

Earlier Days –

Home Computer Users - PC's - You could type papers - there were no modems, therefore, no internet- no networks - but they gave us ability to share minimally, not the way we share information today.

<http://oldcomputers.net/kayproii.html> - similar to the early Compaq personal portable computers.

Modems are needed for networking

Hardware - physical part you can see
 Anything you can pick up

A few:

Desktop console (towers)	CPU, i.e., chip Intel R Core TM
Keyboard	RAM- 4GB - 8GB - 1TB
Modem - older versions	Motherboard
Mouse	Circuitry
Speakers (usually built in)	Hard Drive
Monitor	Printer
Scanner	

Software- tells hardware what to do

Example of Software - Word, Excel, Power Point, Photoshop

Virus that attacks computer

Turn on PC and what happens??????????

SEE the Number One software - the Operating System -

What is the operating system?

#1 software comes before any task - it needs to interface with you, and the hardware and software. It tells the hard and software what to do. It is like the steering wheel in your car.

Our Steering Wheel - Windows 10

Needs to be up and running before you can go to WORD or Google, etc.
Again, it interfaces between you and your Hardware and Software

Which is more important hardware or software?
Like asking which is more important in Reece's
Peanut Buttered Cups? Chocolate or Peanut Butter?

Microsoft Windows - Until recently - 75% of the people used it - judging from the information of the *Pirates...* Movie there was a reason for this.

Why do you believe in the beginning MAC did not do as well as the other personal computers? Schools? Operating System?

How many of you use a MAC computer?

Operating Systems:

DOS - we saw in the movie - Bill Gates just came up with the name at the meeting he had with IBM - it was the original operating system that Bill Gates used before Windows.

Who do you think was the originator of Windows?
Bill Gates and Steve Jobs?

Linux - UNIX -almost never crashes - doing more marketing

Was Gaining ground - was included in IBM computers

Sometimes in the newer version of the Apple computer

Apple: MAC

How many of you use MAC?????????

As seen in the movie, it seemed MAC had "Windows" first and they started a court battles with Bill Gates (Microsoft)

Apple Computer Inc. v. Microsoft Corporation, 35 F.3d 1435 ([9th Cir. 1994](#))

COMPUTERS ARE ALL ABOUT INPUT/OUTPUT (I/O)

Basic Input/Output System (BIOS)

Accepts and returns processed data to user of monitors - touch actions -

networks - DSL's - cable

Again, turn on the computer and the first thing we see is our Operating System:
i.e., Mouse clicks Word (Input) - Operating System says "no problem" and Word
appears on the screen (Output)

I/O - Input/Output

<u>Input</u>	<u>Output</u>
Keyboard	Printer
Mouse	Monitor
Scanner	Burn CD
Digital camera	Speakers
Program software	
Voice recognition	

Touch Pad both I/O

Parts of the computer and their functions:

<https://www.youtube.com/watch?v=yRmPTbGBqVI&list=RD-HCJDWfCI-M&index=2>

Computer HARDWARE

RAM and Storage

Brain - Memory (RAM) - AS SOON AS YOU SHUT IT OFF - NO
MORE MEMORY = Shut off computer - RAM goes away

It is like our Short-Term Memory - example - waitresses and
waiters

**But when we are retrieving programs, playing games, surfing the
internet, etc. that's RAM**

How much RAM do you need? More programs you have the more

memory you need

Less memory - slower you go

Older computers were slow, too little RAM - stalled out a lot

More complex the software, the more RAM you need and use-
Photoshop - video games, etc.

RAM remembers what you are doing at the present time

MONITOR - monitored by RAM

Bring up the program - need RAM

Goes back to the hard drive

Storage - Long term Memory - Hard Disk Drive (HDD)

USB = CD = external hard drive

Hard Drive - storage - more you do, more memory you take - doesn't matter how much memory you have on your computer. The hard disk drive is for storage.

How does it remember what you did before?

Save it: Hard Drive - Long term memory - It is called the C:
drive

It is like our long-term memory

Things you don't forget- day of mom's birthday, Christmas, 9/11 -

Storage on a USB, floppy disk (old days), CD or hard drive (C:)

Network saves your email

CPU - Processor -Central Processing Unit - works in conjunction with the binary system (0's and 1's - see below) it pumps the -0's and 1's -

games use trillions of them per second - it's the **Control Center**

CPU - chip - semiconductor - larger number of gigs that's how fast it's able to

pump and the more it can process information - CPU called the processor -
 Converts raw data (input) into readable information (output)
 Clock speed is one of the determinates of how fast information pops up on your computer screen

Binary System - 0's and 1's Steve Jobs in the movie wanted to be 0 and wanted Wozniack

Save a paper under the hard drive this is where it goes

Reads the codes 0's and 1's - Binary #'s

Word 100111100001001 + 4 billion

Excel 011011001111001 + 4 billion

Binary System Spreadsheet

Bytes Approximate		Actual Value		Abbrev
Byte	1	One	8	
Kilobyte	1,000	Thousand	1,024	KB
Megabyte	1,000,000	Million	1,048,576	MG
Gigabyte	1,000,000,000	Billion	1,073,741,824	GB
Terabyte	1,000,000,000,000	Trillion	1,099,511,627,776	TB

(CPU) Microprocessor sits on the MOTHERBOARD

Software -

Faster the processor pumps the 0's and 1's the faster it can pop up on the screen
 It pumps different combinations of 0's and 1's.

