



**Dr.SNS RAJALAKHMI COLLEGE OF ARTS AND SCIENCE  
(AUTONOUOUS)**

**DEPARTMENT OF COMUTER APPLICATIONS**

**Course Name & Code** : OPEN ELECTIVE ( DESKTOP PUBLISHING-  
**16UCA602)**

**STAFF NAME** : Ms.R.KAVIPRIYA

**Class** : III UG

**Semester** : VI

**Year** : 2022-2023 Even

# UNIT-I

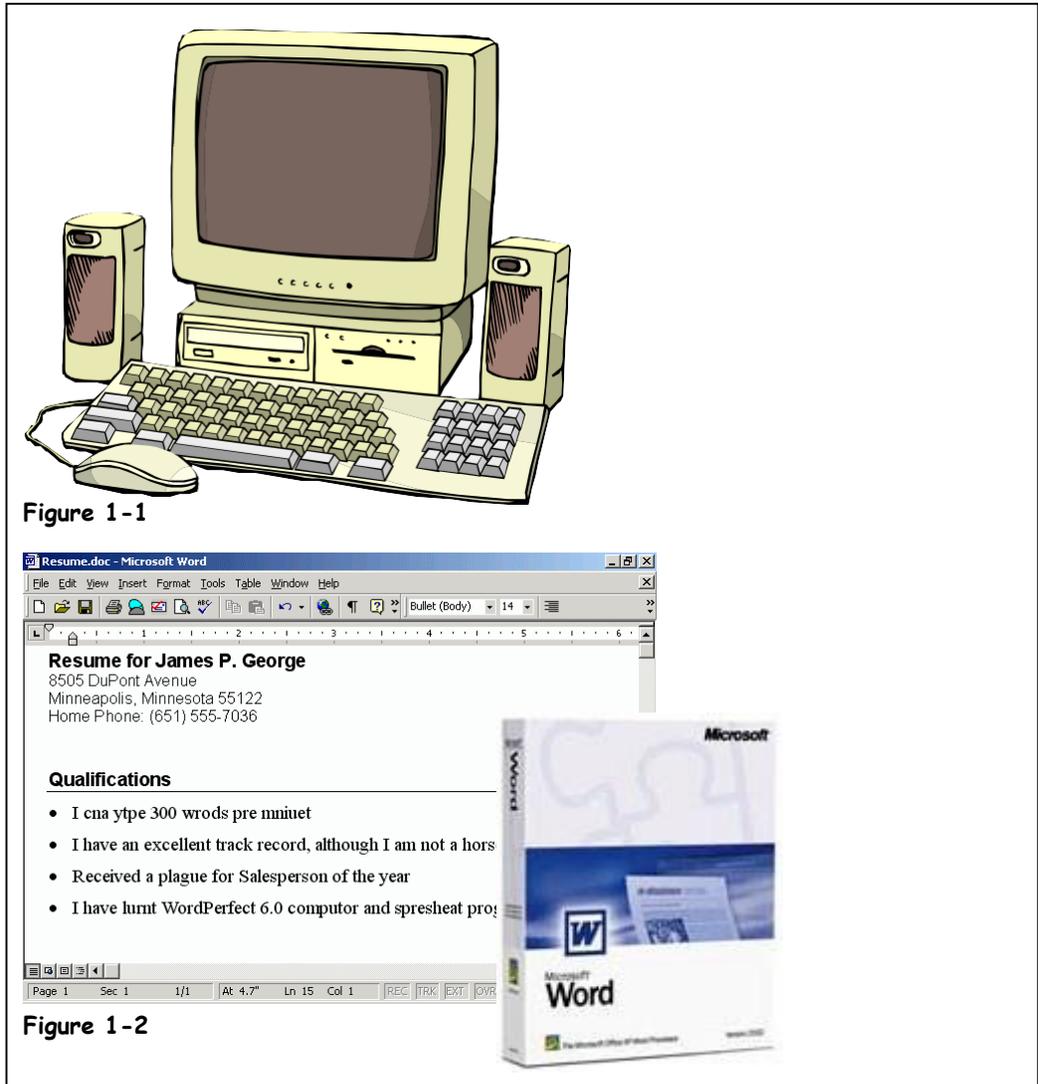
## Hardware, Software, and Information Technology (IT)

**Figure 1-1**

A typical computer setup.

**Figure 1-2**

Microsoft Word is an example of a software application.



**Figure 1-1**

**Figure 1-2**

Your desk probably contains a jumble of equipment commonly known as a computer. But what is all that stuff? What does a computer do? Unlike many other tools or appliances that have limited purposes, a computer can do any number of things:

- Write letters
- Browse the Internet
- Send e-mail messages to people around the world
- Play games
- Help you balance your budget

...and that's just the beginning of what you can do with a computer!

Two basic components make up a computer: *hardware* and *software*. You simply can't have one without the other. All computer parts that you can physically see or touch are called *hardware*. Hardware includes the computer's monitor, case, keyboard, mouse, and printer. Computer programs that tell hardware how to operate are called *software*. You may have used software such as Microsoft Excel or Corel WordPerfect in the past. So breathe a giant sigh of relief—you don't have to know how to program a computer to use one. A computer programmer has already done the work for you by writing the program (software). All you have to do is tell the software what you're trying to do, and the software then directs the work of the hardware.

Figure 1-1 shows an example of a typical computer setup and its components, but don't worry if your setup is different. More than likely, you have all the parts that you need, and those parts are properly connected. In any case, Table 1-1: *Parts of a Computer*, provides more details about each individual component.

IT, short for *Information Technology*, is the broad subject related to computers and managing and processing information, especially within large organizations. Many large companies have departments full of computer experts called *IT departments*.



Your computer setup may differ from the one shown in Figure 1-1. For example, you might have a computer case that is tall and skinny (tower case) or a flat screen monitor.

**Table 1-1: Parts of a Computer**

<b>Component</b>	<b>Description</b>
<b>Case or System Unit</b>	The main computer box, technically known as the <i>system unit</i> , is the most important part of a computer. It contains the guts and brains of the computer—something we'll talk about later. The system unit contains a lot of holes or <i>ports</i> where you plug in the rest of the computer system.
<b>Monitor</b>	The monitor resembles a television set, and is where the computer displays information.
<b>Keyboard</b>	The keyboard is the thing you type on to tell your computer what to do.
<b>Mouse</b>	Like the keyboard, the mouse is another <i>input device</i> that you use to communicate with your computer.
<b>Speakers</b>	Most computers can make sounds, just like a stereo system. In fact, you can even listen to audio CD's on most computers or watch DVDs.
<b>Printer</b>	A printer is where a computer writes down information or <i>output</i> , onto paper, or a <i>hardcopy</i> .

 **Quick Reference**

**A typical computer includes the following:**

- System unit
- Monitor
- Keyboard
- Mouse
- Speakers
- Printer

**Hardware:**

- A computer item you can physically see or touch.

**Software:**

- A computer program that tells computer hardware how to operate.

**IT:**

- Information Technology is the broad subject related to computers and managing and processing information.

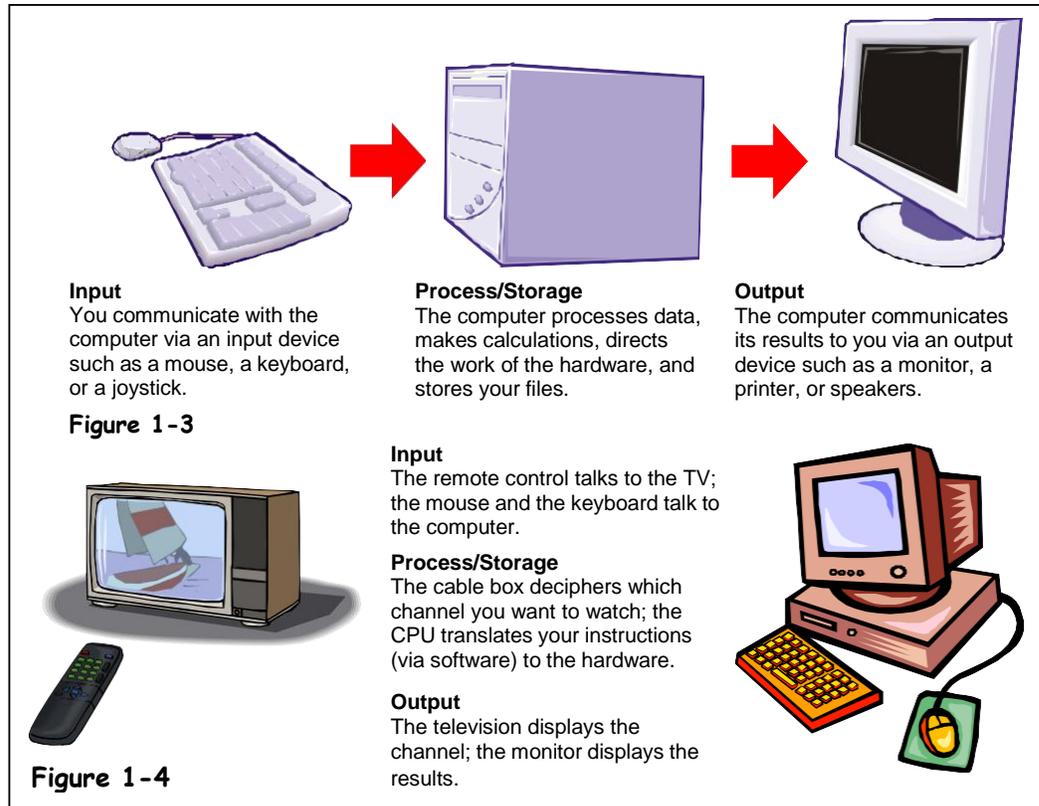
# Computer Overview

**Figure 1-3**

How a computer works.

**Figure 1-4**

Comparing a TV to a PC.



Computers are not really as complicated as they initially seem. You just have to learn the basic functions of the various parts, and then you can separate them into three categories:

- **Input**  
Any device that lets you talk to the computer (such as a mouse or keyboard).
- **Process/Storage**  
Main functions of a computer, which happen inside the computer case. Not surprisingly, the Central Processing Unit (CPU) does all the processing; the storage function is handled by any number of drives (hard, floppy, Zip, tape-backup, CD/DVD-ROM) or disks (compact discs or floppy diskettes).
- **Output**  
Any device that lets the computer talk to you (such as a monitor or speakers).

If you're having trouble understanding this input/output stuff, think of your home television (TV) set. Televisions and computers are similar in several ways:

- The remote control is comparable to the mouse (or any other input device such as a mouse or joystick).
- The cable box (while not nearly as powerful as a computer) is similar to a computer in that it can process information (such as deciphering which channel you want to watch) and, if programmable, store information (such as when to show the film using a built-in timer).
- The TV displays the channel much like a monitor displays information.



A remote control communicates with a television much like a mouse communicates with a computer.

There are several different types of computer systems out there. Here's a very brief description of the most common ones...

**Table 1-2: Types of Computers**

<b>Computer</b>	<b>Description</b>
 <p><b>Mainframe</b></p>	<p>A mainframe is a big, powerful, expensive computer that can support many users at the same time. Large businesses and organizations use mainframes.</p> <p><b>Capacity:</b> Enormous - the capacity of several hundred or even thousands of PCs  <b>Speed:</b> Very fast - much, much faster than a PC  <b>Cost:</b> Very, very expensive - can usually only be afforded by large organizations  <b>Users:</b> Only used by large businesses and organizations</p>
 <p><b>PC</b></p>	<p>A PC is a <i>personal computer</i>, originally designed by IBM way back in 1981. Many different companies make PCs, but all of them are IBM-compatible. What this means, according to Bill Gates, is that they will all run Microsoft Windows.</p> <p><b>Capacity:</b> Average hard disk size is 20 GB to 80 GB  <b>Speed:</b> Fast. Average speed is from 1 GHz to 3 GHz  <b>Cost:</b> Fairly inexpensive - under \$1,000 - and getting cheaper every day!  <b>Users:</b> Just about everyone uses a PC! Homes, offices, schools...</p>
 <p><b>Mac</b></p>	<p>Developed by Apple, a Macintosh is a computer, but it is NOT a PC. Macs have a different operating system and use their own software and hardware.</p> <p><b>Capacity:</b> Average hard disk size is 20 GB to 80 GB  <b>Speed:</b> Fast. Average speed is from 500 MHz to 2 GHz  <b>Cost:</b> Fairly inexpensive, but usually more than an equivalent PC  <b>Users:</b> Just about everyone, especially in the education and design fields</p>
 <p><b>Networked Computer</b></p>	<p>A network is a group of computers that are connected so that they can share equipment and information. Most people on a network use <i>workstations</i>, which are simply PCs that are connected to the network. A <i>server</i> is a central computer where users on the network can save their files and information.</p> <p><b>Capacity:</b> (Workstation) Same as a PC, only needs an inexpensive network card  (Server) Greater than a PC, often more than 100 GE  <b>Speed:</b> (Workstation) Same as a PC  (Server) Generally faster than a PC, may use multiple CPUs  <b>Cost:</b>(Workstation) Same as a PC  (Server) More expensive than a PC but not as costly as a mainframe  <b>Users:</b> (Workstation) People in a networked office or organization  (Server) Generally a network administrator or engineer</p>
 <p><b>Laptop</b></p>	<p>A laptop, or notebook, is a lighter and more portable version of a PC or Mac that can run on batteries.</p> <p><b>Capacity:</b> Average hard disk size is 10 GB to 40 GB  <b>Speed:</b> Fast, but slightly less than a PC. Average speed is from 700 MHz to 2 GHz  <b>Cost:</b> Fairly inexpensive, but more than an equivalent PC  <b>Users:</b> People on the move, especially business people and students</p>
 <p><b>Palmtop/PDA</b></p>	<p>A PDA (Personal Data Assistant) is a handheld computer that is generally used to keep track of appointments and addresses.</p> <p><b>Capacity:</b> Much smaller than a PC - 8 MB to 64 MB of storage space  <b>Speed:</b> Much slower than a PC - 8 MHz to 266 MHz  <b>Cost:</b> Expensive when compared to the capacities of a PC  <b>Users:</b> Business people and others who need to be organized</p>

 **Quick Reference**

**The Basic Computer Processes Are:**

1. Input
2. Processing
3. Output

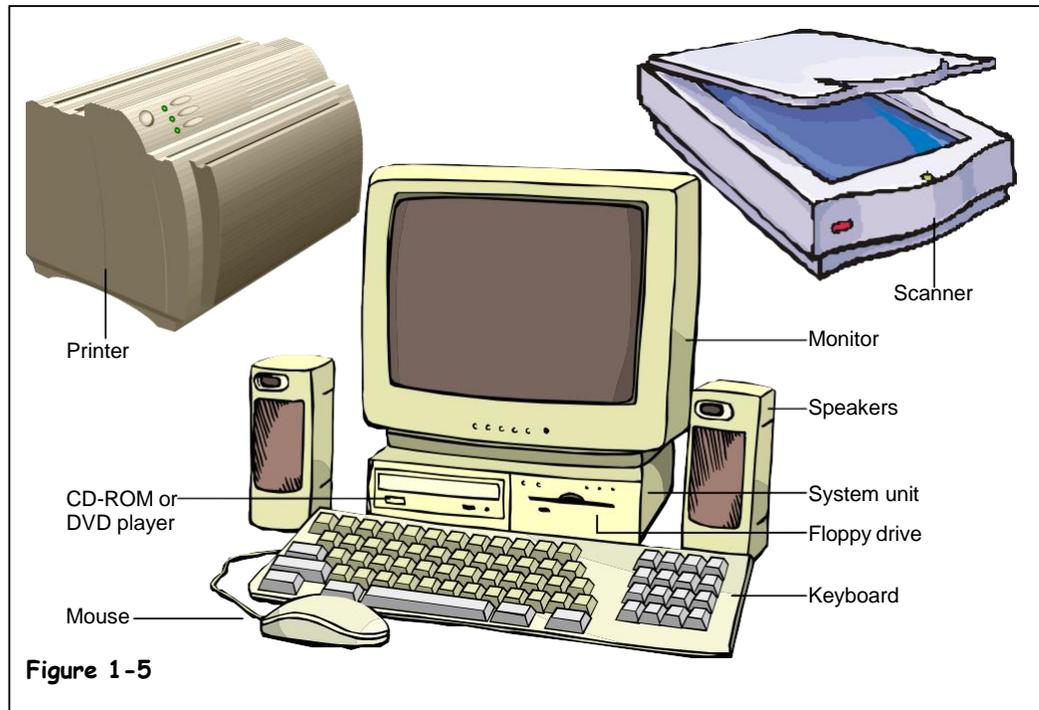
**Different Types of Computers Include:**

- Mainframes
- PCs
- Macs
- Servers
- Laptops
- Palmtops or PDAs

# The Front of a Computer and Peripheral Devices

**Figure 1-5**

The front of a computer case.



