

Bits and Bytes...Understanding Disk Capacity

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Additional information regarding disk capacity can be found at:

http://www.grsoftware.net/disk/articles/diskette_tutorial.html

Bits and Bytes

Computers don't speak English. Their language is binary. Binary language consists of combinations of 1's and 0's that represent characters of other languages (in our case the English language). Don't make the mistake of thinking that little 1's and 0's are running around inside of the computer, though. We humans prefer to think of 1's and 0's because it's easier than visualizing positive and negative current flows or open and closed circuits which is what actually happens inside computers. A combination of eight bits represents one character in our language. One character in our language (eight bits) is referred to as a byte. (For example: 01000001 is a byte that represents an uppercase A; each 1 or 0 is a bit.)

Kilobytes, Megabytes, and Gigabytes

If you understand that a byte is one character in our language, you've got it made because:

1000 bytes = 1 kilobyte (1,000 characters = 1 kilobyte)

1,000,000 bytes = 1 megabyte (1,000,000 characters = 1 megabyte)

1,000,000,000 bytes = 1 gigabyte (1,000,000,000 characters = 1 gigabyte)

Have you ever counted the number of characters in a paper you're typing on the computer including spaces? You could determine how large your files are if you had the urge. Luckily, though, your computer can tell you how large your files are. Notice next time you open up a file that when you click one time on the file in the "Open File" dialog box that somewhere on the screen (most likely at the bottom) you will see how big the file is. You may find that you need to mentally convert the file size to kilobytes or megabytes. If you remember the basic conversions previously shown, you shouldn't have any problems.

Disk Capacity

It's important to know how large your files are because eventually you won't have enough space on your disk to hold more files. Knowing the total capacity of your disk, how much space is left on your disk, and how large the file is, you can make accurate decisions as to whether to save the file to the current disk, or save the file to a different diskette with more disk capacity. Keep in mind that a low density diskette holds 720 kilobytes of data, and a high density diskette hold 1.44 megabytes of data. Put in easier to understand terms, a low density disk can hold approximately 300 typed pages and a high density can hold approximately 600 typed pages. Hard drives (disk drives inside of the computer) might hold anywhere from 30 megabytes (old computers) to 30 gigabytes (new computers) of data. Most computers today are sold with anywhere from a 5 gigabyte (portable/laptop computers) to a 30 gigabyte (desktop computers) disk capacity. Can you imagine trying to copy everything that's on your hard drive to floppy diskettes!