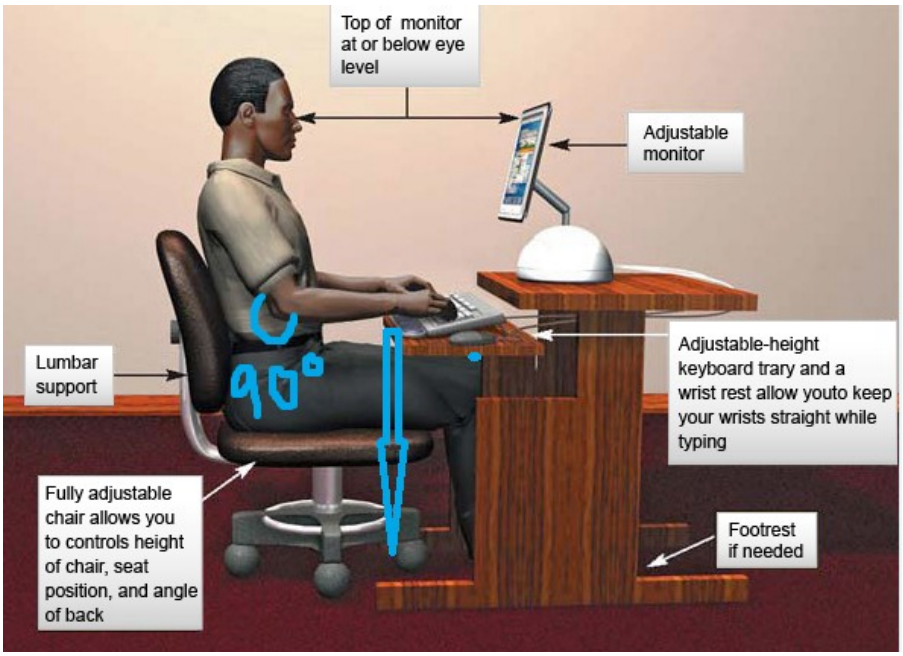
Brands of Computers

Brands	Acer	Dell	Hewlett Packard	Sony	Toshiba
Price	Very Cheap	Decent	Not too expensive but higher	Can be expensive	Not too expensive but higher
Quality	Good but for a short time	Good (used a lot for schools)	Great for entertainment purposes (videos, music, and more) and increasing in quality	Great quality	Great quality
Best For...	A good buy for someone who does not have that much money to spend on a computer and who only needs the basics	Good for almost anything (but has been known to crash and its popularity has been decreasing)	Great for beginners who like to visualize everything because it is very visually-oriented. Has great software for printers and photo making as well.	Great for everything	Very long history of laptop making and has been known to be very durable

Computer Buying Tips:

1. The two primary components that will affect computer speed are the CPU and RAM
2. Choosing a hard drive: in general, try to get the largest capacity drive that you can afford. With all the videos, music and software out there, your hard drive can never be too big.
3. Choosing a video card is important primarily if you will be playing games or using 3D software. To a lesser extent, the video card will also affect performance of other graphic-intensive software.
4. A generic soundcard is adequate and will support up to four speakers.

Ergonomics: Ergonomics is a discipline that examines and applies certain theories and principles in order to optimize human well-being and performance.



Computer Maintenance:

Physical Maintenance: a computer's greatest enemy is probably heat. A computer's architecture (chips and circuits) is very susceptible to heat. Increased temperature results in decreased performance. Therefore, ventilation is important. The area around your tower (especially near the fan) should be unobstructed, and never place it near a heat source.

What causes problems for computers?

- Heat
- Hair (like from pets, or if you're a hairy bitch)
- Food and drink
- Cigarette smoke

Disk clean up: (1st, 1 per month)

- clears the hard drive of all unwanted files

  allows compression of old files

Scan disk: (2nd, 2 per month)

- Searches for and fixes errors on the hard drive
- Disk errors can occur when a new program is loaded or removed from the system
- Scans for and recovers bad sectors

Hard Disk Fragmentation:

- Caused by routine activities
  - Installing and uninstalling programs
  - Saving and deleting files
- Pieces of files are scattered on the hard drive

Disk Defragmenter: (3rd, 1 per month)

- Regroups related pieces of files together on the hard drive
  - Each file occupies a single, contiguous space
- More efficient access to files and folders
- Consolidates free space
- Must exit all running programs
- Disable anti-virus software and screen save

Do this before running disk defragmenter.

*can be automated with Task Scheduler (except for scan disk)

Most Important Maintenance Tips:

- Clean out your e-mail inbox/delete messages
- Regularly empty your computer's recycling bin
- Speed up your computer's start up: It is recommended that you remove as many programs from Start-up as you can, and launch the programs you need once the computer has started up. Most operating systems have a tool to help you do this.
- Keep your programs up to date
- Install and run security programs

Malware: It refers to any software specifically created to maliciously damage a computer system without the permission of the user. Most malware spreads via the Internet or through storage media (CDs, DVDs, etc.).

Viruses and worms: A computer **virus** is a program that enters a computer without permission and replicates itself while damaging the computer. The main purpose of a virus is to replicate itself when the user (you) clicks on one of the files to which it is attached. Once activated, a virus will infect other files on your computer so that when you open those files, the same thing happens. **Worms** are similar to viruses, but when they are activated, they actively try to send copies of themselves through your network.

*Some of the more common files that carry viruses and worms are: executable files (.exe), Word files (.doc), Excel files (.exe), Access files (dbs) and Adobe files (.pdf). This is because these are the types of files that are most often downloaded.

Trojan Horses: A Trojan horse is malicious software that is disguised as other software. Since most malware can only work if it is not deleted or shut down, it is often concealed as something else, usually a file that the user thinks is useful or harmless.

Adware: Advertising-supported software (adware) is software that allows unwanted and unnecessary advertisements to appear on a computer. When you download the software, it often also downloads a lot of adware with it. Adware is not specifically called malware since it rarely causes actual harm to a computer (some call it greyware), but it can be invasive and since most of these advertisements are clickable, they may provide an access point for viruses or other malware.

Spyware: Adware is considered **spyware** when it spies on you. This means that the software tracks your Web-surfing history as well as other preferences. It is software that tracks and monitors how you use your computer. It spies on you when you browse the Internet. Spyware may also install things for you (without you knowing) and may change your settings. It can even take control of the computer by shutting down some programs or redirecting websites to other websites.

Personal Firewalls: is a program (or hardware) that is meant to protect your computer from hackers (unauthorized users) as well as from malware.

LESSON 20: THE FUTURE OF COMPUTING

Portability: The devices needed have become smaller and smaller and are capable of doing more things.

Interconnectivity refers to the ability to connect to the same data stream using various devices.

Convergence is the phenomenon whereby one device performs many different tasks.

Usability is the drive to make technology more user-friendly. The goal is to make devices so simple and easy to use that anyone might be able to pick up any device and use it with no (or minimal) training.

Most experts agree that there are two main aspects of the Internet that will almost certainly see increased growth in the near future: **bandwidth** and even more **accessibility.**

- Evolution of Web-based applications
- Internet-enabled homes and environments
- Tele-work and tele-schooling
- Dramatic changes to news and publishing worlds
- Attempts to ‘control’ the Internet

Why go wireless? There are numbers of pretty good reasons…

- To make access to information easier and more widespread
- To ensure compatibility
- To eliminate wiring and cables
- To eliminate switches and plugs
- To connect and exchange information between devices and people at anytime

Wireless Technology		
Technology	***Bluetooth***	***Wi-Fi***
Range	*Up to about 10 meters*	*Up to about 100 meters*
Maximum Transfer Rate	*Up to 3 Mb/second*	*Up to 54 Mb/second*
Applications	*Mostly cable replacement and Personal Area Network (PAN) – wireless peripherals as well as lower bandwidth applications*	*Local Area Networks (LAN) and other high bandwidth applications such as connecting to the Internet*
Security	*Possibly more secure, but this may be due to shorter range and limited applications*	*Some history of security risks, but measures have been applied*
Power Usage	*Low power consumption*	*Higher power consumption*
Cost	*Low cost but less functionality*	*More expensive hardware*

WiMax is a relatively new wireless standard set to compete with Wi-Fi. It offers a greater range (up to about 20 km) and runs at a higher bandwidth than DSL.

BPL (Broadband through Power Lines) and ‘near satellite’ technology may offer different options in the future. BPL would allow sending data through power lines at unheard of bandwidth…Just plug into the wall!

Now, before we get carried away, wireless is not the ‘perfect’ technology. There are still some issues to be taken into consideration when it comes to mobile computing.

- Battery life
- Security
- Display size
- Speed and coverage
- Expense

OLEDs (Organic Light Emitting Displays) are replacing LCDs and making it possible to develop extremely thin, flexible displays made of plastic or metal foil.

A **Tablet PC** is a smaller version of a laptop that can be rotated into a clipboard style which allows you to actually write on the screen using a stylus.

PDAs are smaller than Tablet PCs. They can offer limited writing recognition, but mostly the stylus is used as a point and click device.

The capacity and particular features of Portable Media Devices are extremely wide-ranging, but they mostly specialize in storage and playback of digital media (audio and video).

The **PSP**, besides being a powerful gaming platform, offers many features found in other Portable Media Players. It can store and play music, video and digital photos, as well as offer limited Web-browsing capabilities.

The **NDS** also features a limited Web browser and a touch-sensitive screen that allows the use of a Picto-Chat feature between consoles.

The interconnectivity of mobile computing has led to a huge surge in **Social Networking.**

Domotics (**Dom**estic Rob**otics**):

- **Heating, ventilation, and air conditioning (HVAC)**
- **Lighting**
- **Natural Light**
- **Energy Systems Management**
- **Audio/Visual**
- **Home Security**
- **Other useful systems**
    - You can already set your coffee-maker to start brewing at a prescribed time. Possibly entire meals could be prepared this way.
    - How about automatically watering your plants or feeding your pets? Cleaning your pool? Vacuuming? Doing your grocery shopping? The possibilities are endless.