**Figure 1-5**

The system unit or computer case is that plastic box that sits under your monitor or desk and is covered with slots, buttons, and lights. Computer cases come in several shapes and sizes. Older computers often have the horizontal desktop case, which has gradually been replaced by the vertical tower case. Manufacturers are now phasing out the tallest towers because the compact size of the smallest tower, known as a *mini-tower*, is attractive to consumers.

Everything outside of and connected to the system unit is called *peripherals*. You can add dozens of peripherals and accessories to make it more useful and fun. Common peripherals include printers, scanners, external hard drives, CD-ROM drives, and digital cameras. Many peripherals are considered to be *input devices*, because they allow you to talk to your computer by inputting information. Other peripherals are *output devices*, because they let your computer talk back to you. One more thing: all peripherals are considered to be part of a computer's hardware.

**Table 1-3: What's on the Front or Outside of a Computer Case?**

<i>Item</i>	<i>Description</i>
<b>System Unit or Computer Case</b>	A plastic or metal case with slots, buttons, and lights in the front and holes in the back. This is the most important part of a computer because it contains the Central Processing Unit (CPU). The system unit directs the computer, performs calculations, and stores information.
<b>Floppy Drive</b>	Reads and writes to 3½-inch floppy disks. A floppy disk can store about 1.5 MB of information—about as much as a novel.

<b>Item</b>	<b>Description</b>	
<b>Hard Drive</b> (Not shown)	The computer's main, long-term storing device. Unlike floppy disks and CD-ROMs, you typically cannot remove a hard disk.	
<b>CD-ROM or DVD Drive</b>	<p>CD-ROMs and DVDs for your computer can store lots of information and look exactly like CDs for your stereo and DVDs for your home DVD player. In fact, you can listen to audio CDs on a CD-ROM drive and even watch DVD movies on a DVD drive.</p> <p>The only real difference between a CD-ROM and a DVD is how much information they can store. A CD-ROM can store approximately 650MB (megabytes) of information, while a DVD can store much more—up to 17 GB (gigabytes) or 17,000MB on a double-sided DVD.</p> <p>Most CD-ROMs and DVD are <i>read-only</i>, meaning you can't write information to them. You can buy special CD-ROM and DVD drives that <i>can</i> write or burn information to special CD-R, CD-RW, DVD-R, and DVD-RW discs.</p>	
<b>Zip Drive</b> (Not shown)	A special type of disk drive that can read and write to Zip disks. A Zip disk is a lot like a floppy disk, although they are faster and can store more information—from 100 to 250MB (megabytes).	
<b>Tape Backup</b> (Not shown)	A device that you can use to store backups, or copies, of the information on a computer's hard drive.	
<b>Input Devices</b>	<b>Keyboard</b>	The keyboard is the thing you type on to tell your computer what to do.
	<b>Mouse</b>	Like the keyboard, the mouse is another <i>input device</i> that you use to communicate with your computer.
	<b>Scanner</b>	Scanners work like photocopiers, except the image is translated into a digital image in your computer rather than copied onto paper.
<b>Output Devices</b>	<b>Monitor</b>	The monitor resembles a television set, and is where the computer displays information.
	<b>Speakers</b>	If visible, your computer speakers are similar to those on a stereo system (or at least a cheap stereo system). They allow your computer to play sounds.
	<b>Printer</b>	A printer is where a computer writes down information or <i>output</i> , onto paper, or a <i>hardcopy</i> .

### Quick Reference

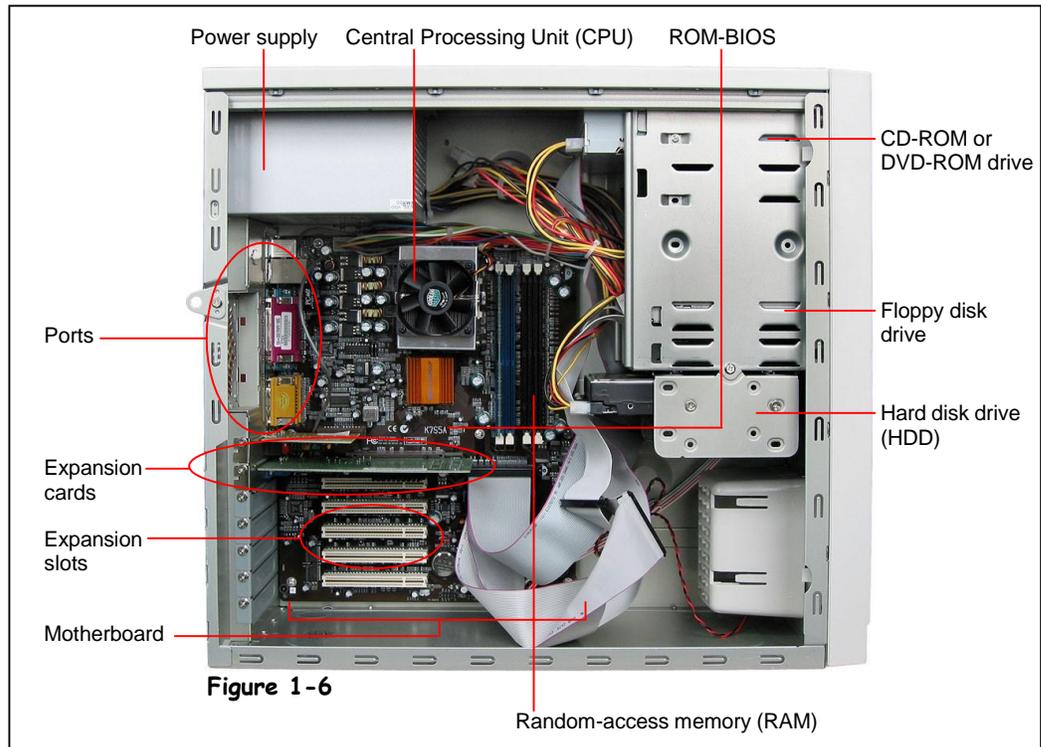
#### Components Visible from the Outside of the System Unit May Include:

- Floppy drive
- CD-ROM or DVD drive
- Zip drive or tape backup
- Keyboard
- Mouse
- Scanner
- Monitor
- Speakers
- Printer

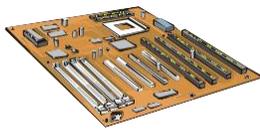
# The Inside of a Computer

**Figure 1-6**

The side view of the guts of a tower case.



**Figure 1-6**



Everything plugs into a computer's motherboard.

Now that you know what's on the outside, let's crank open that mysterious computer case and look inside. But no tools required—we've done all the work for you. Just compare Figure 1-6 with Table 1-4: *What's Inside a Computer Case?* to see what's important.

**Table 1-4: What's Inside a Computer Case?**

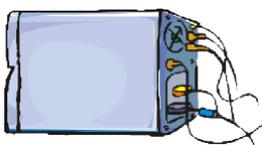
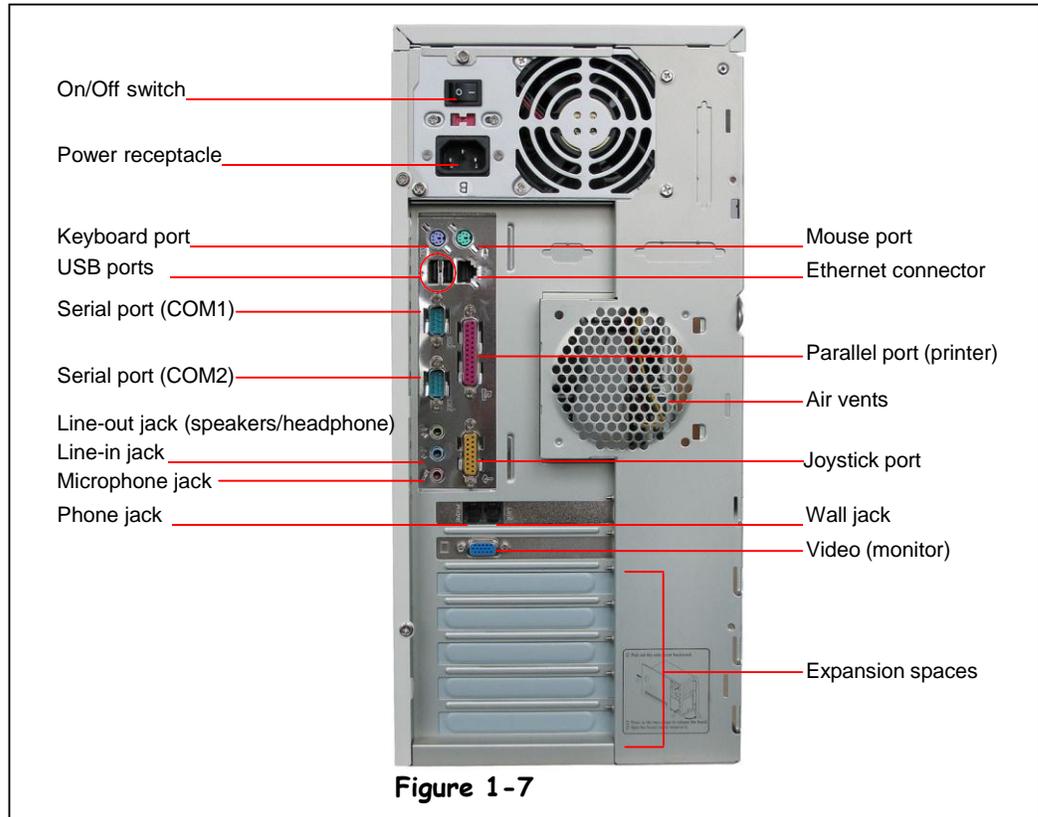
<b>Item</b>	<b>Description</b>
<b>Motherboard</b>	The main piece of circuitry in a computer. Everything connects to or is wired to the motherboard.
<b>Central Processing Unit (CPU)</b>	The computer's brain or heart, the CPU is a computer's main chip. The CPU is really nothing more than an incredibly fast and powerful calculator.
<b>Random Access Memory (RAM)</b>	A computer's temporary storage place, where it gets its work done. For example, when you use a word processor to type a letter, the letter is stored in the computer's memory.
<b>ROM-BIOS</b>	A computer's ROM-BIOS (stands for Read Only Memory – Basic Input/Output System) is a special chip with instructions for the computer to communicate with other hardware parts.
<b>Expansion Slot</b>	An expansion slot lets you add more features and capabilities to a computer by plugging in expansion cards.

<b><i>Item</i></b>	<b><i>Description</i></b>
<b>Expansion Card</b>	A card that allows you to expand your computer's capabilities, such as a modem card, a network card, a video card, or a sound card.
<b>PCMCIA Cards</b>	Notebook computers are too small to use expansion cards, so they use special credit-card sized PCMCIA cards instead. You plug in a PCMCIA card, or PC Card, into a notebook computer to give it more features and capabilities. Nobody's getting tested on this, but PCMCIA stands for Personal Computer Memory Card International Association.

# The Back of a Computer (Ports)

**Figure 1-7**

The back of a computer case.



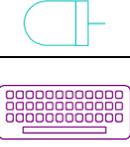
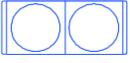
You may feel a bit overwhelmed the first time you look at the back of a computer.

When you look at the back of a computer, you may feel a bit overwhelmed by all the slots and holes. Fortunately, manufacturers have added some fairly standard icons and color coding to help you identify what should be plugged into your computer and where. Before long, you'll recognize those icons and colors, and the configuration won't seem so mysterious. It's rather like hooking up cable and a DVD player to the back of your television—unless you're one of those people who just wait for the cable guy to take care of that heinous task. In any case, this lesson will review each item piece by piece so you won't get completely lost.

Before we begin, let's define a couple of terms. The first thing you'll notice is that the back of your computer has lots of holes. Those holes are called (depending on who you ask) *jacks*, *ports*, or *connectors*. You may notice that some of the connectors have holes, but some have what look like stickpins (which are aptly named *pins*). The ones that have holes are called *female* connectors; the ones that have pins are called *male* connectors. Let's leave it at that.

Now let's begin. Compare Figure 1-7 to Table 1-5: *What's on the Back of a Computer Case?* The back of your computer may be arranged differently but should include the same elements.

