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Modern Day Magic: Computers

The computer industry is a new and booming field of work and is one of the fastest growing technological fields to have come about in the last century. Computers are becoming more and more common place in life and business as the years go by. As the industry grows, the need for computer colloquial is becoming almost a requirement for most occupations. Knowing how a desktop is assembled and how it works is an invaluable tool for almost all occupations. In the following paper computers will be explained and simplified.

First, it is amazing how as a culture today we take the technology given for granted. To make something we think simple, like an iPod, do what it does, take months and even years of work to design and build them. It is insane the amount of advancement that technology has gone through in the last 30 years. We have come from computers being the size of a large hall to being able to fit in a pocket. And all of this advancement in only 50 years is truly quite astonishing.

It is easier to explain the large amount of growth when talking about data. Data can be defined as a segment of information. The smallest form of data is known as a bit. A byte is a group of 8 bits. A byte is an insanely small piece of data. It is so small that there are conversions to larger units so as not to be confusing. The byte follows the metric system. It will go kilobyte, megabyte, gigabyte, terabyte, and then petabyte. This is why hardware that comes out a year before the new model is obsolete. It was well practiced to carry around a 500 megabyte floppy disk in the 90s (Megabytes, What are they?). In the new generation we are able to walk around with 1000 gigabytes (1 Terabyte) of data. This is something that was once thought impossible.

A computer may look like the most complicated amazing thing ever created, but in reality most of them are actually very basic and have some basic functions. The thing that makes them difficult to work with is that there a lot of parts that all have importance in the larger machine. If one of said parts is not operational then the entire system is compromised. Some of the most important parts would be the Central Processing Unit (CPU), the motherboard, the power supply unit, the Random Access Memory (RAM), hard drive, and Peripheral Component Interconnect (PCI) Cards. So as to help illustrate a better understanding of the inner workings of a desktop, this is a description of what each parts does in the system.

The Central Processing Unit is located inside the computer case on the motherboard. It acts like a brain of the computer, and its job is to carry out commands. Whenever a key is pressed, the mouse is clicked, or starts an application; it sends instructions to the CPU. The CPU is generally a 2-inch square with a chip located inside (Miller). The chip is usually about the size of a thumbnail. A CPU's speed is measured in megahertz (MHz), or millions of instructions per second, and gigahertz (GHz), or billions of instructions per second. A faster processor can execute instructions more quickly. However, the actual speed of the computer depends on the speed of many different components.

The next part would be the mother board. The motherboard is the computer's main circuit board. In many cases the motherboard is the heart of the computer. The motherboard holds the CPU, memory, connectors for the hard drive and optical drives, PCI cards to control the video and audio, along with connections to the computer's ports (such as the a disk drive). The motherboard connects directly or indirectly to every part of the computer.

The power supply converts the 120 watt AC current from the wall outlet to DC power that the computer can then use. It acts like the blood and veins of the computer supplying power to the computer as a whole (Heddings). Random Access Memory (RAM) is like a computer’s short-term memory. Whenever the computer performs any type of action, it temporarily stores the data in the RAM just like the brain does with things learned throughout the day. This short-term memory disappears when the computer is turned off so any open documents, spreadsheets, or other type of file that have not been saved to the hard drive will be lost. When a file is saved the data it is written to the hard drive, which is like long term memory. It is measured in the same fashion as data using megabytes (MB), gigabytes (GB), and sometimes terabytes (TB). RAM is what allows for the computer to have multiple programs. Simply put, the more RAM the computer has the more the computer can do all at once. If the system doesn't have enough RAM for all of the processes, then the computer is going to become sluggish and because of this, people will add RAM to improve the processing power of the computer. (Parts of a Computer)

The hard drive is the data center of the computer. It is where the operating system is installed and all the files are saved. The hard drive is what allows for long term storage which means that even if the system is turned off or unplug the computer the hard drive will hold the data. When a file is saved the data is copied to the hard drive from the RAM. A hard drive works by storing data on a magnetic platter. Some computers now use solid-state drives (also called flash hard drives). These are faster and more durable than hard disk drives, but they are also more expensive.

After all of that there are the finishing touches of the expansion cards. These cards allow the computer to process and use many different types of programs. Some of the most important cards would be the video, sound, network, and Bluetooth cards. These cards allow for better performance and better effects for the computer. The video card will allow the computer to process graphics intensive games easier, while the sound card would increase quality of what comes out of the speakers. A very easy and quick way to speed up an old computer or upgrade a computer without doing a system overhaul is to install extra video and sound cards. The network card is very important because it allows the system access to the World Wide Web. When building a computer, these cards are normally built into the motherboard already.

After being able to understand the hardware aspect of a computer, there is then the software aspect. Software is basically the content and programs on a computer. Software includes a music file to the whole operating system. The operating system is arguably the most important piece of software on the entire computer. The operating system is what allows the human to communicate with the computer. It acts like a translator by taking actions and communicating it through the computer. One of the steps in building a computer is picking the operating system along with other key pieces of software. Some of the basic choices of operating systems are Windows, Macintosh, and Linux. Linux is easily the hardest to understand and use out of all of the operating systems. Linux works by making so that more direct computer code is used to communicate with the computer. The most common language that is most commonly used with Linux would be C++ or Java script. The advantage to using Linux is like talking directly to the computer which allows the ability to grasp what is going on better with the PC. It is the hardest of all of the operating systems to learn compared to other operating systems. (Hormby)

Where as in Windows, is as it sounds, is a program that displays information in windows. It allows for fast and easy comprehension of whatever is going on with the computer where some other programs would be more confusing (Miller). It has built in software with it including Microsoft Office and other basic programs. Windows is very easy for most people to understand because of the bright colorful buttons to help better communicate with the computer. Macintosh in many ways is very similar to windows beside some minor differences like Windows being designed for business and Mac for multimedia and other more creative actives.

The magic of computers is a very confusing one but quite rewarding. After much research the complexity of computers clears up leaving only the truth of understanding. Computers are a modern marvel that will follow the human race as we develop more and more amazing technology.

## Works Cited

Miller, Donald. "How Does a Desktop Computer Work?" EHow. Demand Media, 15 Apr. 2009. Web. 15 Mar. 2013.

Heddings, Lowell. "How To Geek." How-to Geek RSS. N.p., n.d. Web. 13 May 2013.

"Parts of the Computer." EHow. Demand Media, 26 Aug. 2009. Web. 13 May 2013.

"Megabytes, What Are They?" Megabytes, Gigabytes, Terabytes. N.p., n.d. Web. 13 May 2013.

Hormby, Tom. "The Apple vs. Microsoft GUI Lawsuit." Low End Macs RSS. N.p., 25 Aug. 2006. Web. 13 May 2013.