Lesson 4: Software

Software: a set of instructions that tell a computer what to do

- Also known as programs
- It does not need any physical connection to a computer
- It is just data- files (instructions) that are in computer memory and executed upon demand
- Ex: fucking Microsoft Word.. Excel.. Internet Explorer… Paint… Adobe… Solitaire.. Bye

There are three different types of software:

- System software (operating system)
- Programming software (computer science and engineering)
- Application software (user)

System Software

- Actually interfaces with the hardware
- Mostly made up of Operating Systems
- Operating systems help you use the computer and avoid typing computer code and they have user-friendly interfaces
- Ex: windows vista, windows XP, mac OS X, linux

Programming Software

- Used mainly by programmers and computer scientists
- Allows programmers to create other software
- Includes compilers, editors, interpreters, debuggers, and more
- Ex: visual studio, eclipse, MySQL

Application Software

- Ex: Microsoft word, excel, powerpoint, access, solitaire, frogger, call of duty, adobe photoshop, framemaker, indesign windows media player, realplayer, itunes

Operating System

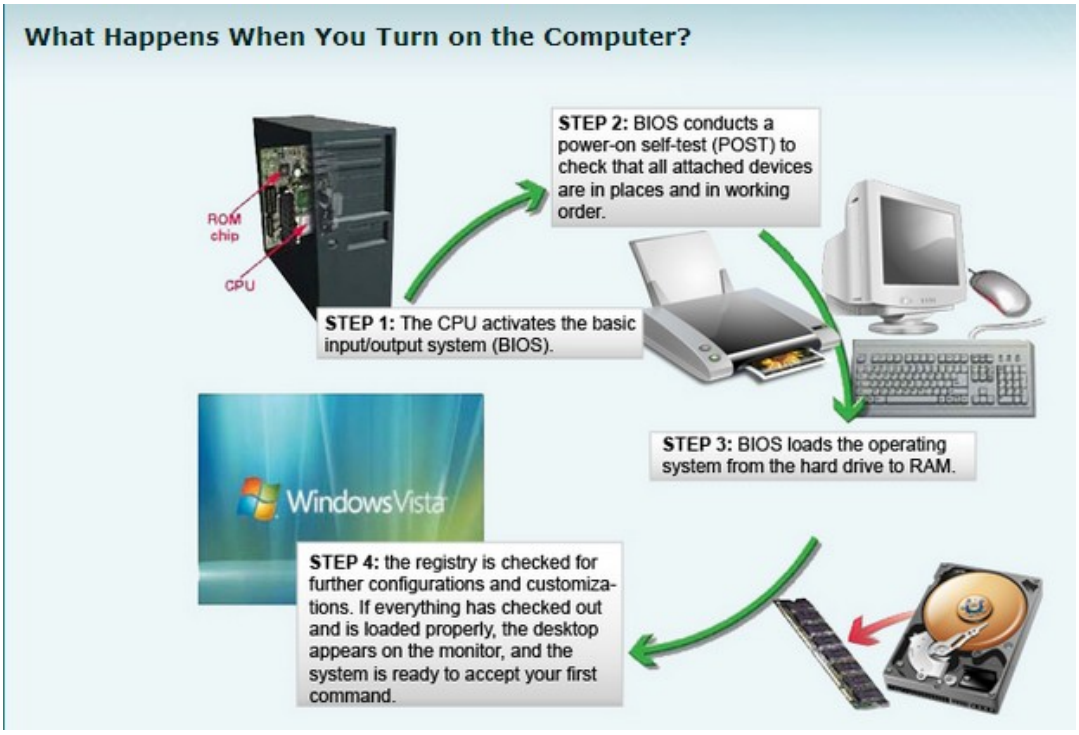
Is a complex program that manages all of the system files used by your computer. It manages the flow of data in your computer

Function:

- Allow the user to interact with the computer
- Manage the CPU
- Manage memory and storage
- Manage system and hardware peripherals
- Manage application software and memory allocation (coordination)

  ∴ Manage your files and multitask

<u>What happens when you turn on your computer?</u>



- When you turn on your computer a process called bootstrapping starts up and loads the operating system into memory

- Most operating systems are stored in the hard disk

Types of Application Software:

Utility Programs: application software that help you maintain and manage your computer's software and hardware.

- Lets you alter how your computer's desktop looks
- Help you manage (add or remove) other application software
- Compress files for easier storage transfer
- Help you carry out regular system maintenance
- Let you schedule maintenance tasks so that they are done automatically
- Ex: Winzip, Disk Defragmenter, Calculator or Volume control

Productivity Software: help you complete tasks or create documents for school or work

- Ex: Microsoft office

Multimedia Software: enables you to create, organize and edit music, movies, and pictures

Shareware: software that is available for free, but with certain conditions. This may mean that the application can only be used for a short amount of time before it has to be bought, or there may be no support offered for users unless the software is registered

*Windows hit the market in 1985… cool..

Windows Vista/Windows XP		
Versions	Description	Windows XP Comparable Version
Windows Vista Home Basic	This version is for low-level, budget home users who do not require advanced media support.	Windows XP Home Edition
Windows Vista Home Premium	This version combines the media features of Window XP Media Center Edition with the Windows XP Home Edition to support advanced home media uses such as HDTV and DVD authoring.	Windows XP Home Edition with features from Window XP Media Center Edition
Windows Vista Business	As its name implies, this version is aimed at the business market. Similar to Windows XP Professional, this version has added support for networking capabilities. This product comes bundled with a new version of Internet Information Services (IIS), one of the most widely used web servers for corporate websites.	Windows XP Professional
Windows Vista Enterprise	This edition is aimed at the enterprise segment of the business market and is not available through retail stores or OEMs (Original Equipment Manufacturers). It comes with Microsoft Virtual PC, which enables it to run on any platform, and has a multilingual user interface.	
Windows Vista Ultimate	This is the "ultimate" operating system for high-end PC users, gamers, multimedia professionals, and PC enthusiasts. Vista Ultimate comes with RSS (Really Simple Syndication) support for easy access to podcasts and weblogs, a game performance tweaker, DVD ripping capabilities, and other online capabilities for downloading media.	

What you see on the fucking desktop:

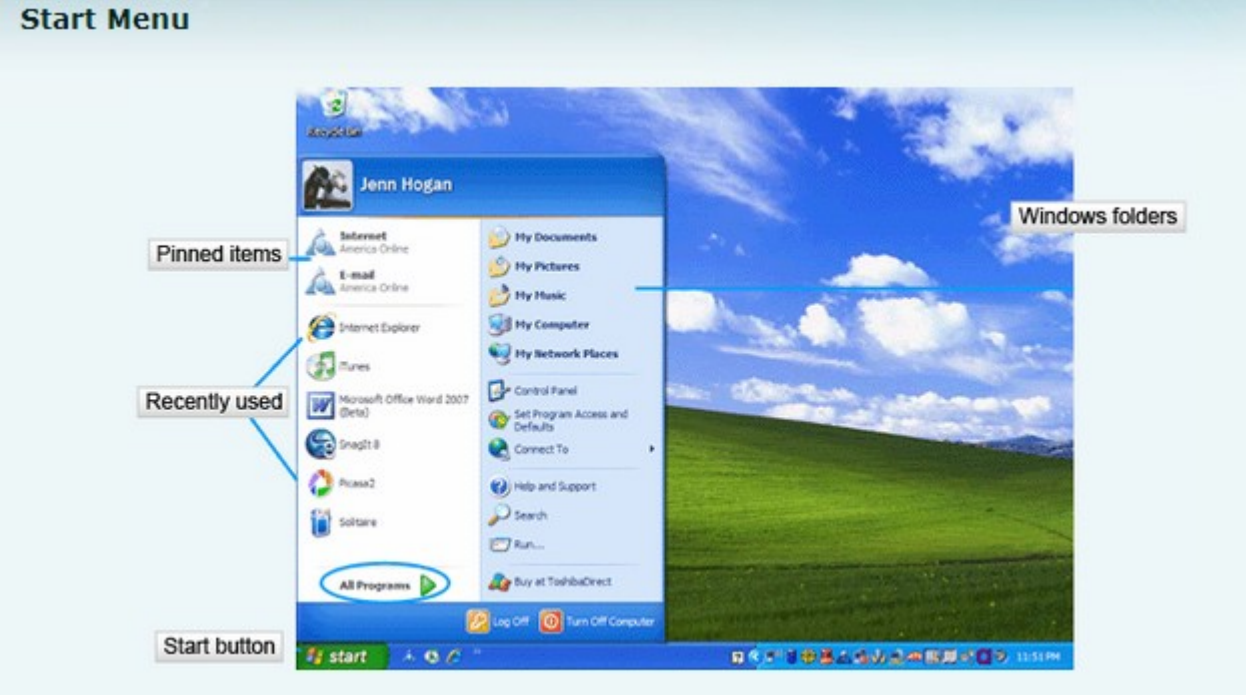
Taskbar: contains a number of tools that you can use to load software programs and gain information about your computer

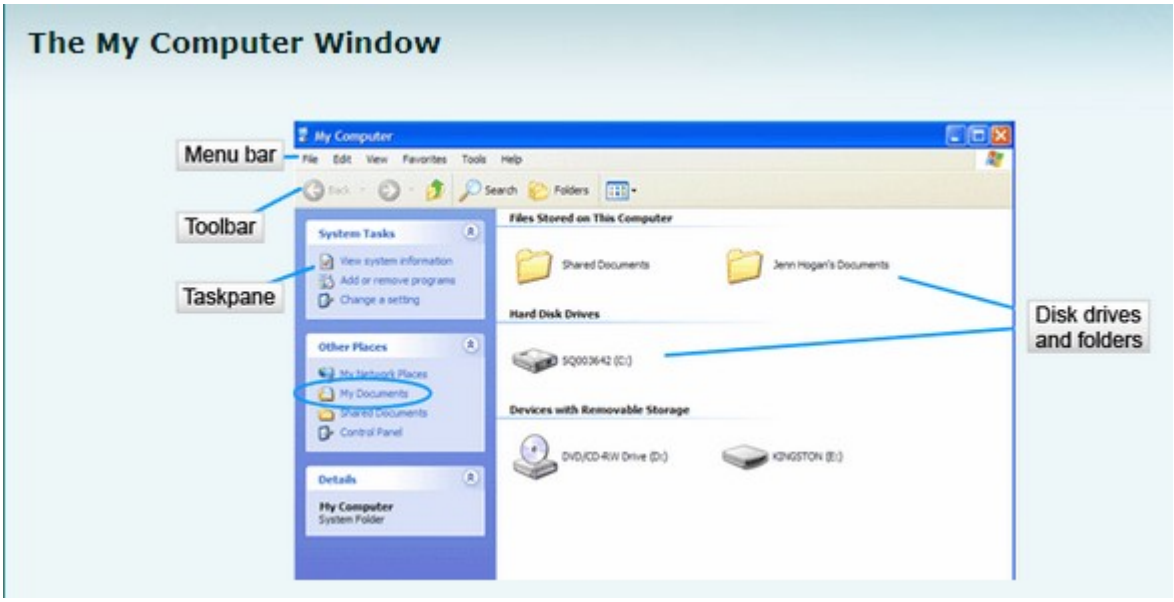
The start button: is used to start programs and other functions. A keyboard shortcut is the windows button.