**Table 1-5: What's on the Back of a Computer Case?**

Port	Icon	Description
 <b>Keyboard &amp; Mouse</b>		<p>The keyboard and mouse jacks look identical on most PCs, so look for colors and icons to help you with plugging in these devices.</p> <p>Some mice and keyboards use USB ports. Older mice may use a serial port.</p>
 <b>Serial or COM</b>		<p>Serial (or COM) ports are a very versatile type of port. Some of the things you can plug into a serial port include: a mouse, modem, scanner, or digital camera. Most computers have two serial ports: COM1 and COM2.</p>
 <b>Parallel or Printer</b>		<p>You plug your printer into the parallel, or printer, port. Many newer printers may use a USB port.</p>
 <b>USB</b>		<p>Designed to replace older Serial and Parallel ports, the USB (Universal Serial Bus) can connect computers with a number of devices, such as printers, keyboards, mice, scanners, digital cameras, PDAs, and more. Better yet, the USB port supports <i>plug-and-play</i>, so you can simply plug in a USB device and start using it.</p> <p>USB 1 ports can transfer information at a speed up to 12 Mbps (Megabytes per Second). Newer USB 2 ports can transfer information at a speed up to 480 Mbps. Most computers come with two USB ports.</p>
 <b>Video or Monitor</b>		<p>You plug your monitor into the video port.</p>
 <b>Line Out</b>		<p>Plug in your speakers or headphone into the Line Out jack.</p>
 <b>Line In</b>		<p>The Line In jack allows you to listen to your computer using a stereo system.</p>
 <b>Microphone</b>		<p>You can plug a microphone into this jack to record sounds on your computer.</p>
 <b>Joystick or Game</b>		<p>If you have a joystick, musical (MIDI) keyboard, or other gaming device, this is where you plug it in.</p>
 <b>Phone or Modem</b>		<p>The phone or modem jack is where you plug your computer into a phone line.</p>
 <b>Network or Ethernet</b>		<p>You can connect your computer to a network by plugging in an Ethernet cable in this port.</p>
 <b>SCSI</b>		<p>An SCSI port is one of the fastest ways to connect a hard drive, CD-ROM drive, or other device to a computer.</p>
<b>Firewire</b>		<p>A FireWire (IEEE 1394 or i.LINK) port lets you connect such devices as hard disks and digital camcorders to a computer. A FireWire port can transfer information at a speed up to 400 Mbps (Megabytes per Second).</p>

 **Quick Reference**

**Ports on the Back of a Computer Include:**

- Keyboard and Mouse
- Serial or COM
- Parallel or Printer
- USB
- Video or monitor
- Line in, line out, microphone
- Joystick or game
- Phone or modem
- Ethernet or network
- SCSI
- Firewire

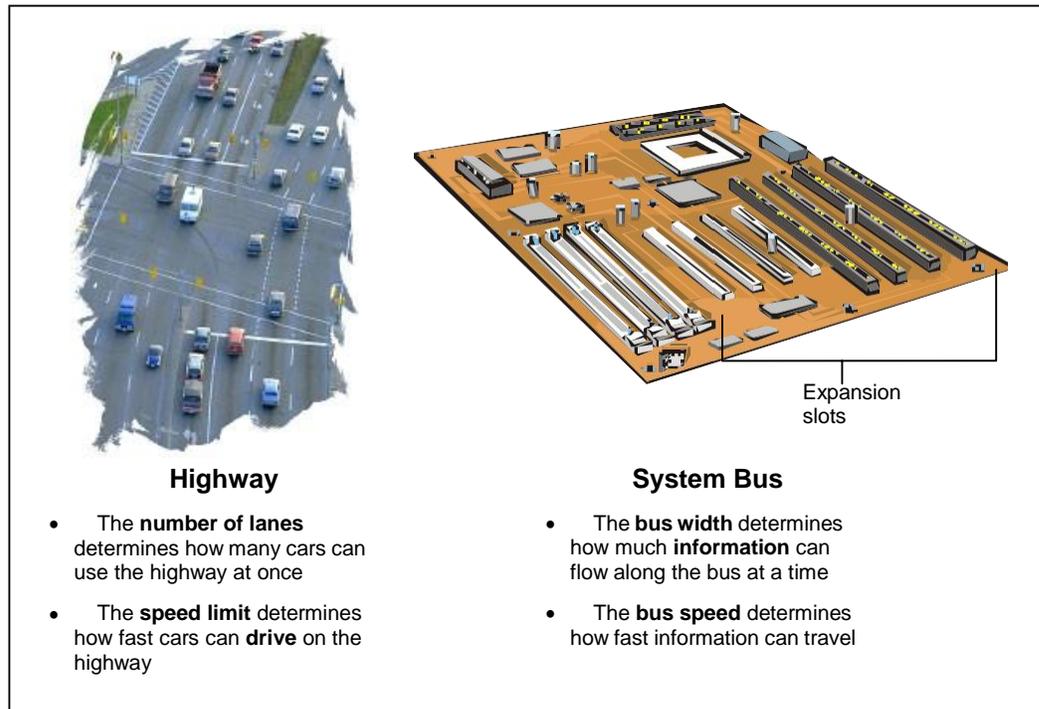
# System Bus and Expansion Cards

**Figure 1-8**

Expansion cards plug directly into a computer's motherboard.

**Figure 1-9**

Most computers have around six expansion slots.



Expansion cards plug directly into the motherboard.

You're furious! You just bought an expensive digital camcorder only to find out that it can't connect to your computer because your computer apparently doesn't have a Firewire port. Don't worry—you can easily add a Firewire port to the computer by buying an *expansion card*.

Expansion cards allow you to add more gizmos and capabilities to a computer. You can also use expansion cards to replace a component of a computer that breaks, like a modem. Expansion cards plug into expansion slots on a computer's motherboard.

A computer talks to its expansion cards—and everything else on the motherboard—through its *bus*. A computer's bus is an electronic pathway that carries information between devices in a computer. Two factors determine how information flows through the bus: the *bus width* and the *bus speed*.

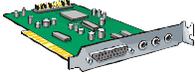
- **Bus Width**  
The bus width determines how many "lanes" there are on a computer's electronic highway. Actually, the bus width isn't measured in lanes, but in *bits*. The wider the bus, the more information can travel across it at the same time.
- **Bus Speed**  
The bus speed determines how fast information can travel through the bus. The higher the bus speed, the faster information can travel through it. Bus speed is measured in MHz.

As if this weren't confusing enough there are several bus types out there. They include:

- **ISA**  
The *Industry Standard Architecture (ISA)* is the original, slowest, and oldest type of bus. The ISA bus has a width of 16 bits and a speed of 8 MHz. The ISA bus is going the way of dinosaurs and is no longer found on new computers.
- **PCI**  
The *Peripheral Component Interconnect (PCI)* bus is the main bus found in newer computers. The PCI bus can have a width of 32 or 64 bits. The PCI bus supports *Plug and Play*, which lets you add new devices to a computer without a complicated installation process.
- **AGP**  
An *Accelerated Graphics Port (AGP)* is a blazingly fast bus that is currently only used for video cards. The AGP port has a width of 64 bits and supports Plug and Play.

So what kind of expansion cards are out there? Here are some of the more common expansion cards that you may come across...

**Table 1-6: Common Types of Expansion Cards**

<b>Expansion Card</b>	<b>Description</b>
 <b>Modem</b>	A modem allows computers to exchange information through ordinary telephone lines. Almost all computers already come with built-in modems, so you would probably only want to add a modem expansion card if the original modem in a computer breaks.
 <b>Network</b>	A network interface card (NIC) is an expansion card that connects a computer to other computers on a network.
 <b>Video or Graphics</b>	A video card or adapter is what generates the images and text displayed on a monitor. Computers come with a built-in video card, but some people like to upgrade their original video card with faster, more powerful video cards.
 <b>Sound</b>	A sound card lets a computer play and record sounds, just like a home stereo system.
 <b>Additional Port(s)</b>	You can use expansion cards to add additional ports to a computer, such as the newer Firewire or USB 2 ports.

 **Quick Reference**

- An **expansion card** plugs into a computer's motherboard to give it additional capabilities.
- A computer communicates with its expansion cards and devices through the system bus.
- How much information flows through the system bus depends on the bus width and bus speed.

**There are several bus types:**

1. ISA
2. PCI
3. AGP

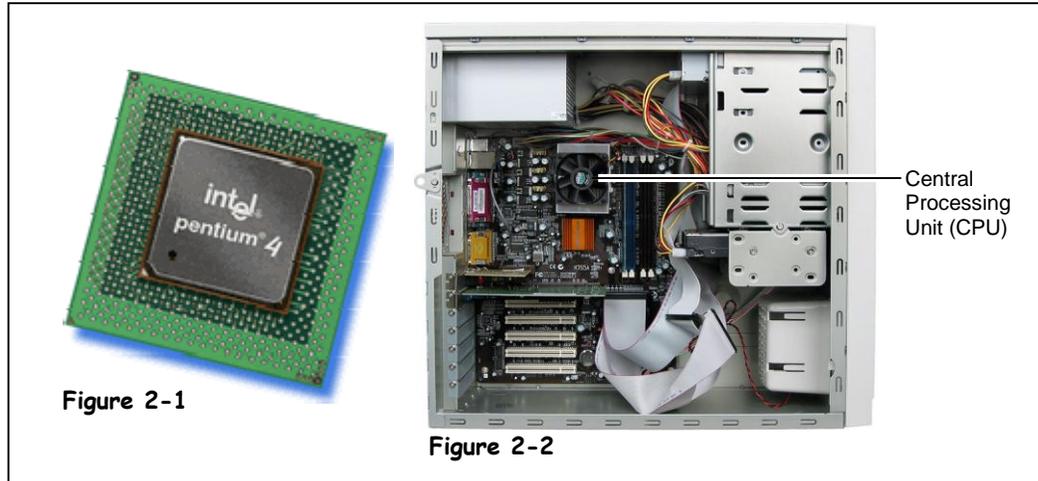
# Central Processing Unit (CPU)

**Figure 2-1**

The Intel Pentium 4 is the fastest and most recent CPU available.

**Figure 2-2**

The CPU can get hot! Most CPUs have a built-in fan to keep them from burning out.



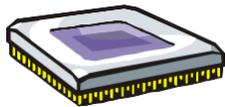
Inside the computer case, hidden amongst all the wiring and gizmos, is a particularly important part of the computer known as the *central processing unit* (or *CPU*, for short). The CPU is also known as the *computer chip* (because that's what it is) or the *microprocessor* (or *processor*, for short).

Some say the CPU is the brain of the computer while others describe it as the heart. In any case, it's the thing that makes your computer a computer. The CPU does all the work: It calculates, it processes, it keeps things running smoothly. You might think of it as a talented stage manager. When it does its behind-the-scenes job well, you don't notice it; you simply enjoy the performance.

Originally, CPUs were given wildly inventive names like *Chip*. Okay, maybe not. The names were actually based on numbers like 8088. The next few names in the series—the 286, the 386, and the 486—were actually just shortened names for 80286, 80386, and 80486. Then, what would have been the 586 was dubbed the *Pentium*. After that, the names became rather mysterious: Pentium Pro and Pentium MMX. Finally, the names returned to a semi-ordered numbering system (albeit a mix of Roman and Arabic numerals): Pentium 2, Pentium 3, and Pentium 4. And that's where we are at the moment. Both the Pentium 3 and the Pentium 4 are still quite common.

Intel makes most CPUs. In fact, Intel is the company that came up with the name *Pentium*. However, AMD and VIA Technologies are two other well-known CPU manufacturers. Their CPUs are less expensive and use a different naming system (such as the AMD Athlon and the AMD Duron). Intel actually makes a less expensive version of the Pentium as well, which it calls the *Celeron*. The Celeron does what the Pentium does, but not as quickly.

Speaking of which, speed is what the CPU is all about, and each successive version of the CPU gets progressively faster. A CPU's speed is measured in megahertz (MHz) or, for newer models, in gigahertz (GHz). A megahertz equals millions of cycles per second; a gigahertz equals billions of cycles per second. Higher numbers equate to higher speeds. You might see an Intel Pentium 4 at 3.06 GHz, a Pentium III at 1.40 GHz, and a Celeron at 2.20 GHz.



A CPU's speed is measured in megahertz (MHz) or gigahertz (GHz).

Another common measure of a CPU is how many bits it can handle at a time. A bit is the tiniest piece of information processed by a computer. Eight bits make up one byte, and one byte equals one character. Computers used to handle 8 or 16 bits; now they're up to 32 and 64 at a time. Don't worry if all of this seems a bit confusing—we'll cover bits and bytes in greater detail in a later lesson.

**Table 2-1: Types of CPUs**

<b>CPU</b>	<b>Speed</b>	<b>Description</b>																		
	1 GHz to 3 GHz	<b>Intel Pentium 4 Processor</b> The Pentium 4 is Intel's more recent and fastest generation of CPUs, with processing speeds over 3 GHz.																		
	450 MHz to 1 GHz	<b>Intel Pentium III Processor</b> Launched in 1999, Pentium 3 CPUs are still found in some new computers.																		
	1.06 to 2 GHz	<b>Intel Celeron Processor</b> Intel's Celeron CPU is an inexpensive processor designed for people on budget. Celeron processors are very similar to Pentium processors, but they have less built-in memory.																		
	500 MHz to 3 GHz	<b>Intel Xeon Processor</b> Don't expect to see any Xeon-based computers at your local computer store—it's designed for high-end servers.																		
	850 MHz to 1.67 GHz	<b>AMD Athlon Processor</b> The Athlon processor is equivalent to Pentium processors—only it's less expensive.																		
	700 MHz to 800 MHz	<b>AMD Duron Processor</b> The Duron CPU is AMD's is similar to Intel's Celeron processor. It has less built-in memory and is designed for people on a budget.																		
<b>Older Processors</b>		Here's a summary of the other most common—and obsolete—processors out there: <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th><b>Processor</b></th> <th><b>Release Date</b></th> <th><b>Average Speed</b></th> </tr> </thead> <tbody> <tr> <td>Pentium II</td> <td>1997</td> <td>266 MHz</td> </tr> <tr> <td>Pentium 486</td> <td>1989</td> <td>66 MHz</td> </tr> <tr> <td>Pentium 386</td> <td>1985</td> <td>25 MHz</td> </tr> <tr> <td>Pentium 286</td> <td>1982</td> <td>12.5 MHz</td> </tr> <tr> <td>Pentium 8088</td> <td>1979</td> <td>8 MHz</td> </tr> </tbody> </table>	<b>Processor</b>	<b>Release Date</b>	<b>Average Speed</b>	Pentium II	1997	266 MHz	Pentium 486	1989	66 MHz	Pentium 386	1985	25 MHz	Pentium 286	1982	12.5 MHz	Pentium 8088	1979	8 MHz
<b>Processor</b>	<b>Release Date</b>	<b>Average Speed</b>																		
Pentium II	1997	266 MHz																		
Pentium 486	1989	66 MHz																		
Pentium 386	1985	25 MHz																		
Pentium 286	1982	12.5 MHz																		
Pentium 8088	1979	8 MHz																		

 **Quick Reference**

- The CPU, or Central Processing Unit, is the computer's main chip. It calculates and processes information.

**CPU Speed is Measured In:**

- Megahertz (MHz).
- Gigahertz (GHz).

**Common CPUs Include:**

- Intel Pentium III
- Intel Pentium 4
- Intel Celeron
- AMD Athlon
- AMD Duron

# Memory

## Figure 2-3

A hard drive might have 60GB of memory.

## Figure 2-4

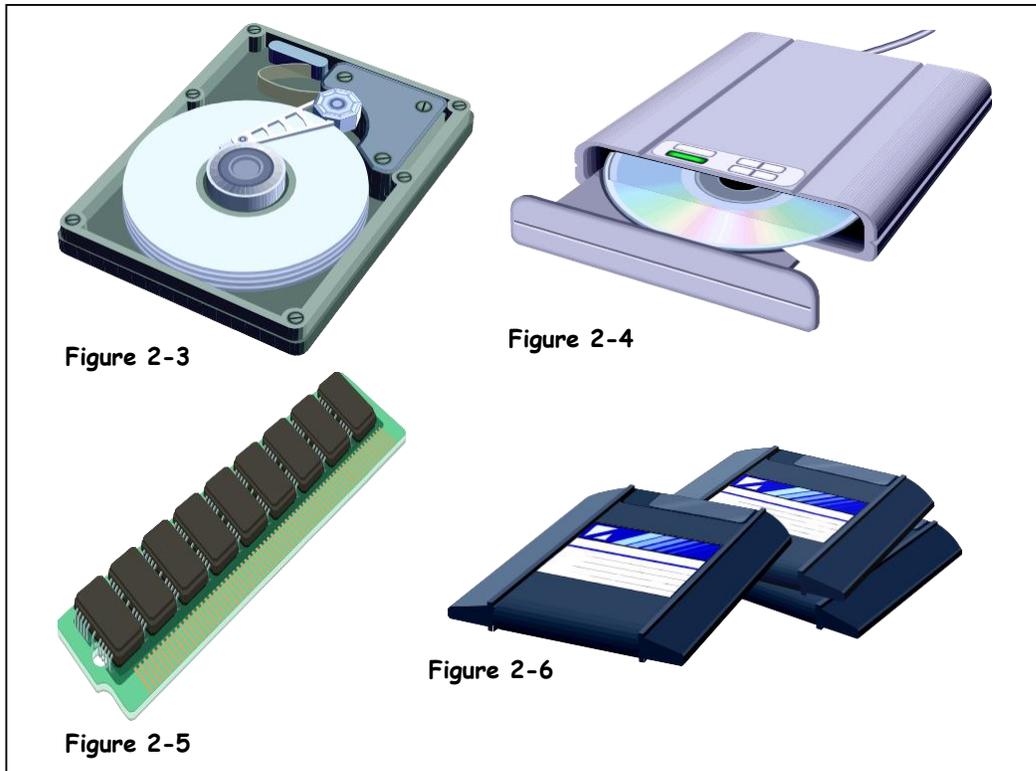
A recordable CD (CD-R) can have up to 700MB of memory.

