**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):**

-Currently, most computers have an ATX type, which is the layout and the size of the motherboard itself. Motherboards do not have any specific speed; their speed is dependent on how fast the CPU and the RAM are.

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

**-**In 1981, the first ever motherboard was introduced into the world by IBM. It was called Planar. It only contained slots to connect the CPU and the RAM. It was also knows as the ‘IBM compatible’ standard. Most motherboards today are all ‘IBM compatible’ standard. The modern motherboard is different from the one in 1981 in several ways. In the 1990’s the Motherboards started to include Integrated circuits to add peripherals such as a mouse and a keyboard at very low power consumption. Motherboards today come in different sizes and have multiple expansion slots. These expansion slots can be used to add more components, specifically designed for higher quality/performance of the computer.

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

Most hard disks today have a speed of either 5400rpm or 7200rpm.

They usually range between 512GB to 4TB in storage.

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

From the 1980’s, the speed and the capacity of this component has changed. In the 1980’s, hard disks only used to be about 10MB and have very slow speeds. By the 1990’s the size of the hard disks increased from 2.5 in to 3.5 in. The speed and the capacity have kept progressively increasing from the 1980’s.

**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”)

1. 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)

Currently there are several different types of CPUs with varying speed and core count. Most processors today have 4 processing cores and a speed around 3.4 Ghz. There are also other processors that come in different speed and core count for a change in price. 6 core CPUs are another popular CPU type and there are also other ones that either have 8, 10, 16, 18 or 32 cores. The CPU speed is a number that varies in each CPU, usually ranging between 2.9 Ghz to 4.8 Ghz.

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

CPUs have gone many changes since 1980s. In the 1980s, CPU had only one core and ran at about 6 Mhz. After 4 years, the CPU speed increased by 2 MHz but soon after in 1990, the speed was up to 20Mhz. In 1995, the first multiple core CPU was released. CPUs have ever since been increasing in speed and core count.

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

There are many generation on RAM Memory available. The current generation is DDR4 memory. Most computers today have about 8 GB of RAM but computers can contain up to 128 GB of RAM. RAM amounts have been increasing over the years. The current standard RAM speed is about 2000 Mhz. There are other companies that manufacture RAM with speed up to 3200 Mhz.

* 1. How the component has changed since the 1980’s  
       
     Computer memory has majorly changed since the 1980s. In the 1980, computers had about 4 KB of RAM. By 1985, computers started to get up to 512 KB RAM. The speed was still about 20 Mhz. By 1990, the speed was upto 25 Mhz. The many years after, the speed has been increasing and now it is upto millions of KB.

**Level 3: Peripheral Devicesss**

**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))

There are many different types of monitor technology. The current most popular connectors for monitors are HDMI and Display Port. Most monitors today have at least a resolution of 1920x1080. Monitors also come in different panel types such as curved and flat. Monitors can also be classified as either LCD or LED.

* 1. How the component has changed since the 1980’s (e.g. Display Resolution, Technology)

The monitors in the 1980 were very low resolution and were only able to display either black and white or black and green colors. Monitors then were CRT type. In 2003, a new revolution came with LED monitors that could display bright colors with being an enormous size. Ever since that monitors have been getting higher and higher resolution and refresh rates.

1. Research more in-depth about “External Portable Storage”. Make notes on the following:
   1. Floppy Disks – Magnetic Disks used to hold storage. Not very high capacity.
   2. CD-ROM / DVD / Recordable CD/DVD – A compact disk, usually written on by laser, used as storage. Most CDs and DVD hold about 4 GB of data.
   3. USB Memory Drives- USB stand for Universal Serial Bus. It is a small device that can hold large amounts of Data.
   4. Compact Flash Memory – Flash memory is most commonly used in cameras to store the images taken. They can range from 1 GB to 128 GB.
   5. Cloud Based Storage – Companies like Google, Apple and Amazon provide cloud storage. Many companies use this to store their data. It is a paid service that offers users to store massive amounts of data on the cloud, which can also be accessed everywhere.