The Quick Launch toolbar: shows program icons. Clicking on an icon in this area will cause the program to load.

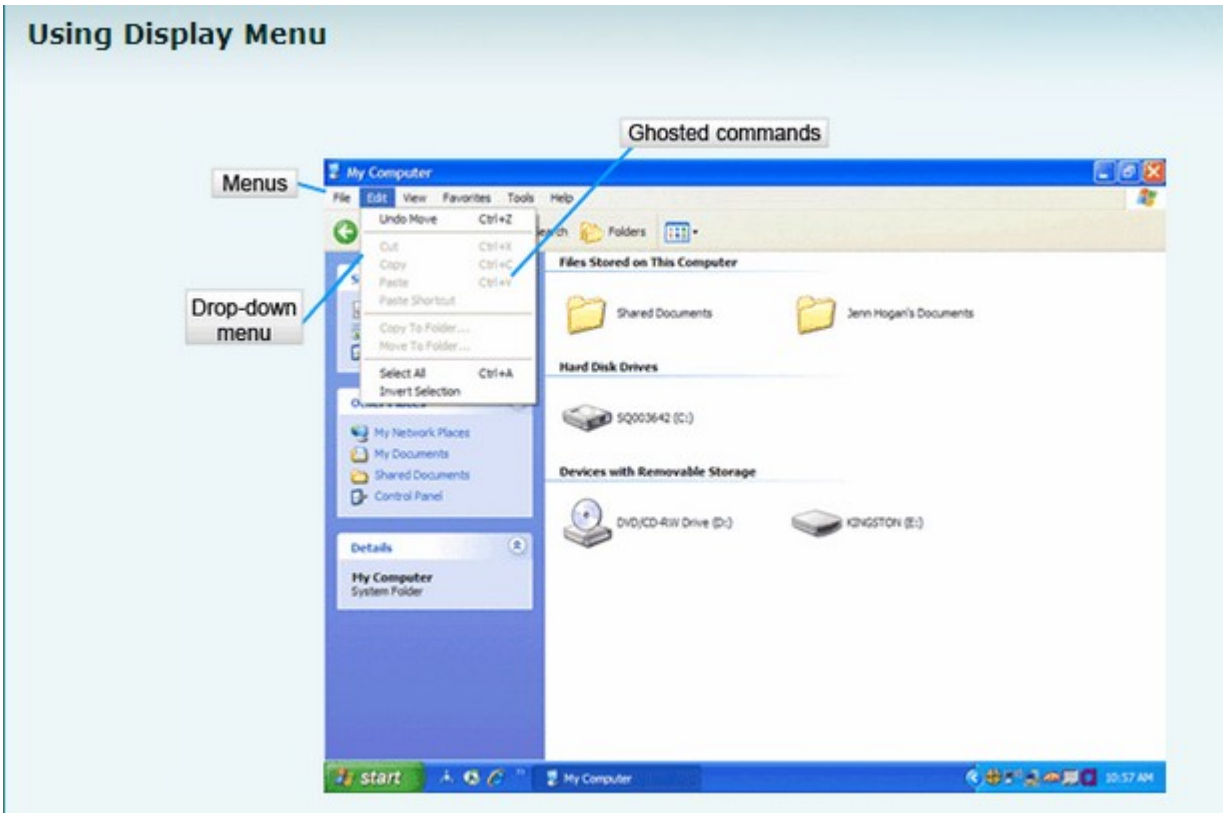
The Desktop Search button: helps you find thing on your computer

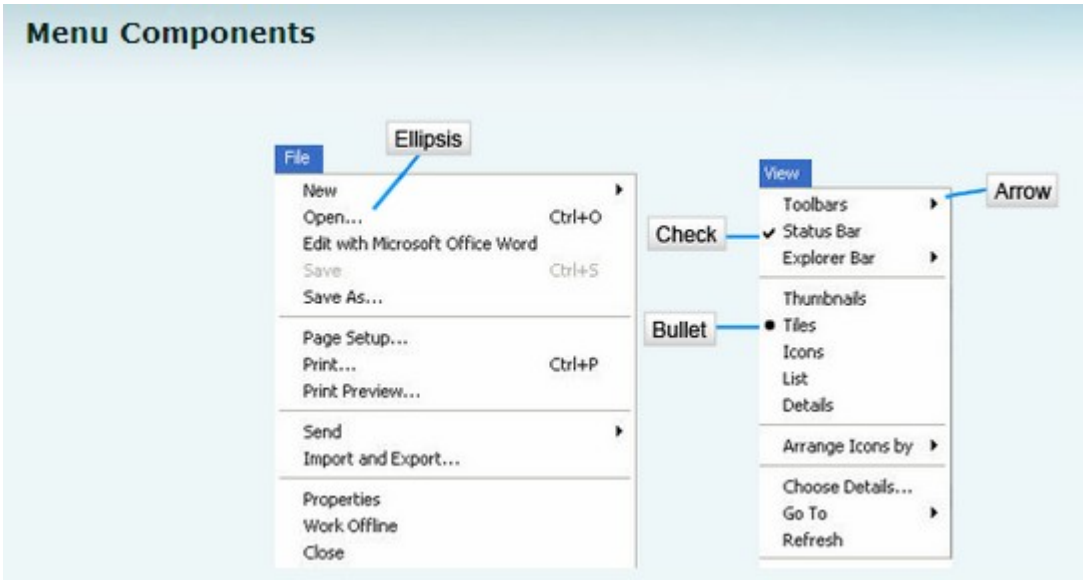
The Notification area: shows some of the programs that are running in the background memory of your computer.



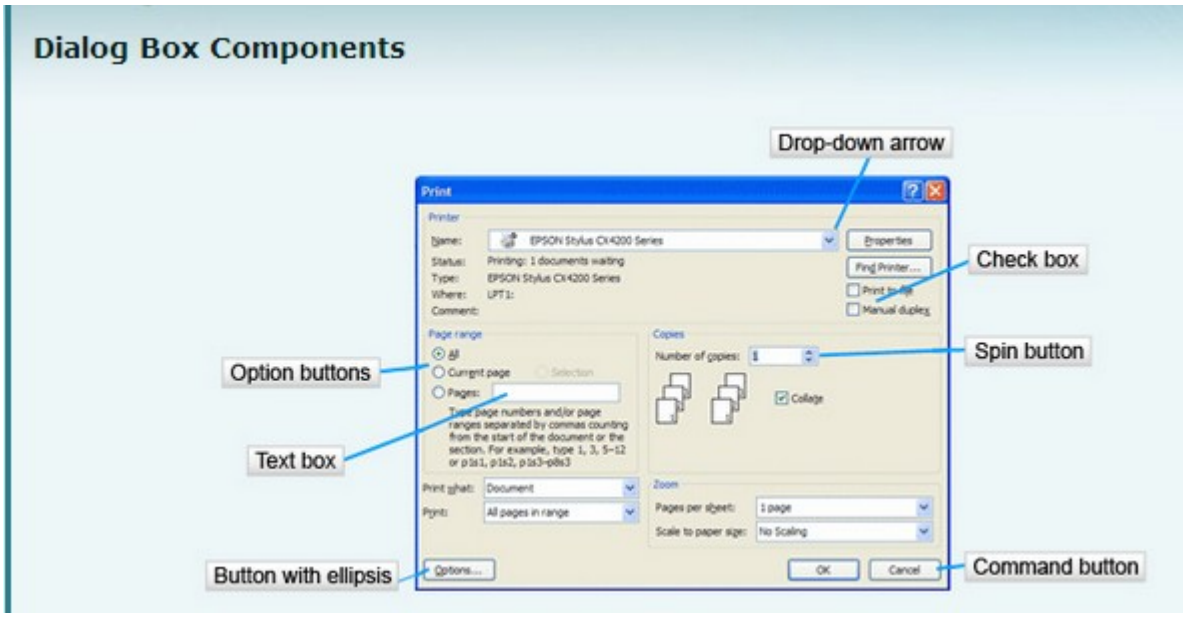


- Gives you access to disk drives and folders
- Taskpane: allows you to initiate systems tasks and navigate to another place on the computer





- **Ellipsis:** additional information will be needed to execute the command (dialogue box)
- **Toggle switch:** (check mark) this command can either be turned on or off
- The bullet indicates that this setting is selected from a group of settings
- The arrow: a submenu will appear



File:

- A collection of data
- Program file: part of a software program
- Data file: a file created with a program file

Folders:

- Holds multiple fucking files
- Can also hold other folders :O

Program Files:

Software applications that help you to complete tasks such as word processing or crunching numbers in a spreadsheet.

Filename Extensions		
Extension	Type of Document	Application that Uses the Extension
.doc	Word-processing document	Microsoft Word 2003
.docx	Word-processing document	Microsoft Word 2007
.wks	Word-processing document	Microsoft Works word processing
.wpd	Word-processing document	Corel WordPerfect
.xls	Spreadsheet	Microsoft Excel
.slr	Spreadsheet	Microsoft Works spreadsheet
.mdb	Database	Microsoft Access
.ppt	PowerPoint presentation	Microsoft PowerPoint
.pdf	Portable Document Format	Adobe Acrobat or Adobe Reader
.rtf	Text	Any program that can read text documents
.txt	Text	Any program that can read text documents
.htm or .htlm	Web page	Any program that can read HyperText Markup Language
.bmp	Bitmap image	Microsoft Paint
.zip	Compressed file	Winzip

Windows Explorer: is a program that displays your folders and files in a hierarchical structure.