## Figure 2-5

A memory chip might have 512MB of memory.

## Figure 2-6

A zip disk can have between 100MB and 250MB of memory.



Everything that a computer does is based on a combination of ones and zeros, which is known as the *binary system*.

Most people know that a computer has memory. But what does that really mean? You often hear techies toss around numbers like “60GB hard drive.” Okay, that sounds impressive, but what does it tell you? This lesson breaks memory into measurable units.

The first thing you need to know is that, at its most basic level, a computer only understands the concept of “on and off.” *On* is represented by the number one (1); *off* is represented by the number zero (0). Everything that a computer does is based on this combination of ones and zeros, which is known as the *binary system*. These ones and zeros are digits, known as *bits*, which are the smallest memory unit. The term *bit* is short for *binary digit*.

The second thing you need to know is that a computer saves information in *bytes*, not bits. So what is a byte? The term *byte* is short for *binary digits eight*. So one byte is made up of eight bits. And a byte is the equivalent of a character, which can be a letter, a number, or a symbol. So let’s say that you’re a self-involved poet whose latest creation is simply titled “I.” That one-word title would equal one byte.

Of course, it would be fairly tedious if a computer stored everything in single bytes. The next largest unit is the *kilobyte*. A kilobyte (abbreviated *K* or *KB*) equals 1,024 bytes or characters. Now let’s say you’re a short-story writer. The one-page, double-spaced masterpiece you submit to your editor would be the equivalent of a kilobyte.

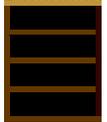
After the kilobyte, the next largest unit is the megabyte. A megabyte (abbreviated *M* or *MB*) equals 1,048,576 bytes or characters. If you were a novelist, your latest bestseller would equal a megabyte.

The next unit after the megabyte is the gigabyte. A gigabyte (abbreviated *G* or *GB*) equals 1,073,741,824 bytes or characters. Let's pretend you are a researcher. A whole shelf of books devoted to your favorite subject would be the equivalent of a gigabyte.

Finally, after the gigabyte comes the terabyte. A terabyte (abbreviated *T* or *TB*) equals 1,099,511,627,776 bytes or characters. Let's imagine that you're an egomaniac who owns an entire bookstore filled only with books by authors you like. Such a single-minded store would be the equivalent of a terabyte.

Okay, let's review. The following table summarizes all the units of memory.

**Table 2-2: Bits and Bytes**

<b>Unit</b>	<b>Abbreviation</b>	<b>Size</b>	<b>Symbol</b>	<b>Equivalent</b>
<b>Bit</b>	—	—	—	An atom or speck, the smallest unit of memory.
<b>Byte</b>	—	8 bits		A single letter, a number, or a symbol.
<b>Kilobyte</b>	<b>K or KB</b>	1,024 bytes		A one-page, double-spaced letter.
<b>Megabyte</b>	<b>M or MB</b>	1,048,576 bytes		A best-selling novel.
<b>Gigabyte</b>	<b>G or GB</b>	1,073,741,824 bytes		An encyclopedia set.
<b>Terabyte</b>	<b>T or TB</b>	1,099, 511,627,776 bytes		A bookstore.

# RAM and ROM

**Figure 2-7**

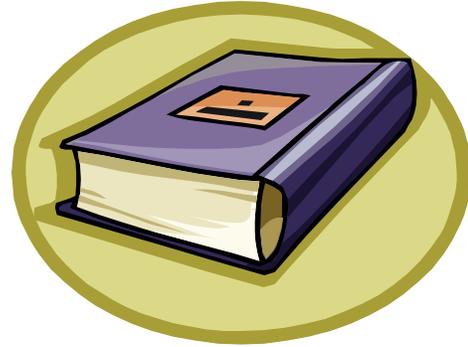
RAM, or Random Access Memory, works like a notepad; you can read from it and write to it.

**Figure 2-8**

ROM, or Read Only Memory, works like a novel, you can read from it but not write to it.



**Figure 2-7**



**Figure 2-8**

So now you know that computer memory is measured in various byte-sized units: kilobytes, megabytes, gigabytes, petabytes, and philobytes. Okay, those last two were just made up to see if you were paying attention.

Next you need to know that computers have two major types of memory: *random-access memory* (or *RAM*) and *read-only memory* (or *ROM*). Let's discuss these two types of memory in greater detail.



When you work with a file on your computer, you're using RAM.

- **RAM (random-access memory)**

When someone at a computer superstore tells you how much memory a new computer has, they're really talking about RAM. RAM is the computer's main memory, which it uses to process information. Whenever you work with a file on your computer, you're using RAM. And the data in that file is temporarily stored in RAM. However, RAM is *volatile*, which means that the data is stored only as long as the computer has power. Once you shut off your computer, the data is gone. However, you can and should save your data (read: your file). That's where storage comes in, but more on that later. For now, think of RAM like a notebook: You can read from it and write to it. Technically, it could be called "read and write memory." And, as with a notebook, you can overwrite it many, many times—provided you have an eraser!

- **ROM (read-only memory)**

ROM is the computer's low-level memory, which it uses to perform its most basic functions. This memory is permanent; the data remains even if you shut off the computer. This only makes sense because ROM is required to restart your computer. You never hear people discuss how much ROM you have because the manufacturer usually installs it, and you never touch it. It does all the behind-the-scenes work and then disappears once you're underway, much like a party planner. You can also think of ROM like a novel: You can read from it, but you can't write to it (and thus, its name).

**Table 2-3: Comparing RAM and ROM**

<b><i>RAM</i></b>	<b><i>ROM</i></b>
Random-access memory	Read-only memory
Main memory.	Low-level memory.
Necessary to process information (example: work with a file).	Necessary to perform the most basic functions (example: start the computer).
Volatile: If not saved, data disappears when you shut off the computer's power. It's temporary.	Nonvolatile: Data remains even when you shut off the computer's power. It's permanent.
Often discussed when buying a computer.	Seldom mentioned when buying a computer.
You can read from and write to it. Comparable to a notepad.	You can read from it, but you can't write to it. Comparable to a novel.

# Mouse

**Figure 2-9**

Clicking with the mouse.

**Figure 2-10**

Double-clicking with the mouse.

**Figure 2-11**

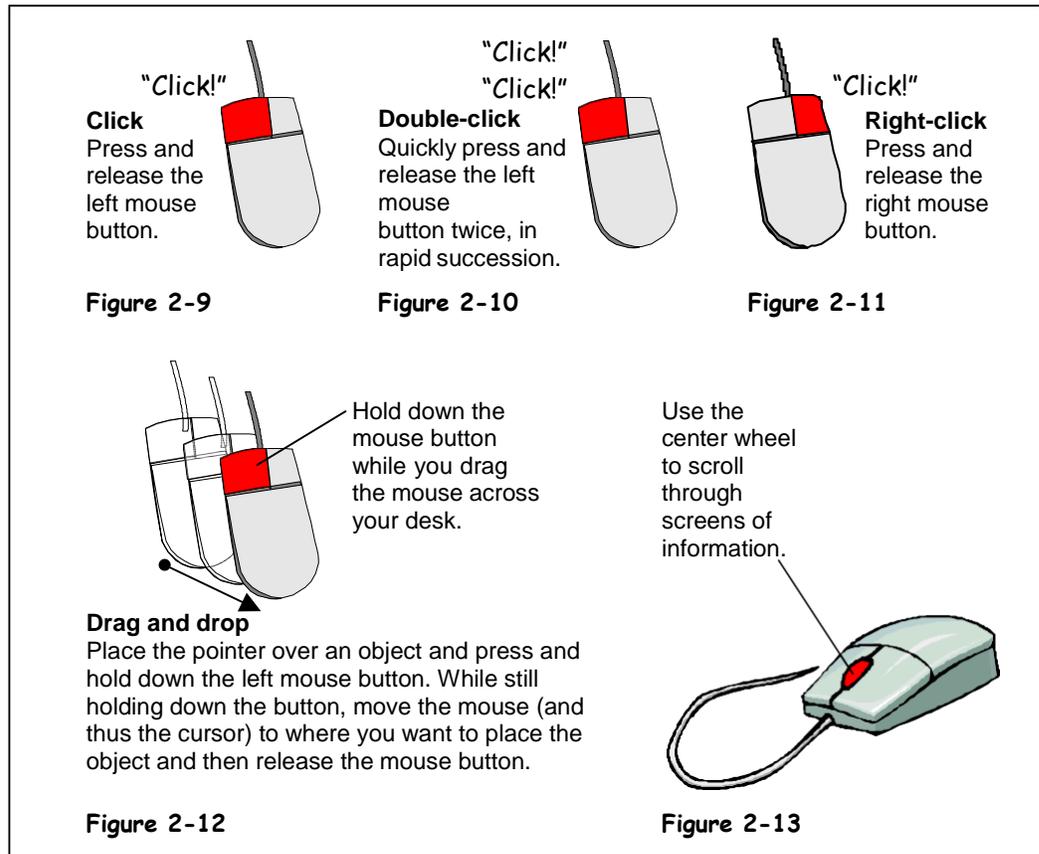
Right-clicking with the mouse.

**Figure 2-12**

Dragging and dropping with the mouse.

**Figure 2-13**

Using the scroll wheel.



The underside of a roller ball mouse.



Some mouse pads have a wrist rest to help users keep their hands and wrists in better alignment.

A computer would be useless if you had no way to communicate with it. That's why you need an *input device*. Essentially, an input device lets you talk to your computer. Two examples of input devices are the keyboard and the mouse. We'll discuss keyboards later; for now let's concentrate on the mouse.

That funny-looking object that, frankly, looks like a mouse (with its oval body and long tail-like cord connecting it to the computer) *is* the mouse. Originally, computers only came with a keyboard. But in 1968 Doug Engelbart invented the mouse. In 1984, Apple Computers introduced the mouse with its Macintosh computers. Shortly thereafter, the mouse was standard equipment on all computers.

The mouse acts as a handheld pointing device that allows you to control the actions of that blinking item on your screen known as a *cursor*. Depending on the software you are using and the task you are doing, the cursor may resemble such symbols as a slanted arrow () , an "I" () , or a vertical line () . A cursor is essentially a place-marker that appears on your computer screen. You move the mouse to place the cursor over an object on your screen and click the mouse buttons to *select* that object. Once an object has been selected, you can move it or manipulate it. We'll cover mouse buttons in greater detail in a later lesson.

The standard mouse has two buttons and a *rollerball* on the underside, which moves the cursor on the screen when you move the mouse. A rollerball mouse works best when used

on a mouse pad, especially one that has a rough texture on its surface. Some mouse pads now come with a wrist rest to help users keep their hands and wrists in better alignment.

Like other computer components, mice come in several shapes and sizes. Some mice have three (or more) buttons, which are programmable, and some include a trackball on the top (instead of a rollerball on the underside). Most new mice include a center scroll wheel between the two buttons. Not surprisingly, this scroll wheel lets you scroll through screens of information in a fluid motion. Many new mice are also ergonomically designed to fit the user's hand. And some new mice have Forward and Back buttons off to the side of the mouse, which help you navigate the Internet.

One of the latest innovations is the *optical mouse*, which is becoming quite common. An optical mouse operates by using an infrared sensor, which means it uses neither a rollerball nor a mouse pad. You can identify an optical mouse by the telltale red glow emanating from its underside.

One other hot innovation is the *wireless mouse* (and keyboard). A wireless mouse and keyboard run on batteries and communicate with the computer the same way a remote control communicates with a television.

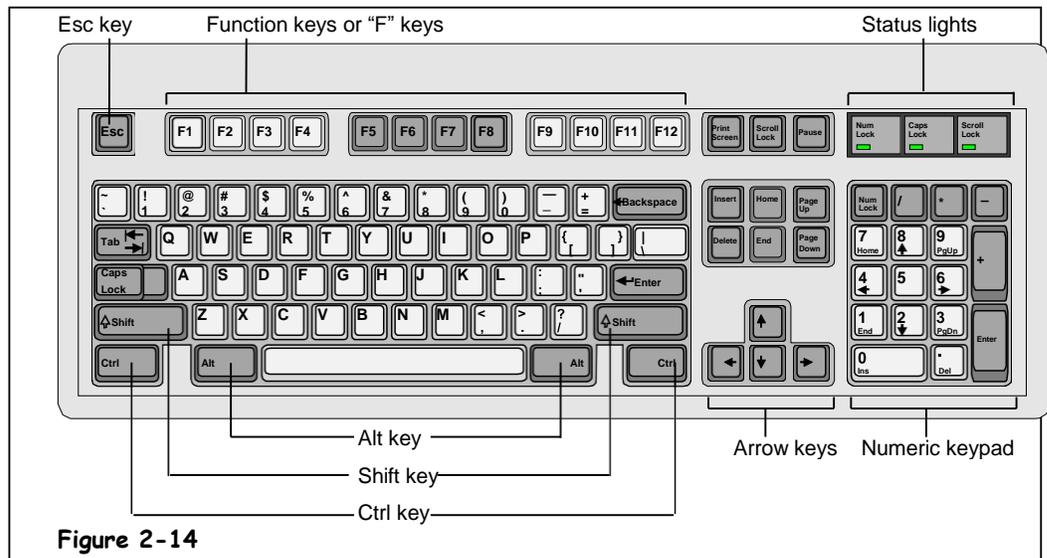


A wireless mouse works just like a remote control.

## Keyboard

**Figure 2-14**

The 101-key enhanced keyboard



**Figure 2-14**



An ergonomic keyboard is designed to relieve the stress of typing for long periods of time.

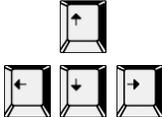
Like the mouse, the keyboard is an input device that allows you to talk to the computer. The keyboard is easily recognizable because it resembles a typewriter keypad. If the typewriter predates you, then look for the component that's covered with buttons that have letters, numbers, and symbols on them.

If you've ever used a typewriter, you probably recognize many of the keys on a keyboard. In any case, the alphanumeric, symbol, and punctuation keys are self-explanatory. And we'll review the rest of the keys that are unique to a (101-key and 104-key) keyboard. However, we will ignore the three keys found above the numeric keypad (<Print Screen/Sys Req>, <Scroll Lock>, and <Pause/Break>) because they are all fairly useless on most computers today.

**NOTE:** If your keyboard includes multimedia and Internet buttons above the keys, consult the manual that comes with your keyboard to learn their functions.

