**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)
   2. How the component has changed since the 1980’s

There are many types of motherboards, some different types of motherboards are the AT Motherboard which are from the 80’s, the AT motherboards at this time were considered to be fast, measuring at megahertz speed which at that time was considered to be fast, usually 60MHz. The capacity of these motherboards were usually from 4 to 16 GB of RAM. Some other motherboards are the ATX and LPX motherboards that were active during the early to mid 1990’s. The speed of these motherboards were around the same speed as the motherboards in the 80’s, however, a bit faster than the previous decade, thee motherboards had speeds at around 120MHz. The component has changed since the 1980’s exponentially, it has changed by how the improving technology that is available and the resources that are also available for use.

1. Research more in-depth about “Hard Disk Drives”. Make notes on the following:
   1. What different versions are currently available (speed and capacity)
   2. How the component has changed since the 1980’s

Different versions of hard disk drives are the IBM 350 RAMAC, its capacity is 5MB which is alright for a hard disk drive, the speed of this HDD is around 3400 RPM since they are meant to contain lots and lots of information that the user decides to input. Another version of a hard disk drive are the Serial SATA Storage Drives that have 1GB of RAM which is even better since that is a lot of storage. The speed of this HDD is around 5400 RPM (Revolutions per Minute) which is the more modern speed for hard disk drives. This component has changed since the 1980’s drastically as just like for the motherboards, most of the evolution came from the improvement of technology which can help with creating the most up to date software and hardware for computers nowadays.

**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)
   2. How the component has changed since the 1980’s

* Some different versions of the CPU Microprocessor Chip are the AC80566UE025DW Microprocessor Atom 64 bit, 1.6GHz, MPU R6500 CISC 8-Bit, 1MHz, and the Intel Xeon E3-1220 v6 Microprocessors BX80677E31220V6 64 bit, 3GHz + a turbo boost of 3.5GHz. These microprocessor chips have more modern specs since most microprocessor chips are measured in GHz and have double digit bit sizes. This component has changed since the 1980’s immensely, echnology has advanced immensely especially microprocessor chips which are considered to be the “brain” or “heart” of a computer’s internal system. Microprocessors in the 1980’s have changed drastically in terms of performance factors, nowadays, microprocessors would blow the ones from the 80’s like nothing, technology has enhanced over the last few decades which only improved the performance of this computer component.

1. Research more in-depth about “RAM Memory”. Make notes on the following:
   1. What different versions are currently available (speed and capacity)
   2. How the component has changed since the 1980’s  
        
      Different types of RAM Memory are DDR (Double Data Rate) RAM which has speed operating at 333MHz has a 4GB capacity. Another type of RAM Memory is the SDRAM (Synchromous DRAM), it operates at 66MHz which is relatively slow compared to modern RAM nowadays, and it’s capacity is around 4GB as well. The RAM component has changed drastically since the 1980’s. The RAM has evolved into a super part for the modern day PC. In terms of speed, RAM are performing at GHz speed and are able to hold double digit GB amounts of storage to even triple amounts to even terabytes of storage for RAM memory. The RAM has changed in all aspects, the enhancement of technology plays a big part in the evolution of vital computer hardware.

**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))
   2. How the component has changed since the 1980’s (e.g. Display Resolution, Technology)
2. Research more in-depth about “External Portable Storage”. Make notes on the following:
   1. Floppy Disks
   2. CD-ROM / DVD / Recordable CD/DVD
   3. USB Memory Drives
   4. Compact Flash Memory
   5. Cloud Based Storage

A floppy disk is a type of disk storage composed of a disk of thin and flexible magnetic storage medium, sealed in a rectangular plastic enclosure lined with fabric that removes dust particles. Floppy disks are read and written by a floppy disk drive (FDD). Floppy disks were developed in the late 1960’s, they were originally 8 inches in diameter and they became commercially available in 1971 as a component of IBM products and improved upon by IBM.

A CD-ROM is a pre-pressed optical compact disc which contains data. The name is an acronym which is short for “Compact Disc Read-Only Memory”. Computers can read CD-ROMs but can’t write to them. During the 90’s, CD-ROMs were popularly used to distribute software and data for computers and video game consoles. Some CDs, called enhanced CDs, can hold both computer data and audio with the latter capable of being a played on a CD player. The CD-ROM format was developed by a Japanese company named Denon in 1982. It was an extension of Compact Disc Digital Audio and adapted the format to hold any form of digital data.

A USB Flash/Memory Drive is a data storage device that includes flash memory with an integrated USB interface. It is typically removable, rewritable, and much smaller than an optical disc. It started to appear in the markets in late 2000. USB flash drives are often used for storage, data back-up and transfer of computer files. Compared with floppy disks, USBs are smaller, faster, have significantly more capacity and are more durable due to a lack of moving parts. Also, USBs are immune to electromagnetic interference unlike floppy disks, and they are unharmed by surface scratches unlike CDs. Until about 2005, most desktop and laptop computers were supplied with floppy disk drives in addition to USB ports.

Compact Flash Memory is a flash memory mass storage device used mainly in portable electronic devices. The format was specified and the devices were first manufactured by SanDisk in 1994. Compact Flash become the most successful of the early memory card formats, surpassing Miniature Card and SmartMedia. CompactFlash remains popular and is supported by many professional devices and high-end consumer devices.

Cloud storage is a model of computer data storage in which the digital data is stored in logical pools. The physical storage spans multiple servers and the physical environment is typically owned and managed by a hosting company. These cloud storage providers are responsible for keeping the data available and accessible and the physical environment protected and running. Cloud storage services may be accessed through a collocated cloud computing service, which is a web service application programming interface (API) or by applications that utilize the API such as cloud desktop storage, a cloud storage gateway.