LESSON 5: Office Fundamentals

Word: document processing

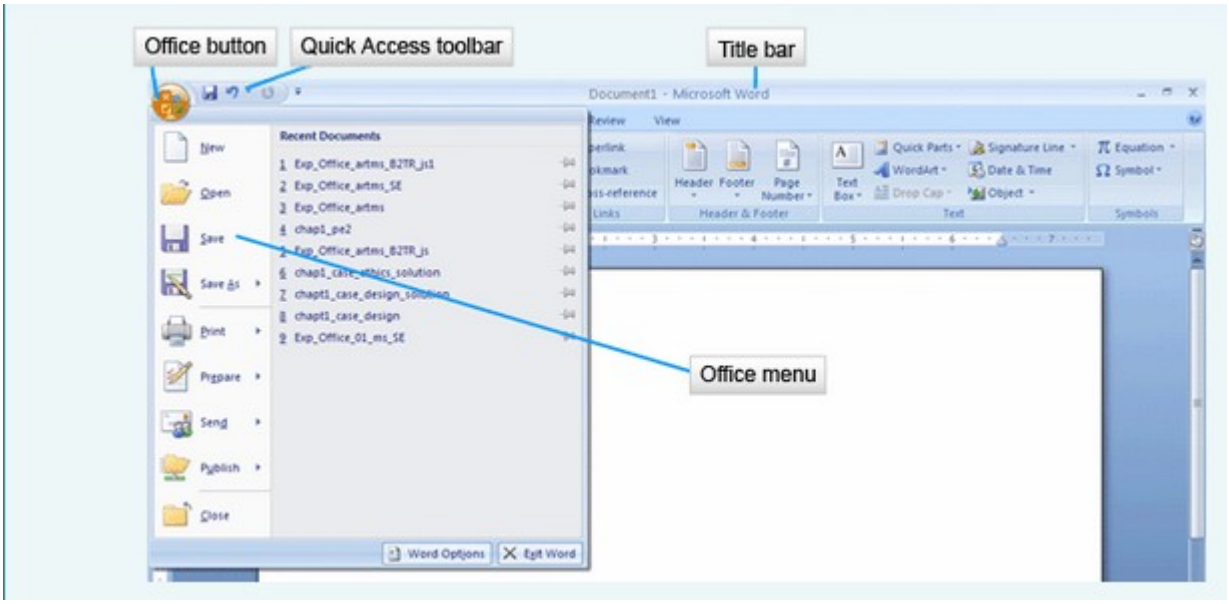
Excel: Spreadsheet

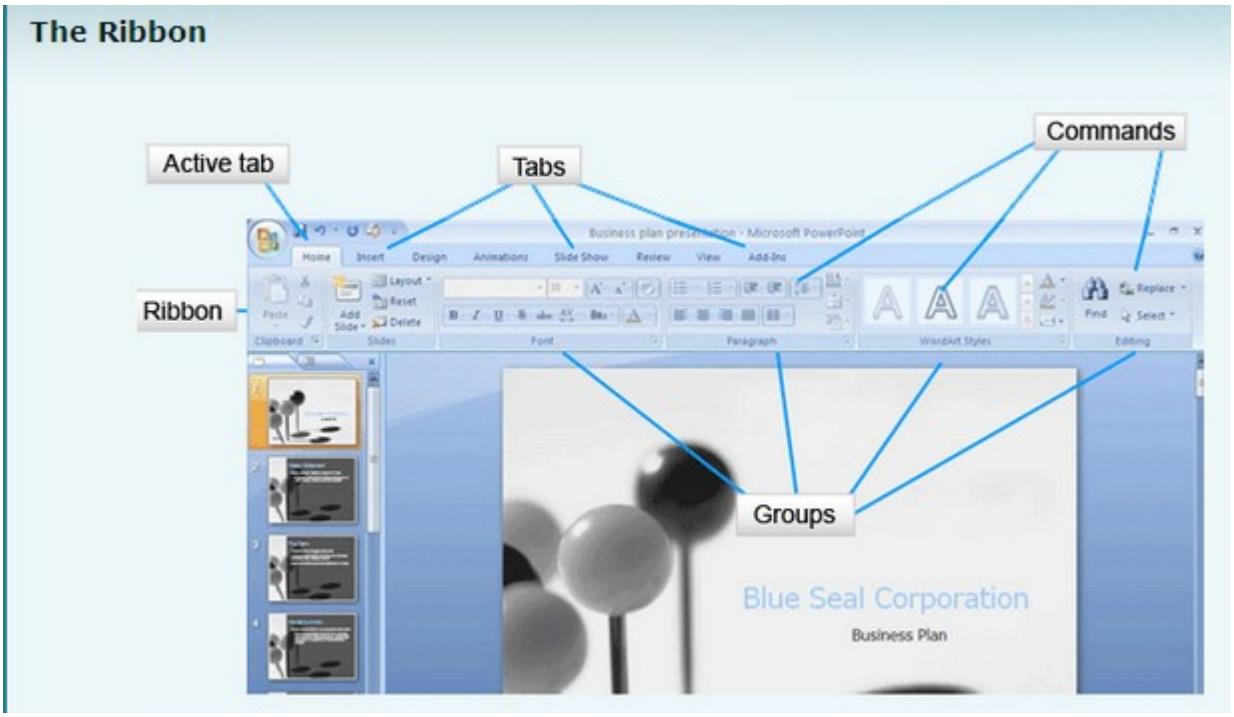
Powerpoint: presentation

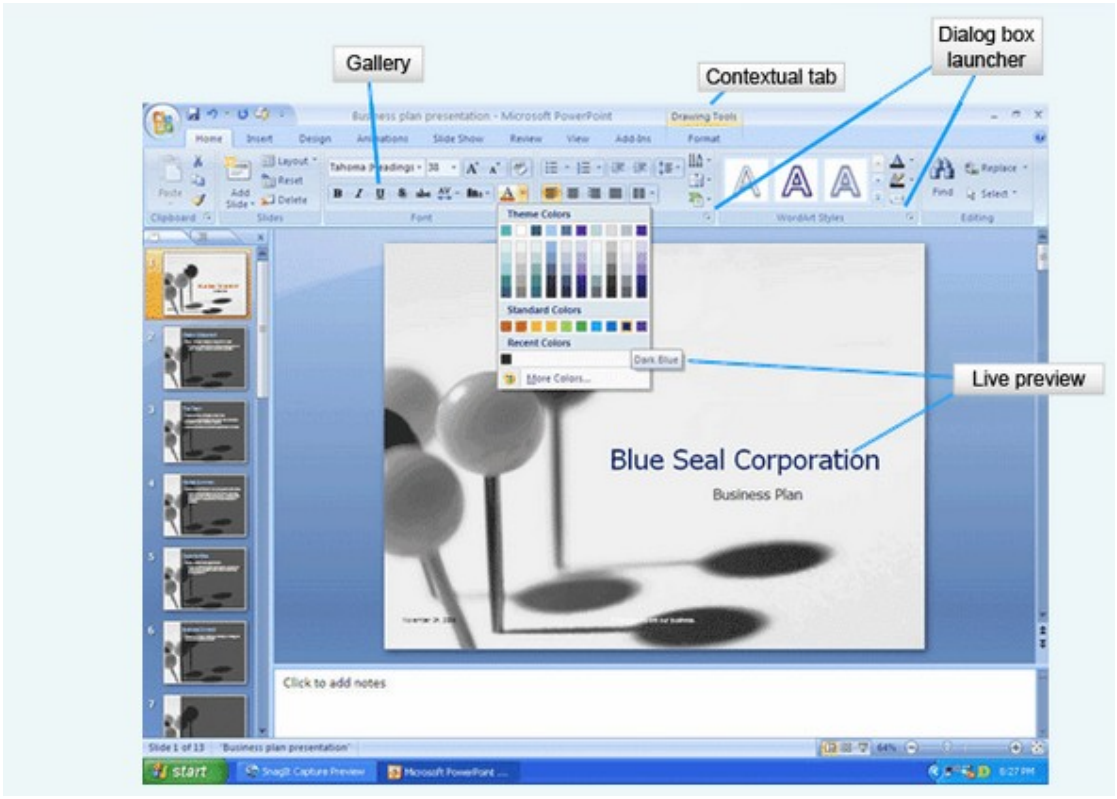
Access: Database

Common Interface Components

- Office Button
  - Office Menu
- Quick Access Toolbar
- Title Bar
- Status Bar
- Ribbon
  - Tabs
  - Groups
  - Commands

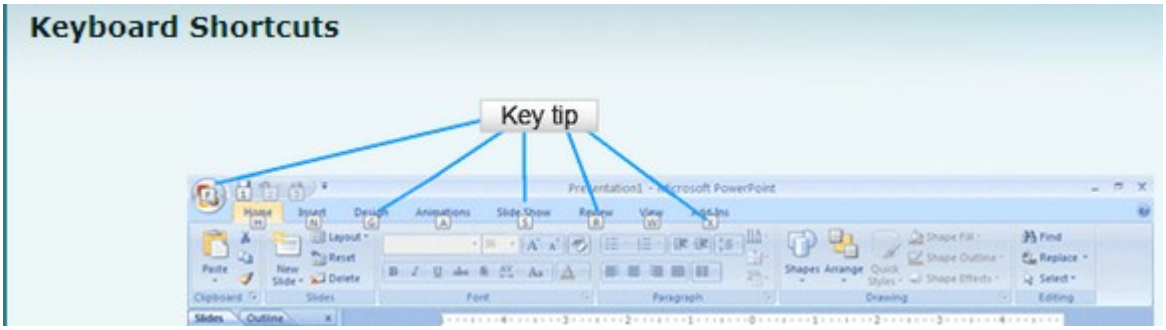


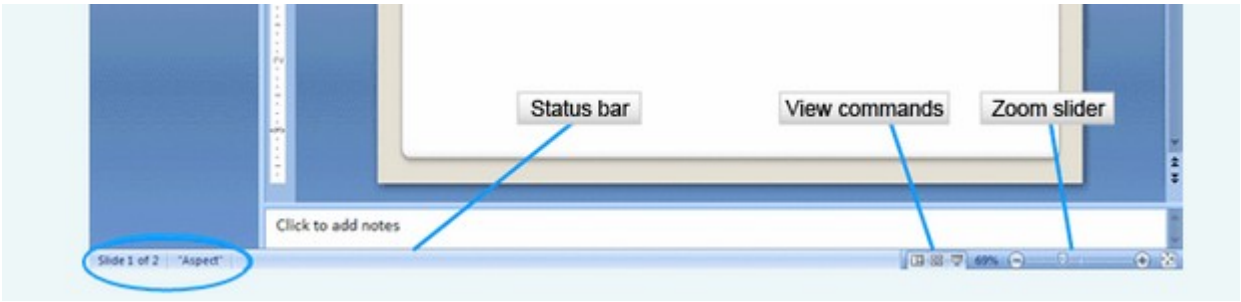




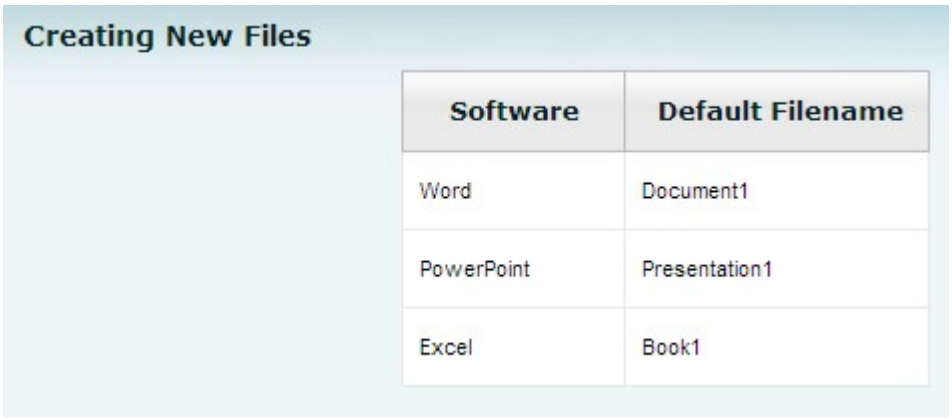
- The gallery: set of option that appear as thumbnail graphics to present the results.