**Table 2-4: Special Keys and Their Functions**

<b>Key(s)</b>	<b>Description</b>
	The <Alt> key doesn't do anything by itself—it needs another key to make things happen. For example, pressing the <Tab> key while holding down the <Alt> key switches between any programs that are currently running.
	Just like the <Alt> key, the <Ctrl> key doesn't do anything by itself—you need to press another key with it to make things happen. For example, pressing the <X> key while holding down the <Ctrl> key cuts whatever is selected.
	The <F1> key is the help key, and pressing it displays helpful information about what you're doing.

<b>Key(s)</b>	<b>Description</b>
	The <Esc> (Escape) key is the “Wait, I’ve changed my mind” key and is the same as clicking Cancel in a dialog box. For example, if you click something and an unfamiliar dialog box appears, you can close it by pressing the <Esc> key.
	The <Enter> key is the “Carry out my orders” key and is the same as clicking the OK button in a dialog box. For example, after you’ve typed the name of a program you want to run in a dialog box, press <Enter> to run the program. The <Enter> key also adds new lines and starts new paragraphs if you’re entering text.
	When you’re in a dialog box, pressing the <Tab> key moves to the next field. When you’re using a word processor, the <Tab> key works just like you’d think it would and jumps to the nearest tab stop whenever you press it.
	The arrow keys move your computer’s cursor across the screen.
	Nothing surprising here. The <Delete> key deletes or erases whatever you select—files, text, or graphical objects. If you’re working with text, the <Delete> key erases characters to the right of the insertion point.
	Use the <Backspace> key to fix your typing mistakes—it erases characters to the left of the insertion point.
	The <Home> key jumps to the beginning of the current line when you’re working with text.
	The <End> key jumps to the end of the current line when you’re working with text.
	The <Page Up> key moves up one screen.
	The <Page Down> key moves down one screen.

#### **Quick Reference**

- A keyboard lets you enter information and commands into a computer.

- Other Input Devices

<b>Input Device</b>	<b>Description</b>
 <p><b>Touch Pad</b></p>	<p>A touch pad is a small, touch-sensitive pad used as a pointing device on some portable computers. By moving a finger or other object along the pad, you can move the pointer on the display screen.</p>
 <p><b>AccuPoint® Pointing Device</b></p>	<p>An Accupoint® Pointing Device, or pointing stick, is another mouse substitute that is found on many laptop computers. An Accupoint® Pointing Device usually sits in the middle of the keyboard and resembles an eraser at the end of a pencil.</p>
 <p><b>Track Ball</b></p>	<p>A track ball is essentially a mouse lying on its back. To move the pointer, you rotate the ball with your thumb, your fingers, or the palm of your hand.</p>
 <p><b>Light Pen</b></p>	<p>A light pen is input device that utilizes a light-sensitive detector to select objects on a display screen. A light pen is similar to a mouse, except that with a light pen you can move the pointer and select objects on the display screen by directly pointing to the objects with the pen.</p>
 <p><b>Scanner</b></p>	<p>A scanner is a lot like a photocopier. Instead of producing copies, a scanner converts images into digital information and stores it in a computer.</p>
 <p><b>Joystick</b></p>	<p>Mostly used for computer games, a joystick is a lever that moves in all directions and usually controls some type of movement on the computer.</p>
 <p><b>Microphone</b></p>	<p>If your computer has a sound card (and most computer have one) you can plug in a microphone to digitally record sounds to your computer.</p>

# Monitor

**Figure 2-19**

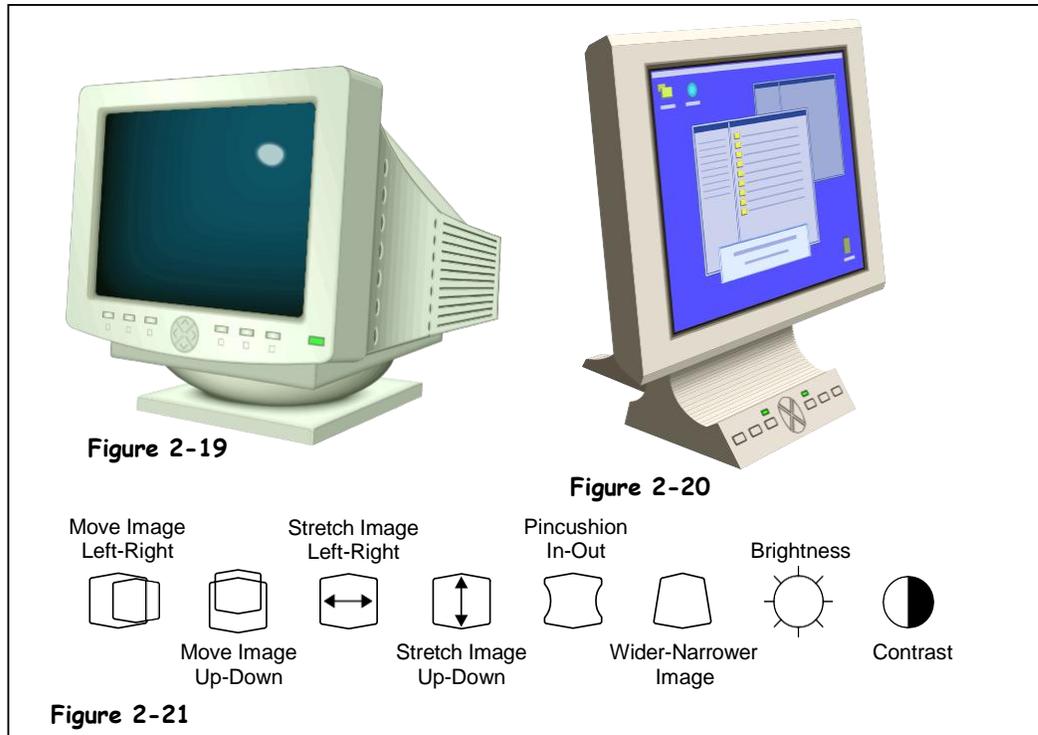
Similar in appearance to a television screen, a monitor displays images and text on its screen.

**Figure 2-20**

Flat-panel monitors are more expensive than traditional monitors, but they take up less space and use less electricity.

**Figure 2-21**

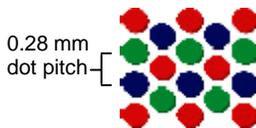
Common controls found on the front of a monitor.



**Figure 2-21**

A computer's monitor looks and works a lot like a TV screen. The monitor is really only half of what makes text and images appear on the screen. The other half is the graphic card, or video/display adapter. The monitor plugs into the graphics card in the back of the computer.

Flat panel or LCD (Liquid Crystal Display) monitors, like the one in Figure 2-20, will eventually replace older CRT monitors, like the one shown in Figure 2-19. A flat panel monitor is the same type of display that is found in laptop computers. Flat panel monitors are thin, lightweight, and use a lot less electricity than traditional monitors. Flat panel monitors are also considerably more expensive than traditional monitors, although the price is dropping. Flat panel monitors are wider than traditional monitors are; in fact a 15-inch flat panel monitor has almost the same viewing area as a 17-inch traditional monitor!



Dot pitch is the distance between pixels or dots on a screen. Dot pitch is measured in millimeters (mm).

- **Size**  
The size of a monitor is measured diagonally across the screen, just like TVs. Common monitor sizes are 15, 17, 19, and 21 inches. The most popular monitor size is currently 17 inches.
- **Dot Pitch**  
Dot pitch refers to the distance between each pixel, or dot, on the screen, as measured in millimeters (mm). The smaller the dot pitch, the closer the dots, and the sharper the image is. If you're in the market for a monitor try to find one with a 0.28 mm or less.

- **Refresh Rate**

The refresh rate determines how quickly the monitor redraws, or updates, the image on the screen. Higher refresh rates are better, since they flicker less and are easier on the eyes. The refresh rate is measured in herz (Hz), or the number of times per second the monitor redraws the entire screen. If you're buying a new monitor, make sure to get one with a refresh rate of 72 Hz or better.

- **Screen Savers and Energy Star Compliance**

A screen saver is a moving picture that appears on your computer screen when you don't use your computer for a while. Screen savers originally prevented phosphor burn, which occurred when a static image became etched onto the screen after a long period of time. Today's monitors aren't susceptible to phosphor burn, but some people still use screen savers for fun.

Most monitors are *Energy Star compliant*. This means they automatically turn themselves off after a period of time to save electricity. You turn the monitor back only by simply moving the mouse or pressing a key on the keyboard.

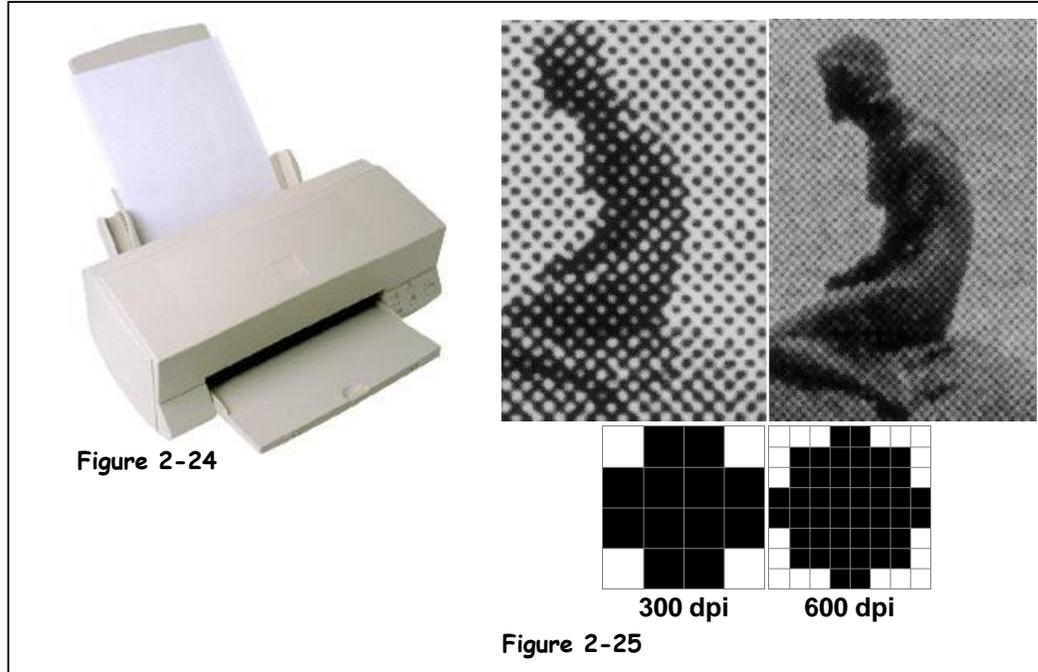
# Printer Basics

**Figure 2-24**

InkJet printers are the most inexpensive and popular type of printer sold today.

**Figure 2-25**

A printer's resolution determines the quality of the images it can produce.



A printer is an output device that puts text and graphics on paper. Using the printer is often the last step in creating something on a computer, whether it's a letter, spreadsheet, or digital photograph.

Unfortunately, there's a lot to know about printers—especially if you're buying one. Here are the main printer concepts you should know:

- **Type of Printer**

There are several different types of printers out there: InkJet and Laser printers are the most common. InkJet printers are the cheapest and most common type of printer and can be found in both homes and businesses. Laser printers are usually faster than InkJet printers, but they normally can only print in black and white. Laser printers are used mainly by businesses.

- **Color vs. Black and White**

Color used to be an expensive option for printers, but not any more. Most InkJet printers can print in color and so can an increasing number of laser printers. Most laser printers still print in black in white—great for text but not for images and graphics.

- **Resolution**

A printer's resolution helps determine the quality of the images it can produce. Higher resolution means higher quality images. Printer resolution is measured in dots per inch (dpi). Generally, 600-dpi resolution works great for text documents, while you will probably want 1200 dpi or better resolution for printing images. See Figure 2-25 for a good illustration of varying resolutions.

- **Speed**  
A printer's speed determines how quickly it can print pages. Speed is measured two ways: in characters per second (cps) or in pages per minute (ppm). Either way you want a higher number if you want to have a faster printer. Printers usually slow down quite a bit when printing pages with a lot of complicated graphics, or color images.
- **Ink Cartridges and Toner**  
Today many InkJet printers are cheap—about as much as dinner for two at a very fancy restaurant. Sound too good to be true? Here's the catch: the ink for most printers costs a *lot* of money. InkJet printers use ink cartridges that seem to run dry at an alarming speed. Laser printers use toner cartridges filled with the same messy black powder that is found in copy machines. Laser toner cartridges last a lot longer than InkJet cartridges, but they also cost significantly more.
- **Memory**  
Laser printers have their own memory, or RAM, just like a computer. This memory is used to store pages before they are printed. Memory is important for printing complex or high-resolution images. Most laser printers have anywhere from 2 MB to 8 MB of memory.
- **Print Buffer and Spooler**  
Computers are a lot faster than most printers are, so they can send information faster than the printer can accept it. A printer buffer or spooler fixes this problem. A print buffer works like a dam: it holds back the information and releases it at a rate that the printer can handle.

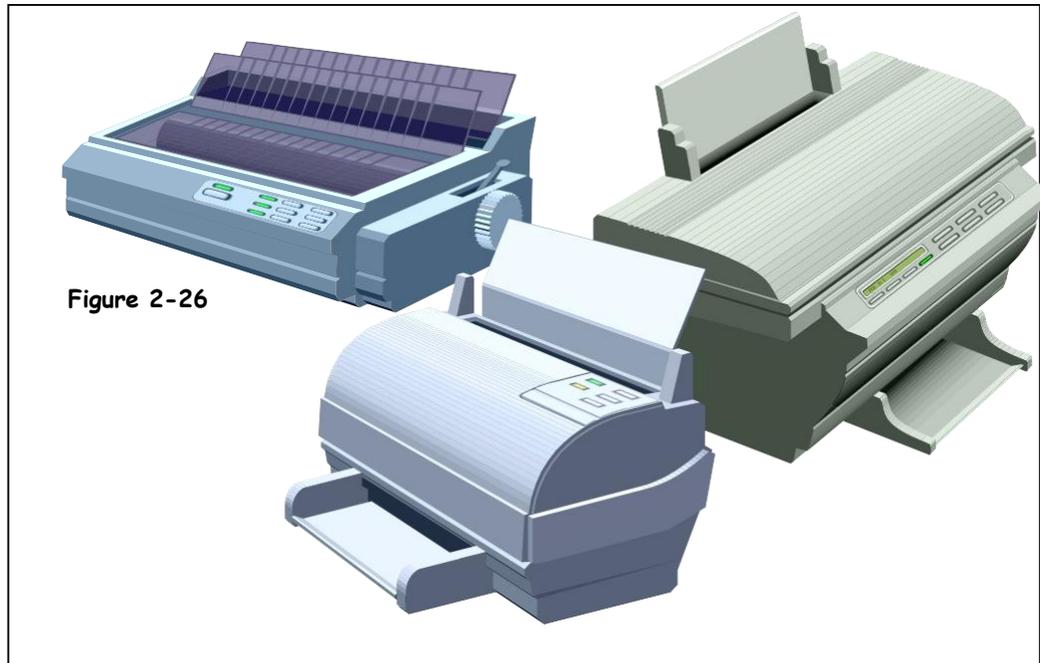
#### Quick Reference

- **InkJet** and **Laser** printers are the most common printer types.
- **Printer resolution** determines the quality of the images a printer can produce. Printer resolution is measured in dots per inch (dpi).
- A printer's speed determines how quickly it can print pages.
- Printers get their ink from expensive cartridges (InkJet printers) and toners (laser printers)
- Many printers have their own memory, which is required for printing more complex images.
- A **print spooler** or **buffer** temporarily stores large print jobs and releases them when the printer is able to print them.

