Bus

While the wheels on the bus may go "round and round," data on a computer's bus goes up and down. Each bus inside a computer consists of set of wires that allow data to be passed back and forth. Most computers have several buses that transmit data to different parts of the machine. Each bus has a certain size, measured I n bits (such as 32-bit or 64-bit), that determines how much data can travel across the bus at one time. Buses also have a certain speed, measured in megahertz, which determines how fast the data can travel. The computer's primary bus is called the frontside bus and connects the CPU to the rest of the components on the motherboard. Expansion buses, such as PCI and AGP, allow data to move to and from expansion cards, including video cards and other I/O devices. While there are several buses inside a computer, the speed of the frontside bus is the most important, as it determines how fast data can move in and out of the processor.

CD-ROM (Compact Disc Read-Only Memory)

Stands for "Compact Disc Read-Only Memory." A CD-ROM is a CD that can be read by a computer with an optical drive. The "ROM" part of the term means the data on the disc is "read-only," or cannot altered or erased. Because of this feature and their large capacity, CD-ROMs are a great media format for retail software. The first CD-ROMs could hold about 600 MB of data, but now they can hold up to 700 MB. CD-ROMs share the same technology as audio CDs, but they are formatted differently, allowing them to store many types of data.

Hard Drive

The hard drive is what stores all your data. It houses the hard disk, where all your files and folders are physically located. A typical hard drive is only slightly larger than your hand, yet can hold over 100 GB of data. The data is stored on a stack of disks that are mounted inside a solid encasement. These disks spin extremely fast (typically at either 5400 or 7200 RPM) so that data can be accessed immediately from anywhere on the drive. The data is stored on the hard drive magnetically, so it stays on the drive even after the power supply is turned off.

Firewire

This high-speed interface has become a hot new standard for connecting peripherals (no pun intended). Created by Apple Computer in the mid-1990's, Firewire can be used to connect devices such as digital video cameras, hard drives, audio interfaces, and MP3 players, such as the Apple iPod, to your computer. A standard Firewire connection can transfer data at 400 Mbps, which is roughly 30 times faster than USB 1.1. This blazing speed allows for quick transfers of large video files, which is great for video-editing professionals. If 400 Mbps is still not fast enough, Apple Computer released new PowerMacs with Firewire 800 ports in early 2003. These ports support data transfer rates of 800 Mbps -- twice the speed of the original Firewire standard.

Modem

The word modem is actually short for Modulator/Demodulator. (There's something you can really impress your friends with). A modem is a communications device that can be either internal or external to your computer. It allows one computer to connect another computer and transfer data over telephone lines. The original dial-up modems are

becoming obsolete because of their slow speeds and are being replaced by the much faster cable and DSL modems.

RAM (Random Access Memory)

Stands for "Random Access Memory," and is pronounced like the male sheep. RAM is made up of small memory chips that form a memory module. These modules are installed in the RAM slots on the motherboard of your computer.

Every time you open a program, it gets loaded from the hard drive into the RAM. This is because reading data from the RAM is much faster than reading data from the hard drive. Running programs from the RAM of the computer allows them to function without any lag time. The more RAM your computer has, the more data can be loaded from the hard drive into the RAM, which can effectively speed up your computer. In fact, adding RAM can be more beneficial to your computer's performance than upgrading the CPU.

To check how much RAM a Windows computer has, open the "System" Control Panel. This can be done by right-clicking "My Computer" and selecting "Properties..." To view how much RAM is installed in a Macintosh computer, select "About This Mac" from the Apple Menu.

Scroll Bar

Computer windows are often not large enough to display the entire contents of the window at one time. Therefore, you may need to scroll through the window to view all the contents. Traditionally, this has been done by clicking and dragging the slider within the scroll bar. However, many mice now come with scroll wheels that make the scrolling process even easier.

Scroll Wheel

The scroll wheel typically sits between the left and right buttons on the top of a mouse. It is raised slightly, which allows the user to easily drag the wheel up or down using the index finger. Pulling the scroll wheel towards you scrolls down the window, while pushing it away scrolls up. Most modern mice include a scroll wheel, since it eliminates the need to move the cursor to the scroll bar in order to scroll through the window. Therefore, once you get accustomed to using a scroll wheel, it can be pretty difficult to live without.

Most scroll wheels only allow the user to scroll up and down. However, some programs allow the user to use a modifier key, such as Control or Shift, to change the scrolling input to left and right. Some mice even have a tilting scroll wheel that allows the user to scroll left and right. The Apple Mighty Mouse has a spherical scrolling mechanism (called a scroll ball) that allows the user to also scroll left and right and even diagonally. Whatever the case, any type of scroll wheel is certainly better than nothing.

Sound Card

The sound card is a component inside the computer that provides audio input and output capabilities. Most sound cards have at least one analog line input and one stereo line output connection. The connectors are typically 3.5 mm minijacks, which are the size most headphones use. Some sound cards also support digital audio input and output, either through a standard TRS (tip-ring-sleeve) connection or via an optical audio port, such as Toslink connector.

While there are many types of sound cards, any type that produces an analog output must include a digital-to-analog converter (DAC). This converts the outgoing signal from

digital to analog, which can be played through most speaker systems. Sounds cards that support analog input also requires an analog-to-digital converter (ADC). This digitizes the incoming analog signal, so the computer can process it.
In some computers, the sound card is part of the motherboard, while other machines may have an actual card that reside in a PCI slot. If you want to more audio capabilities to your computer, such as additional input or output channels, you can install a new sound card. Professional sound cards often support higher sampling rates (such as 192 kHz instead of 44.1 kHz) and may have more inputs and outputs. Some cards may also have 1/4 in. connectors instead of 3.5 mm, which accommodates most instrument outputs.

USB (Universal Serial Bus)

Stands for "Universal Serial Bus." USB is the most common type of computer port used in today's computers. It can be used to connect keyboards, mice, game controllers, printers, scanners, digital cameras, and removable media drives, just to name a few. With the help of a few USB hubs, you can connect up to 127 peripherals to a single USB port and use them all at once (though that would require quite a bit of dexterity).
USB is also faster than older ports, such as serial and parallel ports. The USB 1.1 specification supports data transfer rates of up to 12Mb/sec and USB 2.0 has a maximum transfer rate of 480 Mbps. Though USB was introduced in 1997, the technology didn't really take off until the introduction of the Apple iMac (in late 1998) which used USB ports exclusively
The term "hard drive" is actually short for "hard disk drive." The term "hard disk" refers to the actual disks inside the drive.