- Contextual Tabs: shows specialized commands that display only when the object they affect is selected.

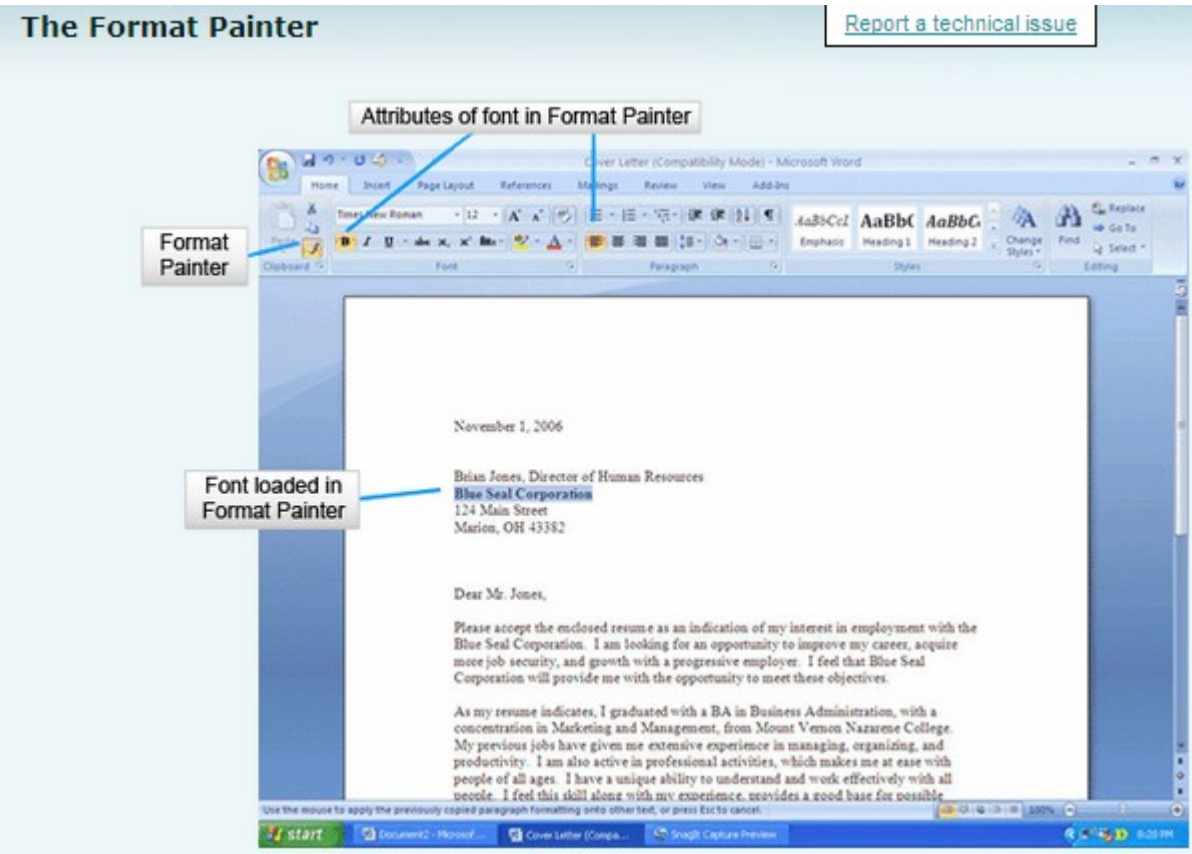




Super ToolTips: displayed when the mouse lingers over a command on the Ribbon. Provides command name, brief description of the command, and a link for additional help.



Software	Default Filename
Word	Document1
PowerPoint	Presentation1
Excel	Book1



Selecting Text:

Single word: double click on it

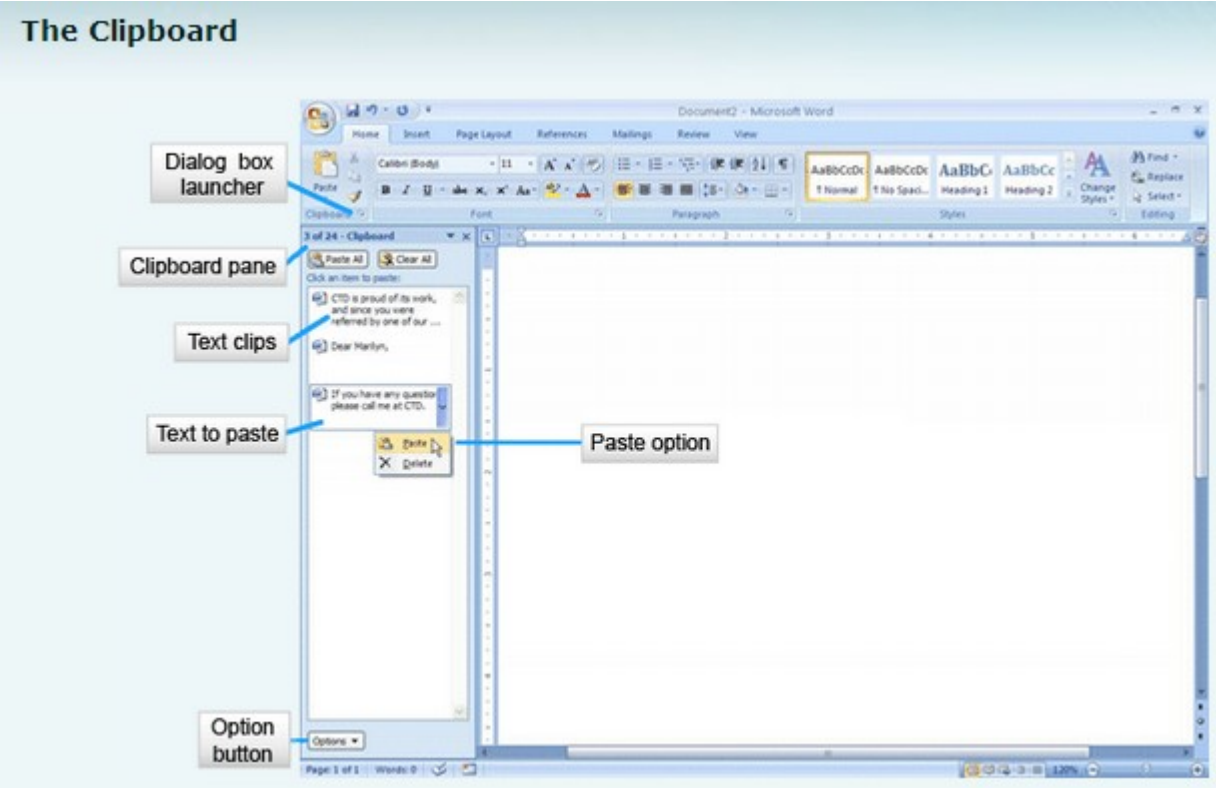
Whole line: move the point to the left of the line and click when the mouse pointer changers to a right-pointing arrow

Sentence: hold the Ctrl key and click on the sentence

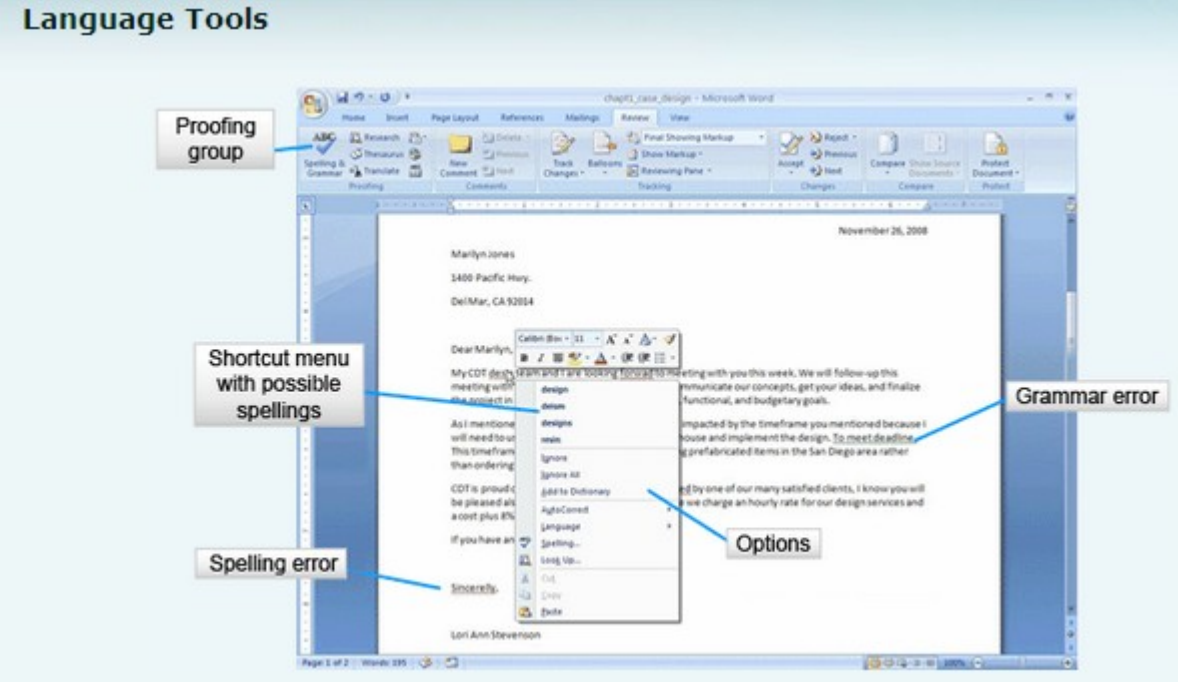
Entire paragraph: triple click

Overtype Mode: replaces the text to the right as you type the new text

The Clipboard Commands: cut, copy and paste



*GO TO command is in find and replace



LESSON 3: Introduction to the Internet

What is the Internet?

The Internet is a large network of computer networks. It uses electronic communication to connect to computers across the world so that they can share information. The Internet comes from the idea of interconnected networks.