# Types of Printers

**Figure 2-26**

There are many different types of printers available, with an enormous range of prices and features.



**Figure 2-26**

Leonardo da Vinci didn't limit himself by using only paint and brushes to create his masterpieces; he also used chalk to make sketches and a chisel and hammer to make sculptures. Maybe Leonardo would have used an airbrush or spray paint if they had been invented yet. Hmm... maybe not. Because there are different types of print jobs there are different types of printers. Are you a home user that prints an occasional letter or two? You'll probably want to buy a cheap *InkJet* printer. Are you a busy office that has lots of people who need to print lots of documents? You're probably looking at getting a *Laser* printer.

The following table describes the main types of printers out there and how or why you would use them, so you'll have no excuse for buying the wrong kind of printer when you get around to buying one.

**Table 2-9: Types of Printers**

<b>Printer Type</b>	<b>Description</b>
 <p><b>Ink Jet</b></p>	<p>Inkjet printers are easily the most popular and inexpensive type of printer out there. If you have a printer for your home computer, chances are it's an InkJet printer. InkJet printers create images by spraying ink onto a page. The inexpensive InkJet printer gets its ink from very expensive InkJet cartridges.</p> <p>Most InkJet printers can print in color, and their speeds vary from 2 to 16 pages per minute (ppm).</p>

<b>Printer Type</b>	<b>Description</b>
 <p><b>Laser</b></p>	<p>Laser printers have blazing speed—anywhere from 4 to 20 pages per minute (ppm), great resolution—anywhere from 300 to 1,200 dots per inch (dpi), and recently have become relatively inexpensive. Laser printers are great for businesses and people who need to produce large amounts of text documents or correspondence.</p> <p>Laser printers use the same technology as photocopy machines to create black and white images on paper. Laser printers use powdered black ink, called toner, just like photocopy machines do. When the toner cartridge runs out, you have to replace it with a new toner cartridge. Toner cartridges cost a lot more than InkJet cartridges do, but they also last a lot longer.</p>
 <p><b>Color Laser</b></p>	<p>A color laser printer works just like an ordinary laser printer, except that it can print in color, of course. Color laser printers are quite expensive and the color toner cartridges for them are even costlier.</p>
 <p><b>Multifunction</b></p>	<p>As its name implies, a multifunction printer can perform more than one task. Multifunction printers can usually operate as a fax machine, copier, and scanner in addition to their traditional printing duties.</p>
 <p><b>Dot Matrix</b></p>	<p>Popular in the 1980's, noisy dot-matrix printers have gone the way of the dinosaurs, except in businesses that need to print on carbon copies.</p> <p>Dot matrix printers usually use a type of paper with holes punched along each side called continuous form paper, and loads it through something called a tractor feed. Dot-matrix printers range in speed from 25 to 450 characters per second (cps), or 1 to 18 pages per minute (ppm).</p> <p>Resolution is measured differently with dot-matrix printers. Instead of using dot per inch (dpi) dot matrix resolution is measured by how many little pins are on the dot-matrix print head. Dot-matrix printers are available with 9-pin (terrible quality) and 24-pin (higher quality) print heads.</p>
 <p><b>Plotter</b></p>	<p>Don't expect to find a plotter at your local computer store. Plotters are special, very expensive printers that are used to create posters and blueprints.</p>

 **Quick Reference**

**Print Types Include:**

- InkJet
- Laser and color laser
- Multifunction
- Dot matrix
- Plotter

## Sound and Speakers

---

### Figure 2-27

Older computers had a sound card, which plugged into the motherboard of the computer. Newer computers have sound capabilities built into the motherboard.

### Figure 2-28

You'll need to connect a pair of speakers or headphones to your computer if you want to hear sound.

---

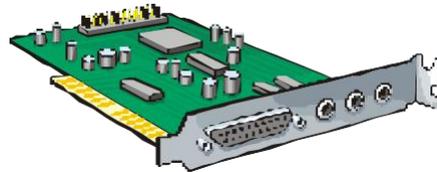


Figure 2-27

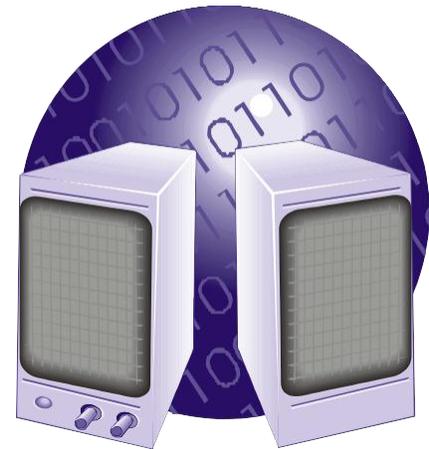


Figure 2-28

The term *sound card* is a little misleading; sound cards used to be expansion cards that plugged into a computer's motherboard. Although such sound cards still exist, today most computers have sound capabilities built into their motherboards. Either way, a sound card basically does two things: it plays and records digital sounds.

The types of sounds your computer can play range from the sounds you hear when you turn on your computer, to explosions in a computer game. A sound card can also play MP3 music files. An MP3 is a highly compressed sound file that lets you play CD-quality music on your computer.

While it's not nearly as important, sound cards also let you record sounds if you plug in a stereo or microphone. For example, you could use a sound card to record your aging cassette tape collection to MP3 files. Newer speech recognition software also requires that you have a microphone plugged into your computer.

Sound cards have the most confusing ports or jacks on the entire computer. Most of them look almost exactly the same—especially if you're crouched in the dark under a desk trying to plug in a pair of speakers to your computer. The table on the following page might make things a little easier by describing each of these ports.

**Table 2-10: Sound Card Jacks and Ports**

<i>Jack</i>	<i>Picture</i>	<i>Description</i>
 <b>Speaker</b>		<p>This is the main jack where you connect your speakers or headphones to hear the sounds produced by the sound card.</p>
 <b>Microphone</b>		<p>This jack lets you connect a microphone to your computer so that you record sounds and use speech recognition software.</p>
 <b>Line Out</b>		<p>You can listen to your computer through your home stereo system if you plug it into this jack. This is especially useful if you want to play MP3 files on your stereo.</p>
 <b>Line In</b>		<p>You can record a cassette, audio CD, or the radio by plugging a stereo system into this jack.</p>
 <b>Game Port</b>		<p>This port lets you connect a joystick, used for playing games, to your computer.</p>

 **Quick Reference**

**Sound Cards:**

- Allow computer to play and record digital sounds.

# Modem

**Figure 2-29**

An internal modem plugs into an expansion slot inside a computer.

**Figure 2-30**

An external modem plugs into a serial port and sits outside a computer.

**Figure 2-31**

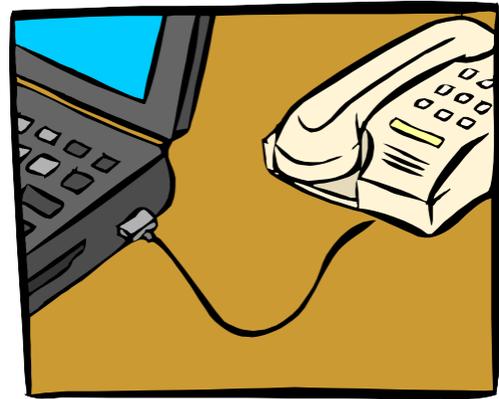
Most laptops have a built-in modem.



**Figure 2-29**



**Figure 2-30**



**Figure 2-31**

Just about every new computer comes with a built-in *modem*. A modem translates a computer's ones and zeros into audio tones, so that it can transmit information over the phone lines to other modems. The speed of a modem is measured by how fast it can transmit information in bits per second (bps).

- **Internal:** Most computers have an internal modem, like the one shown in Figure 2-29. Internal modems often plug into an expansion slot and are cheaper than external modems.
- **External:** An external modem, like the one shown in Figure 2-30, plugs in to a computer's serial port. Newer, *broadband* modem may plug into the USB or Ethernet port. A broadband modem transmits information directly over a connection, unlike older traditional modems that have to convert the information to tones or sounds first. Because of this, broadband modems are very, very fast—much faster than standard modems. DSL and Cable are the most common types of broadband connections.

Here's a quick overview of the major types of modems that are available:

## Quick Reference

### Standard Modems:

- Transmit information over standard phone lines to other computers. Maximum speed is 56K bps.

### Broadband and Digital Modems:

- Much faster than standard modems, with speeds up to 4,000K bps. Broadband modems include ISDN, DSL, and Cable.

**Table 2-11: Modem Types and Speeds**

Type	Speed (in bps)	Description
Standard	56K	Standard modems connect to a standard telephone line and are used for dial-up connections to the Internet.
Digital / Broadband	ISDN	56K to 128K One of the older broadband connections. It's only twice as fast as a traditional modem and pretty much obsolete.
	DSL	256K to 6,000K DSL modems take advantage of unused frequencies in the phone line, such as a pause in conversation. DSL modems are very fast; the problem is that you have to be close to a phone company in order to get DSL service.
	Cable	640K to 4,000K A cable modem is the fastest modem you can buy for home use. The problem is your cable company has to offer cable Internet access in order to use it.

# Input/Output Devices



**Figure 2-32**



**Figure 2-33**

**Figure 2-32**

A touch screen monitor is an example of an input/output device.

**Figure 2-33**

A multifunction printer is another example of an input (scanner)/output (printer) device.

Some computer devices can be categorized as *both* an input device and an output device. For example, a multifunction printer, like the one shown in Figure 2-33 has a scanner (input) and a printer (output). Touch screen monitors are another example of an input/output device; they display images (output) and also let users interact with the computer by pressing areas of the screen (input).

## Quick Reference

- Some computer devices have both input and output functions. Examples include touch screen monitors and multifunction printers.

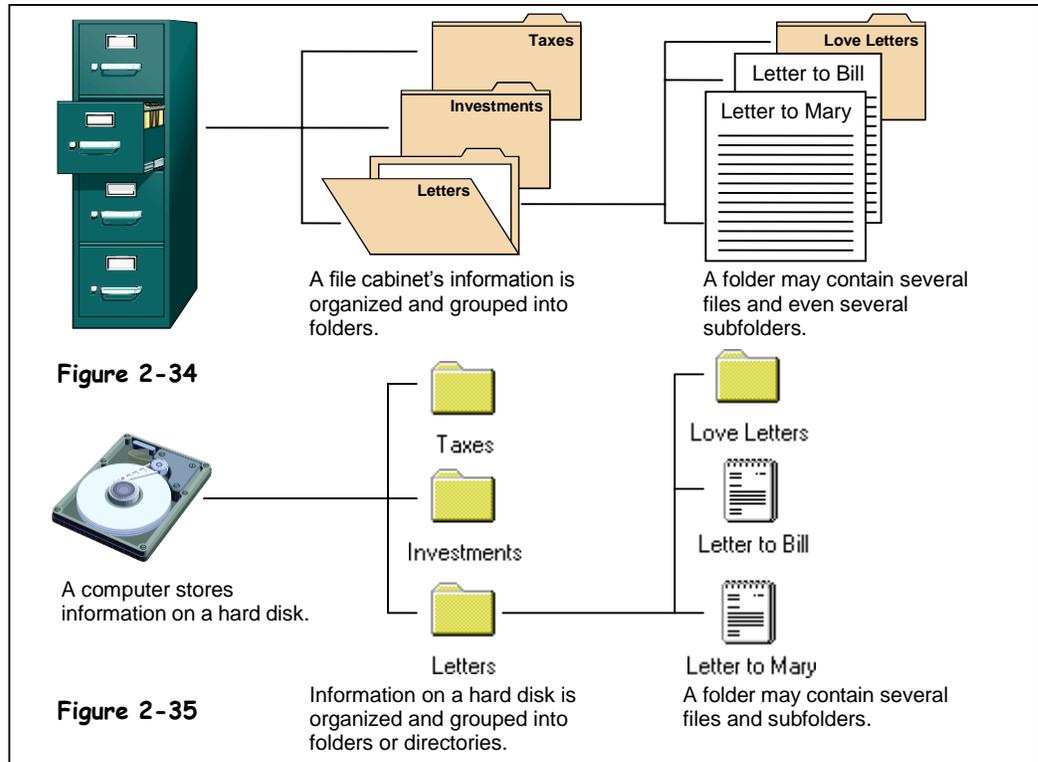
# Hard Drive

**Figure 2-34**

How information is stored in a file cabinet.

**Figure 2-35**

How information is stored on a hard disk.



## Storage Notes: Internal Hard Disk

**Speed:** Very fast. Most hard disks have an average access speed of between 8 to 15 milliseconds (ms).

**Capacity:** Enormous. Many hard disks have more than 200 Gigabytes (GB) of storage.

**Cost:** Hard disks are becoming more and more inexpensive. Byte for byte they are the most inexpensive way to store data.



Unlike floppy disks and CD-ROMs, most hard disks reside inside of the computer or system unit and cannot be easily removed.

A hard drive or hard disk is a computer's main storage device. Most hard drives are tucked away in the system unit of a computer and hidden from view. Although you normally can't see a computer's *internal* hard drive you can usually hear it whirring inside when you start the computer or a program. An external hard drive sits outside the computer's system unit and plugs into a USB, Firewire, or SCSI port.

The hard drive is like the file-cabinet portion of your desk. And files really are saved in folders on a computer, so this really is the perfect analogy. Most computers have a single hard drive located inside of the computer case labeled C. When a computer has more than one hard drive they are labeled D, then E, and so on. Unlike RAM, a hard drive retains its information even when you turn the computer off.

So what's stored on a hard drive? Let's take a look...

- **Operating System Files**

A computer's operating system, like Windows XP, is stored on the hard drive.

- **Program Files**

Program files are the programs you work with, like your word processor, your Internet software, or your games. Programs usually come on floppy disks or CD-ROM's, to use it first install, or copy, it to your hard drive in order to use the program.

- **Data Files**

Whenever you create a document or data file on your computer, like a word processing document, the computer stores it in its temporary memory (RAM.) You must save your documents to the hard drive or they will be lost when you turn off your computer.

Most hard drives are connected to a computer's motherboard through something called an *IDE* (Integrated Drive Electronics) connection. You can also connect CD-ROM and DVD drives to an IDE connection. A slight problem with IDE is that it only supports a total of four devices or drives. This isn't a big deal for most home users, but it is if you're a business and need a server with lots of hard drives. So there's another way to connect hard drives to a computer: through a SCSI (pronounced—get this—*scuzzy*) port. SCSI connections are often faster than IDE and they can connect up to seven devices instead of four.

OK, so what else do you need to need to know about hard drives?

- **Hard Disk Size (or Capacity)**

How much information (how many programs and data) a hard drive can store is measured in bytes, just like RAM. Hard drive sizes in newer computers range from 20 Megabytes (MB) all the way up to 200 Gigabytes (GB)! How big a hard drive should you get when you buy a computer? Normally try to get at least 40 Gigabytes if you're a home or small business user. More is better in hard drives, because programs keep getting bigger.