Computer connections: Lesson 3 – Bits & Bytes

Did you know that all of the information that travels through your computer is based on two commands? It's true. The only data that a computer can understand is **on** and **off**. But, the millions of combinations of those two commands given in series are what

make a computer work.

Binary Code

Remember the power supply that is inside your computer and how it sends electricity to all of the components? That electricity is what creates an *on* signal. The memory chips inside your computer are divided into thousands of tiny compartments called **bits**. Each bit has an electronic switch or **gate**. *On* means the gate is open and letting electricity go through. The computer reads *on* or *open* switches as a number *1*. Closed gates are *off* because the electricity is blocked and cannot get through. The computer reads *off* bits as *0*. It is by grouping these bits together to form a series of *1/0* commands, that data is formed. Eight bits are grouped together to form a **byte**. In this group of eight, there are 256 possible combinations of *1/0*. The grouping of *1/0* within a byte is called **Binary Code**.

Here's an example of the Binary Code in action: When you type the letter *A* on your keyboard, electrical signals are sent from the keyboard to the CPU. The CPU turns the signals into binary code. Then, the computer reads the code and sends it on to the monitor to display the letter *A*.

KB, MB & GB

You may have seen these abbreviations many times before. Do you know what they mean?

- KB = kilobyte = about 1,000 (one thousand) bytes, (1024 or 2^{10})
- MB = megabyte = about 1,000,000 (one million) bytes, (1,048,576 or 2^{20})
- GB = gigabyte = about 1,000,000,000 (one billion) bytes (1,073,741,824 or 2^{30})

As you can see, these abbreviations stand for a specific number of bytes. And each byte holds 8 bits capable of forming 256 combinations of 1/0. Wow!

The number that comes before one of these abbreviations represents the computer's **memory** capacity. For example, if a computer has 64MB of RAM that means that the computer can handle 64,000,000 (64 million) bytes of random access memory (that's 64,000,000 microscopic 8-bit panels). Hard disk space is also measured in bytes. So, a 15GB hard drive has 15,000,000,000 (15 billion) bytes for storing memory.

Look at your keyboard. Each character key is represented by a number that is held in a single byte. Remember how the letter *A* is sent to the CPU to be translated into binary code? The numerical value of the uppercase letter *A* is 65. That number 65 is represented in one byte - a combination of 1 and 0 or *on* and *off* switches. The computer cannot understand letters, so it translates them into numbers that are represented by patterns of *on* and *off*. To get an idea of how much on/off data a computer can store, just imagine pressing one key one billion times! How long would it take? If you pressed the key 5 times per second, it would take you over 6 years of continuously typing to reach 1 billion keystrokes equal to 1GB of memory! And many computers today can store over 20GB of memory on their hard disks! Incredible! So, the next time your computer is taking a long time to load a web page, think of how fast it really is going!

Walch, C. (n.d.). Computer connections: Lesson 3 – bits & bytes.

Kaboose. Retrieved September 12, 2009, from http://www.kaboose.com/brain/comp_les3.html.

Some notes:

Information technology systems = 0's and 1's - Binary System is how it is structured.

Metro card - software - reads the 0's and 1's from the magnetic strip - Magnetized film

ATM cards connected to the network

CD ROM - read optically through lasers

PCs have a start-up screen

We hit start and then Programs we get a big list

Start button - departs and returns

Taskbar sits on the desktop

Setting - Control Panels

Search - files and folder

Microsoft Windows - Allows you to multitask - you can write a paper - create spread sheets and surf the net all at once (same time)

Mother Board

Everything sits on the motherboard except hard drive

Hard Drive equivalent up to 1 TB

CPU -processes 0's and 1's - also called the microprocessor - measured in megahertz (MHz) or gigahertz (GHz)

RAM - memory - take out or expands

Black fan - cools the CPU - that is why the fan is attached

Mother Board - CPU sits on the board -

HARD DISK - gets hardware and stores software

DISK - 0's and 1's or hard disk (C:) processed through the CPU

Review

Computer System

1. Hardware - device - anything you can throw out the window
2. Processor - single chip or set of chips on a circuit board
3. Memory - Random Access Memory (RAM) - written to and read - needs power
4. RAM disappears when you turn off your computer
5. Software - makes computer perform tasks - tells computer what to do
Programs - computer - perform/manage its own resources
Example: Users - perform tasks = creating a document
6. Users - people - computer operators - computers ARE NOT autonomous
7. Data - facts and bits of information - words, nos., images, sounds = is the number of 0's and 1's combinations - data is digital because it is reduced to digits - it manipulates - compares or arranges so it makes sense to the user.
Data is organized into files - if you open a document - it could be text, numbers, video, images and sounds.
8. Program - files - instructions and data need to run and perform tasks