- In 1958, the United States Department of Defense commissioned the development of a network of computers that could withstand nuclear attack. It was envisioned as a defense mechanism that would allow military communications to continue if normal communication lines were broken.
- The internet was created in 1969 and based on research by the Advance Research Projects Agency (ARPA), a branch of the U.S Department of Defense.

The World Wide Web: (WWW)

Hyper Text Transfer Protocol (HTTP): is a set of rules that dictates how web pages are formatted and transmitted across the Web.

Web server: computer that stores web pages, has server software installed, is connected to the Internet and transmits data when requested

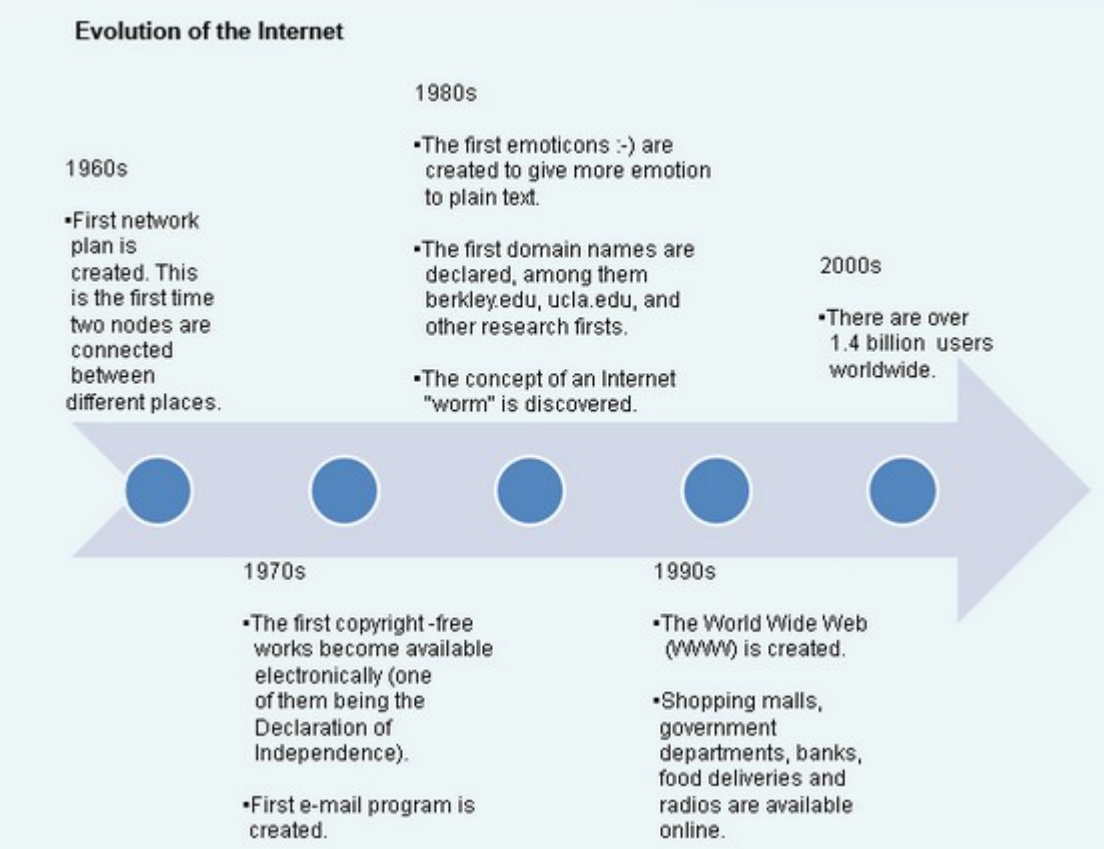
Website: collection of web pages. Designed to display pages that include text, graphics, animation, sound, movies and links to other pages.

Uniform Resource Locator (URL): unique address for each Web page and Web resource

Domain: the name of the resources that make up a website

Hyper Text Markup Language (HTML): programming language used to create Web pages.

*Web became part of the Internet in 1980



Networks: two or more connected computers, plus the various peripheral devices that are attached to them. Allows the computers to communicate and ultimately share information and resources.

- Share peripherals (printers, scanners…)
- Transfer information directly (without using external storage media)
- Centralize information and reduce redundancy
- Connect to the internet

Node: each object connected to a network, whether it is a computer or a peripheral device.

Connections between nodes:

- Telephone wire
- Coaxial cable
- Fiber-optic cable

- Wireless

Network Adapters: this is a device that allows the nose to communicate with other nodes.

- Each node (device or computer) in a network must have a network adapter.
- They can be external (plugged into a USB port), but are usually internal and in the form of a **Network Interface Card (NIC),** which fits into an expansion slot on a computer's motherboard.

Internet Connections:

Dial-Up: low transfer rate, which means it has a slow connection

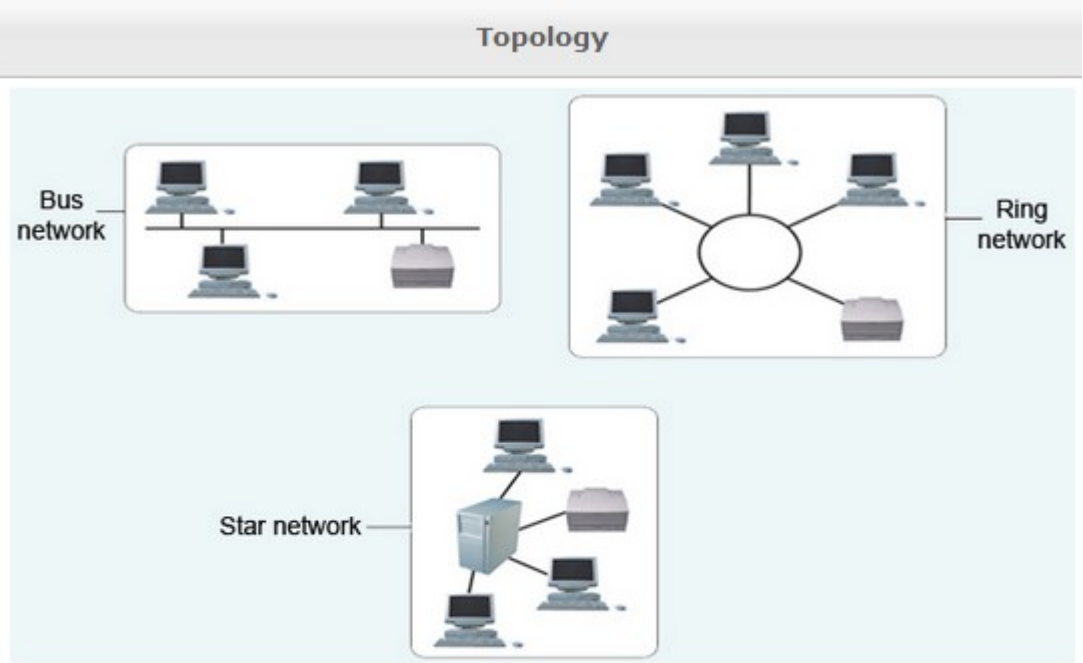
Broadband: high speed internet connections. DSL (digital subscriber line), cable, and satellite

Modems: devices that allow your computer, which is digital, to understand analog signals coming through your phone line

Routers: handle the transfer of data from network to network. (connecting your home network to the internet)

Switches: work within a network. These devices make sure the data is transferred to the correct network node.

Internet Connections	
Dial-Up Modem	Up to 56 Kbps (Kilobytes per second) transfer rate
DSL (Digital Subscriber Line) Modem	Up to 1.5 Mbps (Megabytes per second)
Cable Modem	Variable transfer rate
Fiber Optic Internet	Up to 30 Mbps



Topology	The physical shape of a network.
Bus or Linear	All nodes are connected in sequence on a single cable. Typical P2P network.
Ring	Nodes are connected in a circle.
Star	Each node connects to a central switch which re-transmits the data in the right direction.

Networks can be differentiated by their size, their hierarchy and their typology.

Ethernet: is a specific network protocol that allows nodes to connect to each other. It is the standard for P2P networks.

Network Hierarchy	
Peer-to-Peer (or P2P) Network	Every node in the network can communicate directly with every other node. Most home networks are this type.
Client-Server Network	The 'Server' computer acts like the central administrator for functions available to the 'Client' computers (such as printing). The Internet is a Client-Server network.

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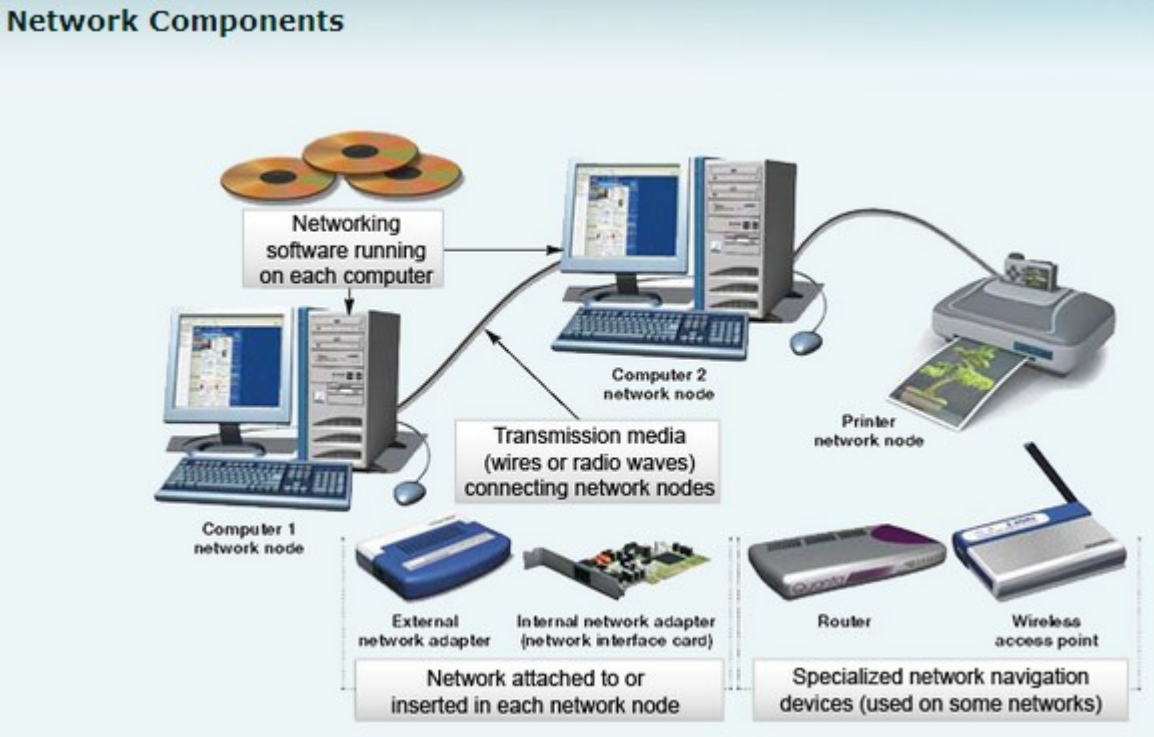