- **Average Access Time**

A hard drives average access time is how fast it can find information. Average access time is measured in milliseconds (ms), or 1/1000 of a second. The lower the access speed, the faster the hard drive. Most newer computers have an average access time of 8 to 15 ms.



### Storage Notes: External Hard Disk

**Speed:** Very fast, though normally slower than internal hard disks.

**Capacity:** Enormous – same as internal hard disks.

**Cost:** Slightly more expensive than internal hard disks.



### Quick Reference

#### Hard Drive:

- A computer's main storage device, sometimes called the C drive.
- Modern hard drives can store anywhere from 20GB to 250GB of information.
- **Average access time** is how fast a hard drive can find information.
- Hard drives are connected to a computer through either an **IDE** or **SCSI** interface.

# Hard Drive Maintenance

**Figure 2-36**

Routine hard drive maintenance keeps computers happy and running smoothly.

**Figure 2-37**

Most hard disk repair tools can be found in Microsoft Windows by right-clicking the hard drive, selecting Properties from the shortcut menu, and clicking the Tools tab.

**Figure 2-38**

Hard drives need to be defragmented periodically to make them more efficient.

**Figure 2-36**

**Figure 2-37**

**Figure 2-38**

Create a fragmentation report on the selected drive

Defragment the selected drive

Volume	Session Status	File System	Capacity	Free Space	% Free Space
(C:)	Defragmenting...	NTFS	14.06 GB	11.60 GB	82 %

Cars require maintenance to keep them running at their peak performance. Some car maintenance tasks are simple and routine, such as changing the oil every 3,000 miles. Others are more complicated, such as installing a new radio. Hard drives are no different—they require routine maintenance to prevent and/or correct problems and to keep them running at their best performance.

By now you're probably wondering, "How does one maintain a hard drive?" There are quite a few ways:

- **Repair a Hard Drive**

Over time, hard drives can become damaged, effecting their performance.

Fortunately most of the hard drive damage is caused by normal wear and tear and is not serious. You can diagnose and correct most hard drive problems with a hard drive repair program. Microsoft Windows comes with a built-in hard drive repair program.

- **Defragmenting a Hard Drive**

Normally a computer stores a file in the same location on a hard drive. Over time, a hard drive can become *fragmented*, and instead of storing a file in the same location it begins storing parts of it all over. When the computer needs to read a fragmented file, it must read several different parts of the hard drive instead of just one.

Defragmenting a hard drive puts the fragmented files back together in one place. You should defragment your computer's hard drive about once a month.

- **Backing up a Hard Drive**

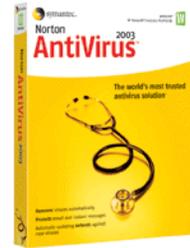
A computer's hard drive stores information even when the computer is turn off, but you should still back up the documents you create to some type of removable storage, like a CD-RW or tape backup. This will give you an extra copy of your files in case your hard drive is damaged.

- **Virus Protection**

A computer virus is actually a small computer program written by a malicious person with the purpose of vandalizing computers by erasing information on their hard drive and causing other problems. Anti-Virus programs that protect computers against viruses, like Norton AntiVirus or McAfee VirusScan, are available at most computer stores. If you're even thinking about connecting to the Internet, you need to have AntiVirus software installed on your computer.

- **Hard Drive Compression**

A computer can increase space on a hard drive by using a special program to compress, or squeeze together, the files stored on a hard drive. Most data compression programs can effectively double the amount of information a hard drive can store. Sounds great, so why don't many people use disk compression? First, data compression slows your hard drive because the computer has to uncompress files before it can read them. Second, data compression often causes more problems in hard drives. Third, several programs won't run on the computer with compressed hard drives. Don't compress your hard drive unless you absolutely have to, and even then it might be better to start looking for a new, larger hard drive than to use data compression.



Make sure you install antivirus software on your computer to prevent malicious computer viruses.

#### Quick Reference

##### **Hard Drive Repair and Fragmentation:**

- Over time, small errors and fragmentation can degrade the performance of a hard drive. These problems can be corrected by a hard drive utility program.

##### **Hard Drive Backups:**

- Should be performed to give you an extra copy of your files if your hard drive becomes damaged.

##### **Virus Protection:**

- Software should be installed on every computer to protect against malicious computer viruses.

##### **Compression:**

- Increases the space on a hard drive by compressing, or squeezing together, its files.

# CD-ROM Drive

**Figure 2-39**

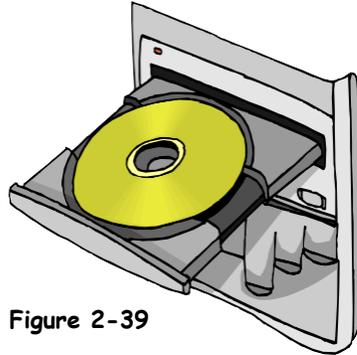
A CD-ROM drive.

**Figure 2-40**

A CD-ROM drive can also play the same, great audio CDs that a stereo system does.

**Figure 2-41**

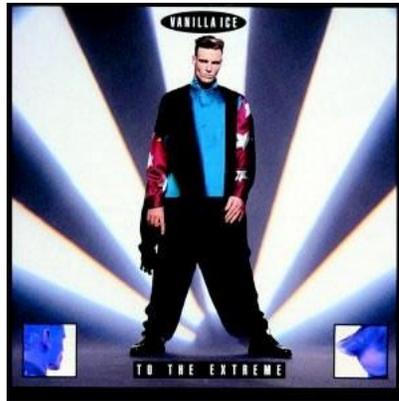
Newer CD-ROM drives can transfer data faster than older drives, as this table shows.



**Figure 2-39**

CD-ROM Speed	Transfer Rate
8x	1,000 KB/s
10x	1,600 KB/s
12x	1,800 KB/s
16x	2,400 KB/s
24x	3,600 KB/s
32x	4,800 KB/s
40x	6,000 KB/s
48x	7,200 KB/s
60x	9,000 KB/s

**Figure 2-41**



**Figure 2-40**

## Storage Notes: CD-ROM

**Speed:** Much slower than a hard disk, but still faster than a floppy.

**Capacity:** About 650 Megabytes (MB).

**Cost:** Very inexpensive.

Another type of drive almost all computers have is a CD-ROM drive (CD-ROM stands for Compact Disc-Read Only Memory). CD-ROM drives play CD-ROM discs—the same kind of compact discs you can play in your stereo system. CD-ROMs can store lots of information: a single CD-ROM can hold more than 600 Megabytes (MB) of data—more than an encyclopedia set! Unlike a hard drive, most CD-ROMs can only read information—you can't save, or record anything on them (that's what the ROM in CD-ROM stands for: *Read Only Memory!*) On the other hand, CD-RW drives *can* read and write (or burn) to special CD-R and CD-RW discs (the RW in CD-RW stands for *ReWritable*.) The CD-ROM drive is usually labeled D on most computers.

The speed of a CD-ROM drive determines how quickly the computer can read information stored on the CD-ROM. Faster CD-ROM drives produce better sound and video quality. The original CD-ROM drive was no faster than an audio CD player, so the speed of all subsequent CD-ROM drives is measured by how many times faster they are than the original, 1x CD-ROM drive. Today's CD-ROM drives are up to *sixty times (60x)* faster than the original.

Here are some things you can do with CD-ROMs:

- **Install Programs**  
More programs are coming on CD-ROMs because of their large storage capacity. Instead of installing and copying 20 floppies to your hard drive, you only have to install a single CD-ROM.
- **Run CD-ROM Programs**  
CD-ROM-based programs are usually the coolest programs available for your computer. CD-ROM programs often have rich, exiting multimedia content: high quality sounds, music, videos, and animations. For example, a popular CD-ROM program is a complete, searchable encyclopedia set which contains high quality pictures, sounds, music, and videos.
- **Play Audio CDs**  
Most CD-ROM drives are capable of playing audio CDs—the same kind your stereo uses! So your computer can play music while you work.

**Table 2-12: Types of CD's**

<b>CD Type</b>	<b>Description</b>
<b>CD-ROM</b>	The original, standard CD, CD-ROM stands for Compact Disc, Read-Only Memory. What this means is that you can only read information from a CD-ROM; you can't add new information.
<b>CD-R</b>	If you have a CD-RW drive you can permanently store information on a CD-R (Compact Disc-Recordable) disc. The information you write or <i>burn</i> to a CD-R is permanent and can't be changed or erased.  You can also use CD-R discs to create musical CDs that you can listen to in a stereo system.
<b>CD-RW</b>	Unlike CD-R discs, a CD-RW (Compact Disc-ReWritable) disc can be written to many times. You can also modify and erase information on a CD-RW disc—if you have a CD-RW drive, of course.

# DVD Drive

**Figure 2-42**

A DVD disc looks almost identical to a CD-ROM disc.

**Figure 2-43**

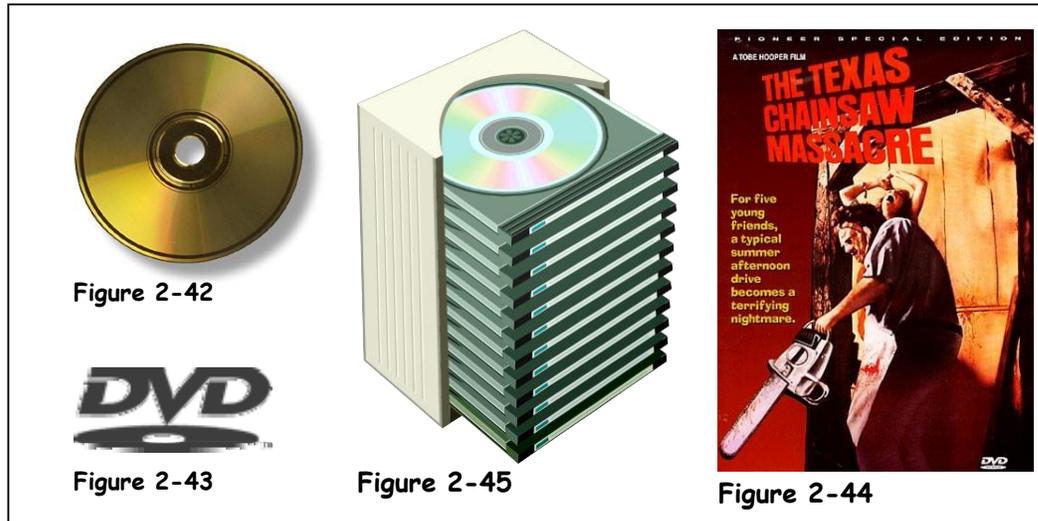
The DVD logo.

**Figure 2-44**

A single DVD can store as much information as several CD-ROMs.

**Figure 2-45**

A DVD drive can also play the same, great movies that you can watch on a DVD player.



 **Storage Notes:**  
**DVD**

**Speed:** Faster than a CD-ROM drive but not as fast as a hard disk.

**Capacity:** Usually about 4 Gigabytes (GB), although future DVD discs are rumored to hold up to 17 Gigabytes (GB).

**Cost:** Slightly more than a CD-ROM but still very inexpensive.

Next generation DVD drives are quickly replacing CD-ROM drives in newer computers. A DVD (stands for Digital Versatile Disc) disc looks just like a CD-ROM, but it can store more than 4 Gigabytes (GB) of information—as much as seven CDs. There are even rumored to be future DVD discs that can hold up to 17 Gigabytes! Unfortunately there still really isn't a lot of software that is available on DVD discs. Most people simply use their DVD drive to watch DVD movies. The CD-ROM drive is usually labeled D or E on most computers.

New rewritable DVD drives, that can record or burn information to special type of DVD discs have recently become available the market. Unfortunately for the consumer, the greedy DVD manufacturers couldn't agree on a universal recordable DVD standard, so there are several different competing formats out there. Hopefully consumers will eventually make the decision for the DVD manufacturers, like they did between Betamax and VHS videotapes. Until then there isn't really any clear answer about which recordable and rewritable DVD format to go with, although both DVD+RW and DVD-RW discs work in most newer DVD drives and players. We can tell you that recordable DVD-RAM format is almost universally *not* compatible with most DVD players. Table 2-13: *DVD Formats* tries to make sense of all the available formats. For more information on recordable DVD standards, visit <http://www.dvdrhelp.com/dvdplayers.php> on the Web.

**Table 2-13: DVD Formats**

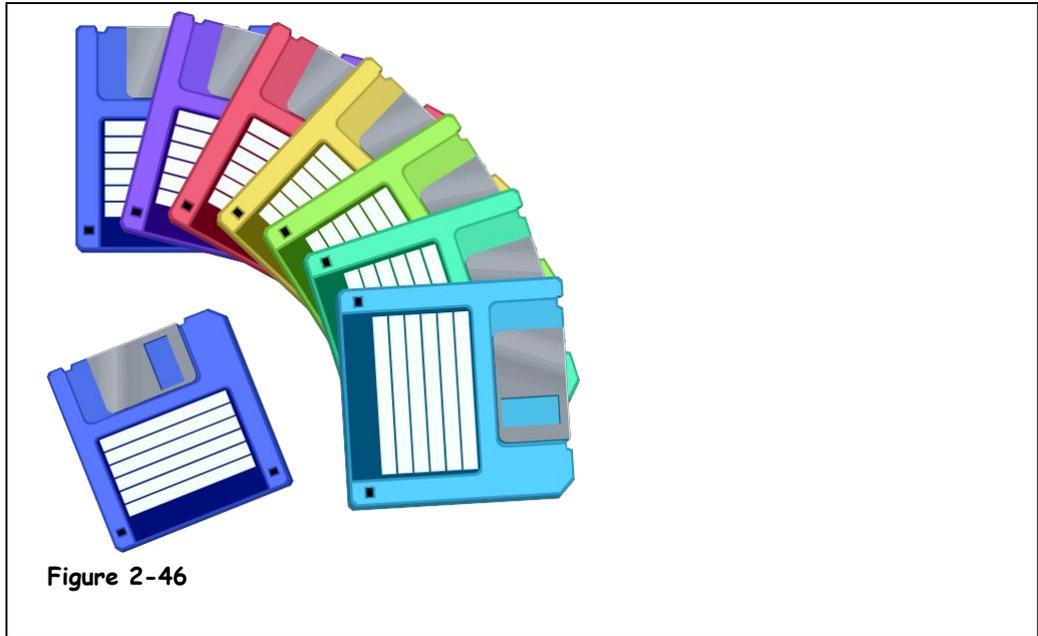
<b>DVD Format</b>	<b>Description</b>
<b>DVD-ROM</b>	The original, standard DVD. ROM stands for Read-Only Memory. This means you can only read information from a DVD; you can't add new information.
<b>DVD-R</b>	If you have a DVD-RW drive you can permanently store information on a DVD-R (DVD-Recordable) disc. The information you write or burn to a DVD-R is permanent and can't be changed or erased.  DVD-RW drives can also write to DVD-RW discs

<b>DVD Format</b>	<b>Description</b>
<b>DVD-RW</b>	<p>If you have a DVD-RW drive you can use DVD-RW (ReWritable) discs, which can be re-written up to 1,000 times. You can also modify and erase information on a DVD-RW disc. DVD-RW discs have some compatibility problems with older DVD Players and DVD ROM drives.</p> <p>DVD-RW drives can also write to DVD-R discs.</p>
<b>DVD+R</b>	<p>If you have a DVD+RW drive you can permanently store information on a DVD+R (DVD+Recordable) disc. The information you write or burn to a DVD+R is permanent and can't be changed or erased.</p> <p>DVD+RW drives can also write to DVD+RW discs.</p>
<b>DVD+RW</b>	<p>If you have a DVD+RW drive you can use DVD+RW (ReWritable) discs, which can be re-written to up to 1,000 times. You can also modify and erase information on a DVD+RW disc. DVD+RW discs have some compatibility problems with older DVD Players and DVD ROM drives.</p> <p>DVD+RW drives can also write to DVD+R discs.</p>
<b>DVD-RAM</b>	<p>DVD-RAM is a rewritable DVD format that can be re-written to many times. DVD-RAM discs are beginning to look like an orphan format, since they won't work in most DVD players.</p>

# Floppy Drive

**Figure 2-46**

A relic of the past, floppy disks don't have the speed or capacity to be very useful in the 21<sup>st</sup> century.



