**Level 1: PC Tower Case**

**Outline**

Learn about the internals of a standard PC case by examining physical samples and selecting and labeling images found on-line. Gain deeper knowledge by researching and reporting on specific components.

**Questions**

1. Find one (or more) images that clearly show the internals of a PC Tower Case.   
   (i.e. Google images using keywords “PC Case Internals”)
2. Clearly label the following components (using arrows) on your image of the PC case internals:
   1. Motherboard
   2. Power Supply
   3. Hard Disk Drive
   4. Optical Disk Drive (e.g.DVD)
   5. USB Expansion Ports
   6. Monitor Port
   7. Audio Ports
   8. Ethernet Port
   9. Cooling Fan
3. Research more in-depth about “Motherboards”. Make notes on the following:
   1. What different versions are currently available (speed and capacity)

Different versions that are currently available are 3200MHz of speed and 32 GB of space.

* 1. How the component has changed since the 1980’s

The component has changed since the 1980’s because the speed used to be 4.77 MHz and the capacity used to be 256 kB.

1. Research more in-depth about “Hard Disk Drives”. Make notes on the following:
   1. What different versions are currently available (speed and capacity)

Different versions that are currently available are 3 TB of space and 7,200 RPM of speed.

* 1. How the component has changed since the 1980’s  
     The component has changed since the 1980’s in terms of speed and because the capacity used to be 10 MB.

**Level 2: PC Motherboard**

**Outline**

Learn about the structure of a standard PC motherboard by examining physical samples and selecting and labeling images found on-line. Gain deeper knowledge by researching and reporting on specific components.

**Questions**

1. Find one (or more) images that clearly show the layout of a PC Motherboard.   
   (i.e. Google images using keywords “PC Motherboard”)
2. Clearly label the following components (using arrows) on your image of the PC motherboard:
   1. CPU (and fan)
   2. RAM Memory
   3. Disk Drive Interface (IDE or SATA)
   4. GPU Graphics Processor (either on-board or Graphics Card)
   5. Sound Processor (either on-board or Sound Card)
   6. Wi-Fi / Ethernet Network Interface (either on-board or Graphics Card)

1. Research more in-depth about “CPU Processor Chip”. Make notes on the following:
   1. What different versions are currently available (speed and capacity)

Different versions that are currently available are 3.60 GHz of speed and 64 GB of memory.

* 1. How the component has changed since the 1980’s  
     The component has changed since the 1980’s because the speed used to be 12MHz and the memory used to be 128 kB.

1. Research more in-depth about “RAM Memory”. Make notes on the following:
   1. What different versions are currently available (speed and capacity)

Different versions that are currently available are 3466 MHz of speed and 64 GB of capacity.

* 1. How the component has changed since the 1980’s  
     The component has changed since the 1980’s because the speed was 2.6 MHz and the capacity was 16 kB.

**Level 3: Peripheral Devices**

**Outline**

Learn about how peripheral devices are connected to the back side of a typical PC tower case. Examine physical samples, select and labeling images found on-line and gain deeper knowledge by researching and reporting on specific components.

**Questions**

1. Find one (or more) images that clearly show the layout of the back of a typical PC tower case.   
   (i.e. Google images using keywords “Back Of PC Tower”)
2. Clearly label the following components (using arrows) on your image of the back of a typical PC tower case:
   1. Power cord and power switch
   2. Monitor Interface (VGA or DVI or HDMI)
   3. Mouse Interface (USB or PS/2)
   4. Keyboard Interface (USB or PS/2)
   5. USB Ports
   6. Audio Inputs / Outputs
   7. Ethernet Interface

1. Research more in-depth about “Monitor Technology”. Make notes on the following:
   1. What different versions are currently available (e.g. VGA / DVI, Flat Panel Technology))

Different versions that are currently available are HDMI connection, flat panel technology, and 3840x2160 pixel resolution.

* 1. How the component has changed since the 1980’s (e.g. Display Resolution, Technology)  
     The component has changed since the 1980’s because the resolution used to be 640x200 and it had Cathode Ray Tube (CRT) technology.

1. Research more in-depth about “External Portable Storage”. Make notes on the following:
   1. Floppy Disks

* Floppy disks are magnetic storage disks inside computers
* It is a square plastic carrier that contains a thin magnetic disk
* A floppy disk drive (FDD) is required in a computer to use a floppy disk.
* The floppy disk has been replaced by other components such as hard disk drives, ZIP drives, optical drives, and USB flash drives since the 1990’s
  1. CD-ROM / DVD / Recordable CD/DVD
* CD-ROM is a compact disk that can only be read on a computer and nothing can be added to it and it can not be erased
* A DVD is a compact disc and it is able to store a large amount of information and data onto it
* A recordable CD/DVD can be used to store information and data only once after it has been burnt
* CD ROMs have changed since the 1990’s in terms of increased capacity of storage and they can be read by computers quicker
  1. USB Memory Drives
* USB Memory Drives are rewritable as well as removable
* The USBs that contain a larger amount of space work faster than the ones that contain a small amount of space
* There are no parts inside of a USB that move while operating
* The highest capacity of a USB Memory Drive today is 2TB
* The USB Memory Drives have changed since the 1990’s in terms of higher storage capacity and more speed
  1. Compact Flash Memory
* Compact Flash Memory is a small card and it uses flash memory to store information and data onto it
* No parts inside of it move while in operation
* They are currently mainly used for advanced cameras
* The compact flash memory has changed since the 1990’s in terms of having a higher capacity of storage and being compatible on newer camera models
  1. Cloud Based Storage
* Cloud based storage is stored on servers that are connected to the internet
* It is controlled by service providers
* An API is a web base that is required to operate Cloud Based Storage
* Cloud based storage has changed since the 1990’s in terms of being more secure, having a higher capacity of storage, and being accessible on many more electronic devices

**Level 4: PC Component Presentation**

**Outline**

Explore the development and features of a specific PC hardware component through deeper research and investigation. Work in partners to create a short presentation. Deliver the presentation to the class.

Each group will research a unique PC hardware component . Your specific topic will be assigned from the list provided below.

**Presentation Structure**

1. Explain what the PC component does and how it fits together with other components to make up a fully functioning PC.
2. Explain how the PC component works. Provide a diagram (image) showing the main parts of the component.
3. Research the current state of the art of the component in terms speed, capacity (size), and other related factors.
4. Research on-line suppliers that sell the PC Component. List the specifications for the available products and the cost (price).
5. Research how the PC component has changed and evolved since the early days of PCs in the 1980’s. Cover each of the following topics separately:
   1. Component Speed
   2. Component Size / Capacity
   3. Two other specifications specific to the PC component (ask Mr. Nestor)

**PC Component Topics**

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| --- | --- | --- |
| **Topic** | **Partner 1** | **Partner 2** |
| CPU Microprocessor Chip |  |  |
| Motherboard Layout |  |  |
| Computer Graphics |  |  |
| Sound & Audio |  |  |
| Hard Disk Drives |  |  |
| Removable Disk Storage |  |  |
| Network / Internet Connectivity |  |  |
| Mouse / Pointing Devices |  |  |
| Monitor & Display Technology |  |  |
| Printers & Output Technology |  |  |