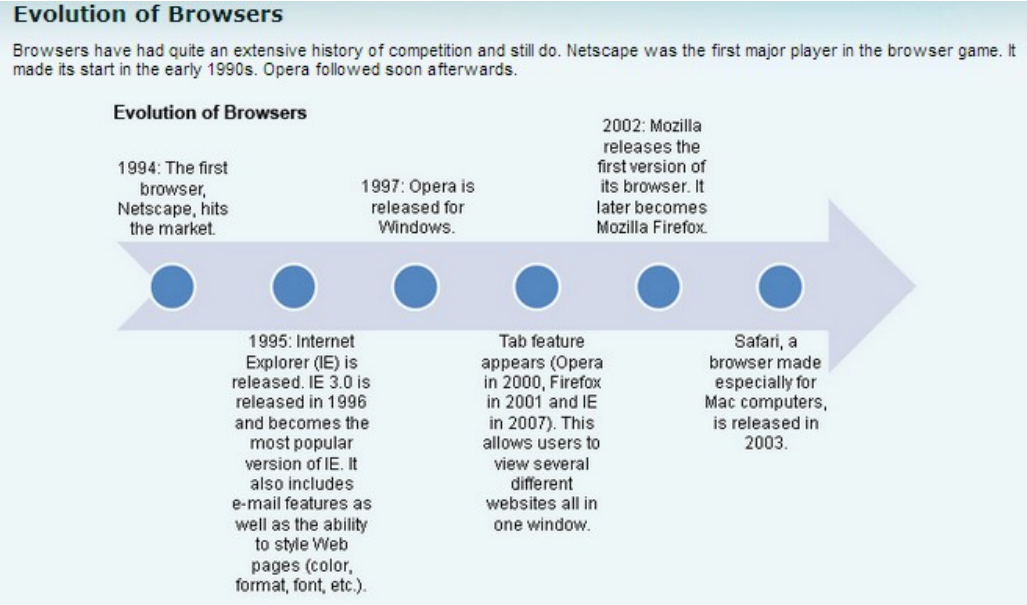
Internet Service Providers (ISP): companies that provide internet services to people

How does it all work?!!

1. Once you have type the address of the site you are looking for (Google) into your browser, your Modem (or Router) will connect to your Internet Service Provider and send an Internet Protocol (IP) address. Each Web page has a unique IP address.
2. Your ISP will send the IP to Google's network server (a series of computers that store all their data)
3. Google will then send an IP packet (a series of IPs pointing to various Web pages and information) back to the ISP. In essence, this means that they are sending back the Web page you have requested
4. You ISP will send the IP packet to your modem (or router), and your Web browser will display the information. All of this usually happens in less than a few seconds.

Browser: an application that allows you to locate, view and navigate Web pages. Ex: Explorer, Mozilla Firefox, Safari and Opera.

Hyperlink: reference (usually displayed in a different font, colour, style or underline). It “link” or references another document, Web page or website. A website usually has many hyperlinks that link all the Web pages together.



	Internet Explorer	Mozilla Firefox	Opera	Safari
Features	Optimized for Windows Operating System (since it's owned by Microsoft). IE's latest version uses tabs to differentiate between different websites all in one window. IE has small issues with security. IE has features for bookmarking favorite websites. It also gives you options to change privacy settings and trusted vs. non-trusted websites.	Firefox is open source and works on all platforms. It is owned by the public GNU license and components can be added to it, unlike IE. Firefox has better security features and is widely considered to have more protection. The 2001 version of Firefox has tabs and allows user to bookmark favorite sites and to set up options for privacy. Open source allows for add-ons (features).	Opera was an early player in the Web browser game. It has returned to the market and is growing fast. It was the first browser to have tabbed windows (2000). It works on all platforms. Opera is ery popular on cell phones because it uses shortcuts and has all of the same features as IE and Firefox. It is c onsidered highly secure, like Firefox.	Safari was the first Web browser made specifically for the Mac computer. It is the default browser that comes with a Mac as well as with iPods and iPhones (and most other i-devices). Safari can also be used on the Windows platform.
Website	Internet Explorer	Firefox	Opera	Safari

LESSON 2

The most basic definition of a computer is “someone or something that computes”

Oxford dictionary has 2 definitions: 1) an electronic device for storing and processing data, according to instructions given to it in a variable program

OR

2) A non-electronic device that assists in making calculations.

They contradict each other because these definitions are based on the history of computers, or what we consider to be computers

NON-ELECTRONIC COMPUTERS

Abacus: ancient tool for counting that uses wood or stone beads in rows. (Origin: Mesopotamia, Egypt, China)

Slide Rule: tool with two sliding rulers, used to calculate multiplication and division and more advanced calculations.

Punch Card: A card with holes representing data such as records for the consensus or for payroll

Calculating Machine: mechanical version of the calculator

1940s: electronic computers made their first appearance

*ENIAC (Electronic Numerical Integrator And Computer) was the 1st computer built by the US Army (it was the size of an entire room) *first binary computer* along with Konrad Zuse’s Z3

TIMELINE

1642: Pascalene Calculator (Blaise Pascal)- used to add subtract, multiply and divide

1804-1805: The Jacquard Loom (Punch Card)

1834: Babbage’s Analytical Engine (calculating machine) is similar to CPU, RAM and input/output devices used in today’s computers. Ada Lovelace studied Babbage’s notes (1842) and was considered the first computer programmer. Programming language was named after her (ADA)

1890: Hollerith Tabulating Machine used punch cards to represent and collate census data which sped up the process. Herman Hollerith worked for the census bureau but left to start the Tabulating Machine Company which was later renamed the International Business Machine (IBM)

1939: The Atanasoff-Berry Computer (ABC) was the first electrical computer. Two major developments that were central features for later computers 1) first to use binary system for data use and 2) used memory that repowered itself upon booting

1944: ENIAC* was developed to calculate settings for weapons

1951: UNIVAC (Universal Automatic Computer) computer designed for US business. First to use magnetic storage tape instead of punched cards.

1958: First integrated circuit and beyond- Thousands of transistors. In 1947, the first transistor developed (basically ON/OFF) The Microprocessor (in 1971) had 2200 transistors. Intel predicts that its processors will pack 20-30 billion transistors onto a single chip within 10 years.

1975: Altair (First computer for personal use), there was no keyboard, monitor or printer. Data was displayed by flipping switches.

1977: Apple II; had color monitors, speakers and a cassette dock. Floppy disk drive and Apple Dos was later added.

1981: IBM PCs & MS-DOS; Time magazine named the computer the machine of the year (instead of person of the year which they normally do). Microsoft became leader of computer systems.

1982: Software development; Word, Excel etc... They developed a user friendly interface and the use of a Mouse.

1984: Macintosh; best-selling computer

1993-1995: Internet Boom: Invention of mosaic browser in 1993 allowed users to view multimedia files on the web. Netscape/Internet Explorer developed.

2008-and beyond: always evolving and changing (NO SERIOUSLY! I WOULD HAVE NEVER THOUGHT!!!)

COMPUTERS TODAY

A **desktop computer** is a modular, stationary computer comprised of a system unit, keyboard, monitor, and mouse

A **laptop computer** (also known as a notebook or portable) is a small portable computer that runs on a rechargeable battery (they can also be plugged in). Advances in **LCD**s (Liquid Crystal Displays) made it possible to develop small, flat monitors, and so laptops were born.

The Three most common categories in computers:

MAINFRAMES: In the 1940s, the first general-purpose computer to be developed was a mainframe. Mainframe computers can be used by many people at the same time and can handle very complex problems or large volume jobs. Mainframes are generally used for data processing for business and scientific applications. *EXAMPLE*: major banks can process bills for credit card holders all over the world with the aid of a mainframe. Large research projects also use the mainframe's vast memory, storage capacity, and super-fast processing speed to conduct tests and co-ordinate operations.

MINICOMPUTERS: were introduced in 1963. It is a scaled-down version of the mainframe computer. It is capable of performing many jobs that old mainframe computers accomplished in the past. *Due to its cost-effectiveness*, the minicomputer's most important contribution has been the introduction of distributed computing, where a number of small computers can be used instead of one giant computer.

MICROCOMPUTERS: 2 major events led to the microcomputer 1) the development of the first microprocessor in 1969 AND 2) the creation of the first general-purpose microprocessor chip in 1971. Microcomputers had a major economic impact due to their small size and drastically improved cost-effectiveness. They are known as home computers, laptops, notepads, Pcs etc...

There is a **fourth less well-known category that is often forgotten, although we see and use this type of computer every day. This category consists of the most common computers in the world: embedded computers. **

EMBEDDED COMPUTERS: are found within other devices and often perform only one (or a few) function(s). Their most common function is to control the operations of the machine in which they are embedded. An embedded computer is a microprocessor designed to operate within another tool. For example, computers are embedded in digital watches, refrigerators, microwave ovens, stereo systems, automobiles, and many other items.

COMPUTERS PURPOSE:

1) **Inputting** data or gathering data (information)
2) **Processing** data (perform calculations and manipulate the information)
3) **Storing** data (info) to be used later
4) **Outputting** data (info), or display it in some way.

This becomes their definition of a computer

WHAT IS A PERSONAL COMPUTER?

Interactive and useful: The tasks that a personal computer can perform are directly useful to you. In effect, the PC is an extension of you.

Dedicated and 'user-friendly': only responds to you, its owner, the 'end-user', without the need for a 'computer operator'

Co-operative: It is connected to other computers through a network and you can communicate with people around the world in many fascinating ways using the Internet.

Accessible: The two most important developments in computing are arguably the microprocessor and the microchip. Small size and Low cost.

COMPUTER SUBSYSTEMS

A system is made up of a number of subsystems that work together to perform a function. The three main subsystems in a computer are:

- Input/output (IO)
- Central Processing
- Storage

All of these must work together to process information.

- First, information is entered into the computer via the input part of the IO subsystem.
- Next, the information is processed by the processing subsystem.
- Finally, it can be sent to the storage subsystems and/or the output part of the IO subsystem.
- The physical devices that make up these subsystems are also known as computer hardware.

COMPUTER HARDWARE

An **operating system** is system software that controls basic computer operations.

Much like a filing cabinet, a **hard drive** stores programs and data files. A constant supply of electricity is not necessary to ensure the maintenance of hard drive contents.

Computer hardware can usually be divided into the system unit and the peripherals.

The **system Unit** (often called the Tower or Case), can be referred to as the 'computer'. It contains the central processor and main storage subsystems, each made up of various hardware (motherboard, CPU, CD/DVD drives, hard drive, power supply).

Motherboard: At the center of every computer system is the motherboard. The motherboard houses the computer's microprocessor, computer memory, and most of the computer's control circuitry (paths). Control circuitry paths allow the different peripherals, the motherboard, and the CPU communicates. AKA: buses. The motherboard is the central nervous system of the computer. First, it receives electrical signals from a peripheral input device, such as a keyboard or mouse. Then it processes the electronic signals. And finally, to produce output, it sends the processed signals to a peripheral output device, such as a printer or a display screen.

The Motherboard houses the following:

- The CPU (Central Processing Unit)
- RAM Memory
- Control Circuitry or Buses:
- Hard Drive – Main Storage (ROM Memory)
- Other Controllers – Cards
- Data/Disk Drives – DVD/CD
- Power Supply

A **peripheral** is hardware that connects to the system unit. Peripherals usually make up the Input/output subsystem (devices such as monitors, printers, keyboards, and so on), but can include external storage devices.

CPU (Central Processing Unit) • thought of as the brain of the computer and is responsible for interpreting and carrying out instructions. Central processing units condense all the computational functions of a computer into just two parts: the processor and memory. A processor is a single integrated chip that is plugged into a socket located on the motherboard. A personal computer usually has only one processor, though dual processor systems are becoming more common. Instructions that the CPU must interpret and carry out are written in binary code, or machine language which the processor understands. The speed is measured in Mega or Gigahertz (MHz/GHz) they are 106 and 109 Hertz respectively.

RAM (Random Access Memories) Memory: is directly connected to the motherboard. This is fast-acting memory that is erased when the power is turned off. This type of memory is also known as volatile memory. The CPU uses this memory to temporarily store the programs that are currently running. The contents of this memory are temporary and undergo constant change. The most important thing that you must remember about RAM is that it is volatile, and that as soon as you turn the power off, the data stored in RAM will be lost. Memory is known as Primary storage.

There is another type of memory called **Read Only Memory (ROM).** ROM is a form of non-volatile memory, so it is typically used to store programs and data needed for the operation of the computer system. The data stored in the ROM chip is permanently encoded at the factory, and as such can never be erased or changed. Unless you are building computers, you do not have access to ROM. The basic unit of memory is a **byte**. One byte is eight bits (Binary digit). A bit can have a value of 0 or 1. In other words, a byte is a combination of eight ones and zeroes. Memory capacities in computers today are typically measured in megabytes (MB), millions of bytes, or gigabytes (GB), billions of bytes

> *** *What is most important to retain is that there are two types of computer memory called Random Access Memory (RAM) and Read Only Memory (ROM). The main distinction between the two is that RAM is a form of volatile memory used for temporary general-purpose storage, while ROM is permanently encoded.* ***

Cache Memory

Cache memory is found between the processor and the RAM. It speeds up the location and retrieval of data. *Cache is much faster but also much more expensive than RAM*. However, RAM and hard drives are too slow to provide data to the processor without stalling calculations. So when a processor needs certain information, it first looks in the cache to check if that piece of data has been

recently loaded. If the processor cannot find the information, it will then proceed to the RAM and finally to the hard drive. Retrieving data from the RAM or the cache makes computers cheaper (time-wise) because it uses small quantities of expensive and fast memory (cache) to compensate for a cheaper but slower memory (hard drive).

Virtual Memory

Virtual memory is actually a file on the hard disk. Windows and other operating systems require very large amounts of memory to run multiple programs, but RAM only provides part of this memory. In a single-processor computer, only one program runs at a time and it must use RAM. Even though RAM may contain other idle programs and their data (i.e., programs that are minimized to the taskbar but are still open), portions of the programs that cannot fit into RAM are stored on the hard disk as virtual memory.

BUSES & DEVICE CONTROLLERS

The processor, under control of a computer program, uses its control/communication operations to direct the flow of data into and out of memory. It also coordinates arithmetic and logic operations. To perform these operations, instructions and related data are sent along wires or buses.

Buses can either be internal or external. They are the paths (circuitry) that connect the CPU with internal and external components. The bus speed along with the processor speed influence how fast a computer will operate.

A device controller is a set of chips or a circuit that operates a particular device such as a printer, disk drive, or mouse.

Buses include:

- PCI and PCI-E slots, which allow connection of graphics cards
- PS/2 ports, which allow the connecting of keyboard or mouse
- Universal Serial Bus (USB), which allows the connection of various peripherals

HARD DISK DRIVE

A hard disk is a non-volatile storage device made of rigid aluminum platters that have been coated with a magnetic material. It is usually stored within the system unit, and is sealed airtight. You cannot see it except for the disk drive light. The read/write head does not actually touch the hard disk surface, but floats over it. The hard drive has a very high storage capacity (many Gigabytes) and most of your applications are stored on it, including Microsoft Office and Internet Explorer.

CONTROLLER & CARDS

Usually connect to the motherboard via buses. Examples:

Video Display controller: aka: graphics card, or the graphics accelerator. The graphics card generates and outputs images to display. There are **two types** of Display controllers: 1) an expansion card is a separate piece of hardware that plugs into a slot on the motherboard, while2) integrated graphics are actually part of the motherboard.

Sound Card: The sound card allows for the input and output of audio signals. Like the graphics card, the sound card can be integrated or expansion. An expansion card will plug into a slot on the motherboard

Network Card: The network card AKA LAN (Local Area Network) Adapter and allows the computer to connect to a network. This is how computers communicate with each other and with the Internet. Network cards can be integrated or expansion type.

CD & DVD Drives

Like external storage. CD-R/DVD-R (Recordable)/Read only which means you can only record and CD-RW/DVD-RW (Re writable) Read and Write re-record.

PERIPHERALS

Peripherals can mostly be separated into Input and Output hardware. Peripherals connect to the computer (system unit) via ports.

Input Devices

Input devices are the means by which you enter information into your PC, which is, the primary means by which you interact with your personal computer. The various devices available span an entire range of technologies, from the tactile to the vocal. Although they work in different ways, they all accomplish the same task: they enable you to communicate with your computer. Input devices convert the mechanical into the electronic form that your PC can understand. EXAMPLE: Desktop-keyboard/mouse. You can also add webcams

Output Devices

An output device is hardware that sends data out of a computer. The most common output device is the monitor (or LCD display). And the most common output device that you buy for a computer is the printer. You can add printers, speakers etc. Printers are the most popular output device. The quality of a printer is usually measured in **dpi** (dots per inch). The more dots per inch a printer can output, the sharper the image will be.

Monitor

A monitor (or video display unit) displays a temporary output. Temporary output is especially useful to display information that changes rapidly. The points of light (on your screen) are called picture elements, or **pixels** for short

2 types of screens:

CRT Monitor: is very much like an ordinary television screen, but instead of a television picture tube, it uses a cathode ray tube (CRT). Images are created on a CRT by an electron beam that scans across a phosphor-coated surface, leaving points of light. (Think fat computer screens)

LCD Monitor: Flat screens are more compact and now come with all new computers. Flat screens employ a liquid crystal display (LCD) in which fluorescent light is used to light up liquid crystals and align them in a predetermined configuration, creating output characters.

Blu-ray (BD-ROM, BD-Writer) is the next generation in data drives. It is a high-density optical disk which can store up to 50 Gigabytes of data (about 10 times more than a DVD). They are often used for high-definition video. Flash memory card is a form of portable storage. This removable memory card is often used in digital cameras, MP3 players, and personal digital assistants (PDAs).

Antivirus software: Software that identifies and isolates (or deletes) computer viruses.

Antispyware software: Software that removes spyware from a computer

Firewall: Software that acts as a barrier between your computer and the Internet, prohibiting unauthorized Internet travel to or from the computer.

Spyware: is software that has been downloaded and installed onto your computer to gather personal information, hijack your home page, or display unwanted advertising

Cookies are text files providing information identifying you as a return visitor to a Web site.

Phishing is an attempt by another person to acquire your personal information (and identity) through an e-mail scam.

Broadband communication is a high-speed Internet connection. Options include DSL, cable, and satellite.

Cable is a broadband Internet connection option that uses television cable to provide Internet access.

DSL (digital subscriber line) is high-speed Internet access provided through existing telephone

Lines.

A **USB port** is a connection on a computer that enables peripheral devices, such as printers, network adapters, scanners, and digital cameras, to connect.

A **network interface card (NIC)** is a component that is built into or connected to a computer, enabling the computer to communicate with a network.

A **hub** is a device that rebroadcasts communication to all equipment on a network.

An **Ethernet** network uses Ethernet protocol and wiring to connect computers.

The **802.11 standard** is a method of communication used on wireless networks.

Bluetooth is a technology that facilitates low-bandwidth wireless communication over short distances.

ASCII (American Standard Code for Information Interchange) is a code for representing keyboard characters as numbers.

Unicode is a character-coding format that represents global characters from all languages.

Hard copy is printed output.

Soft copy is output displayed on a computer monitor.

The **refresh rate** is the number of times per second a monitor redraws screen contents.

A **CD drive** reads from and writes to CDs (unless it is a CD-ROM disc, in which case it cannot be written to, only read from).

A**DVD drive** reads from and writes to DVDs (unless it is a DVD-ROM disc, in which case it cannot be written to, only read from).

A **USB drive** is a form of flash storage that can be carried with you. Simply plug the USB drive into any USB port to retrieve its contents. When you connect a USB drive to your computer, the operating system identifies the USB drive with a drive letter. If your hard drive is labeled C: and your CD drive is labeled D: your USB drive will be labeled Removable Disk (E :) (As long as no other hardware device is using Drive E).

A **port** is a physical interface through which external devices, such as printers and digital cameras, can be connected to a computer.

Plug and Play is a Windows feature that facilitates the installation of new hardware so that you simply plug it in and begin to use it. It is what makes it possible for you to purchase a new mouse, plug it into the computer’s port, and immediately begin to use the mouse. The same holds true for a new keyboard or other peripheral.

When you plug in the device, Windows works to resolve any system conflicts and sets the device to work with existing hardware.

Productivity software includes programs that address general tasks, such as word processing, spreadsheet preparation, the creation of presentations, and database management. (Like Microsoft Office, Excel etc.)

An **office suite** is a collection of productivity software.

Shareware is software that is developed and distributed to online consumers for a limited time, usually as a trial version.

Freeware is copyrighted software that you can use as you like.