## Storage Notes: Floppy Disk

**Speed:** Very slow.

**Capacity:** Very small – 1.44 Megabytes (MB).

**Cost:** Very cheap.

Most desktop computers still have a floppy drive, although most laptops have dropped the all-but-obsolete floppy drive. Floppy drives read flat, 3½-inch floppy disks. Floppy drives are as slow as a glacier when compared to hard drives and CD-ROM drives. Floppy disks can only store a scant 1.44 Megabytes (MB) – just a little more than your typical novel.

So why are these relics from the 1980's still around? Floppy disks can still be useful for transferring and backing up small documents. Some other uses for floppy disks include:

- A mini cutting board
- An eye patch (for one-eyed software pirates)
- A room divider for hamsters
- An accessory for aging computer nerds

## Quick Reference

### Floppy Disks:

- Are slow and can only store 1.44MB. They are all but obsolete.

# Zip and Jaz Drives

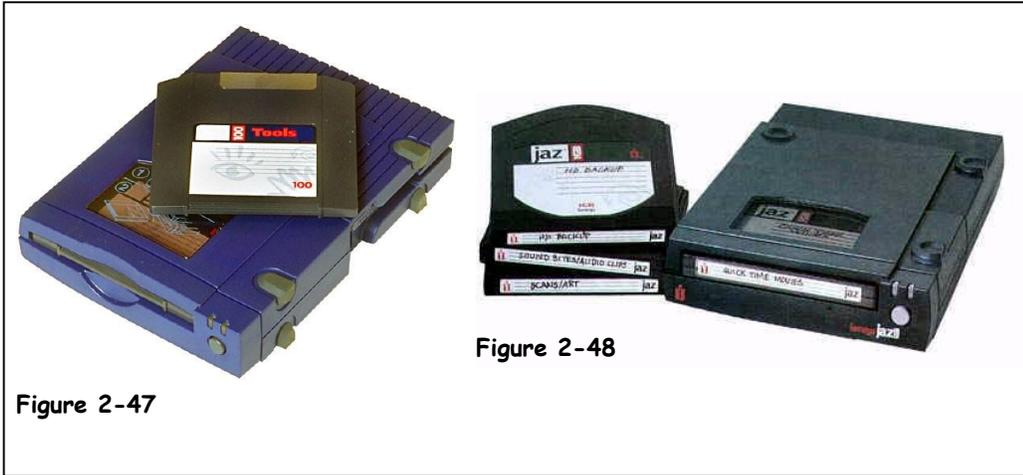


Figure 2-47

Figure 2-48

Removable storage drives have features of both hard drives and floppy drives. Removable storage drives work like a floppy drive because they read and write information on small, removable cassettes that are about the size of a floppy disk. They are like hard drives because each cassette can usually hold more than 100 megabytes (MB) and is much faster than a floppy disk, but still not quite as fast as a hard drive. Two of the most popular removable storage drives are the Zip drive and Jaz drive, both made by Iomega.

Zip disks can store 100 to 250 Megabytes (MB) on a removable disk—about 70 to 170 times as much as an old floppy disk. Zip drives are available in both 100MB and 250MB versions. You'll need a 250MB version to read both 100MB and 250MB Zip disks. Zip disks are a great way to transfer and backup information—but they're not much of a value when compared to newer CD-RW and even newer DVD-RW discs.

Jaz disks can store 1 to 2 Gigabytes (GB) on a single removable disk—as much as an older hard drive! Jaz drives are also fast, though not as fast as a hard disk, so they're great for backing up information. Despite their huge storage capacities, Jaz drives really never caught on.

Figure 2-47

A Zip drive can store 100MB or 250MB on removable Zip disks.

Figure 2-48

A Jaz drive can store 1GB or 2GB on a removable Jaz disk.

## Storage Notes: Zip Drive

**Speed:** Significantly slower than most hard disks.

**Capacity:** 100 to 250 Megabytes (MB).

**Cost:** Expensive when compared to costs of equivalent CD-RW discs and other storage devices.

## Storage Notes: Jaz Drive

**Speed:** Slower than most hard disks, but faster than a Zip disk.

**Capacity:** 2 Gigabytes (GB).

**Cost:** Fairly expensive when compared to costs of equivalent CD-RW discs and other storage devices.

<b>Object</b>	<b>Object</b>
You use the <b>arrow</b> or <b>pointer</b> to point and click at things.	 The <b>Recycle Bin</b> stores your deleted files.
Click the <b>Start button</b> to access the programs on a computer.	Click the <b>Close button</b> to close the current window or program.
Double-click <b>My Computer</b> to access the drives and files on a computer.	Click the <b>Minimize button</b> to temporarily hide a window or program.
Double-click the <b>Hard Drive</b> to access the hard drive's folders and files.	Click the <b>Maximize button</b> to expand a window or program to fill the entire screen.
Double-click the <b>CD-ROM Drive</b> to play or run the contents of the CD-ROM.	A <b>thumbnail</b> displays a tiny preview of a digital picture or photograph.
Folders hold files and subfolders, just like a filing cabinet.	

# Understanding Graphical User Interfaces

**Figure 3-53**

The procedure for deleting a file in a text-based operating system.

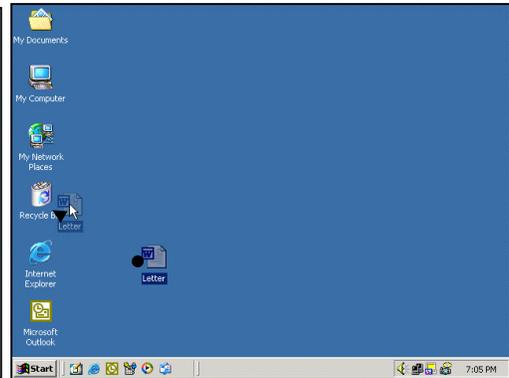
**Figure 3-54**

The procedure for deleting a file in a GUI-based operating system. Which is easier?

```
Microsoft (R) MS-DOS
(C) Copyright Microsoft Corp

C:\>DEL LETTER.DOC
```

**Figure 3-53**



**Figure 3-54**

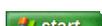


Graphical user interfaces (GUIs) allow computer users to point and click.

Originally, the information on a computer screen was strictly text, and that text was manipulated using a keyboard. Then computers started using graphical images on the screen to represent a program or file. Those images are called *icons*. Along with the introduction of icons came the development of *graphical user interfaces (GUIs)*. GUIs allow computer users to point at pictures and icons and then click the icon to manipulate that program or file, thus the phrase *point and click*. Obviously, the mouse is a manifestation of this point-and-click mentality because the mouse controls the onscreen cursor.

Figure 3-53 and Figure 3-54 make a good illustration of how much easier a GUI makes it to do things, like delete a file. The following table describes some of the most common icons you'll see in the Windows XP GUI.

**Table 3-1: Things You'll See in the Windows XP GUI**



# Types of Software

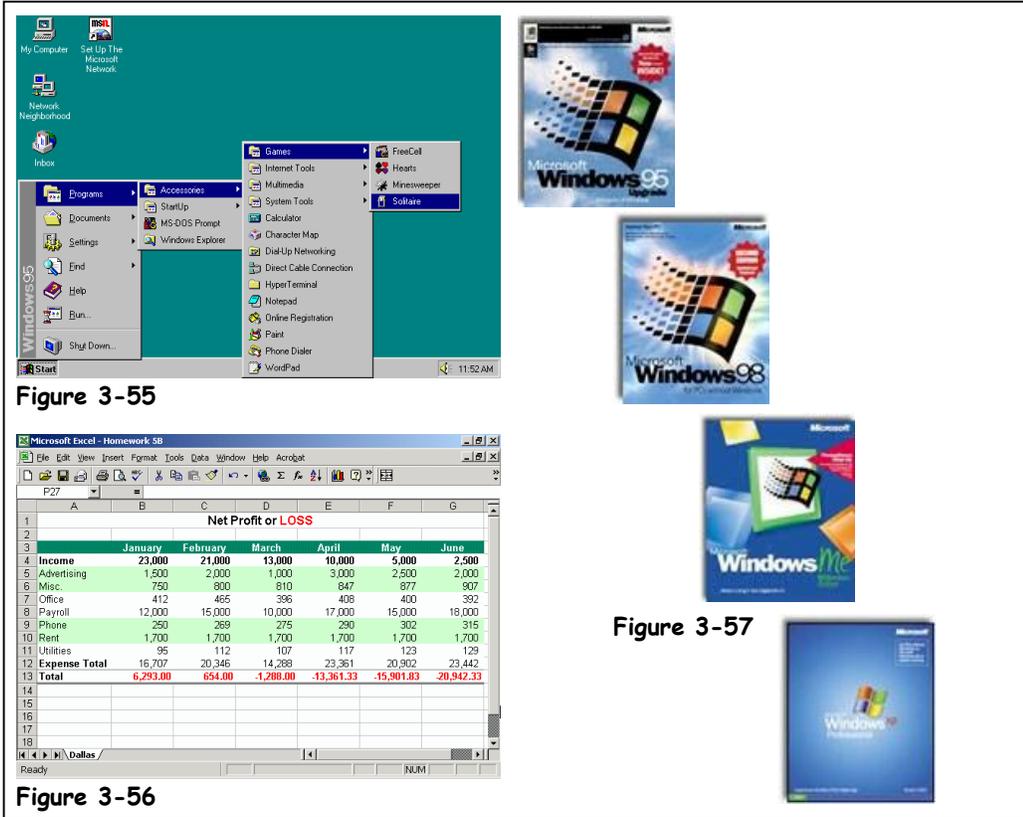


Figure 3-55

Figure 3-56

Figure 3-57

Before we delve into the world of software we need to ask and address a few basic questions:

- What is an operating system?**  
 An operating system is a software program that loads automatically and controls just about everything on your computer. There are a number of operating systems out there, including MS-DOS and Microsoft Windows.
- What is an application program?**  
 An application program helps you accomplish a certain task, such as writing a letter, browsing the Internet, or playing a game. Examples include word-processing programs, spreadsheets, databases, and games.
- Why are new versions of software released year after year?**  
 Software manufacturers will tell you need a new version of their program because it has new features. If you don't get it, people will tell you it's so the software manufacturers can continue to make money year after year. They often give a new name or number, such as Windows 95, Windows 98, to help distinguish the software.

Got it? Great! Let's continue our tour into the world of computer software.

**Quick Reference**

**An Operating System:**

- Loads automatically and controls just about everything on your computer.

**An Application Program:**

- Helps you accomplish a certain task, such as writing a letter, browsing the Internet, or playing a game.

**New Software Versions and Releases:**

- Come out periodically that add new features to a program...and make its manufacturers more money.

# Operating Systems

**Figure 3-58**

MS-DOS is a text-based operating system from the Stone Age.

**Figure 3-59**

Introducing... the Start menu! Microsoft Windows 95 was a very popular operating system that features long file names, better performance, and an easy-to-use interface.

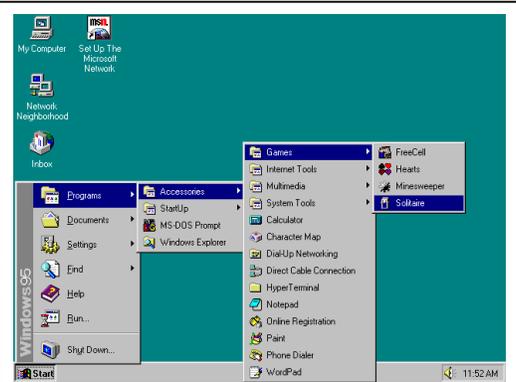
```
C:\WINDOWS>cd ..
C:\>dir

Volume in drive C is HARDDISK
Volume Serial Number is 2050-0B06
Directory of C:\

COMMAND.COM           93,812    08-24-96  11:11
WINDOWS              <DIR>
CONFIG.SYS            0
MITCHELL.LOG          514
NETLOG.TXT            2,577
PROGRAM1.DOC          <DIR>
QBOOKSW.DOC           <DIR>
CONTRACT.DOC          19,968    10-08-97  04:44
INTROT1.DOC           706,560   10-20-97  03:10
MYDOCU1.WBK           674,816   10-20-97  06:13
BACKUP1              7 file(s) 1,498,247 bytes free
                    5 dir(s)  2,206,556,160 bytes free

C:\>
```

**Figure 3-58**



**Figure 3-59**

An operating system is a software program that loads automatically and controls just about everything on your computer. Here's what an operating system does:

- Controls Your Computer's Hardware**  
 Windows controls the different devices of your computer system. It's what makes your printer print, what makes graphics and text appear on your monitor, and what makes your mouse point and click.
- Runs Your Computer's Programs**  
 An operating system is what runs all your programs. Without an operating system, your word processor, Web browser (Internet), and games wouldn't work. An operating system lets your programs talk to your hardware, so, for example, your word processor can print things to the printer.
- Organizes Files**  
 An operating system stores information in files and folders on your computer's local disk, just like you store files and folders in a filing cabinet.

An operating system is like an orchestra conductor who makes sure all the parts of your computer—your hardware and programs—work together. Operating systems have been around for a long time—here's a brief history of the various operating systems out there:

**Table 3-2: Types of Operating Systems**

Operating System	Released	Description
MS-DOS	1980	MS-DOS stands for Microsoft Disk Operating System. MS-DOS was one of the earliest PC operating systems that displayed boring lines of text on the screen instead of icons and pictures. You performed tasks in MS-DOS by typing text commands. MS-DOS file names could only be eight characters long.
Windows 3.1	1992	Windows 3.1 was the first <i>successful</i> operating system for the PC that featured a GUI (Graphical User Interface) that used easy to use pictures instead of hard-to-remember MS-DOS commands. Technically speaking, Windows 3.1 was not a true operating system, since it still required MS-DOS to operate.

C:\>

A command prompt is where you type commands in MS-DOS.

<b>Operating System</b>	<b>Released</b>	<b>Description</b>
<b>Windows 95</b>	1995	The incredibly successful successor to Windows 3.1, Windows 95 was a true operating system (no more MS-DOS). It featured long file names, better performance, and a greatly improved interface.
<b>Windows 98</b>	1998	Very similar with Windows 95, Windows 98 included several new and improved features. More importantly, Windows 98 came with support for many of the new hardware devices out there.
<b>Windows ME</b>	2000	Windows ME was the successor to Windows 98. ME stands for <i>Millennium Edition</i> or <i>Mistake Eternal</i> , depending on who you talk to. Windows ME was very similar to Windows 95 and 98 but it included new multimedia features, new utilities and lots of new bugs.
<b>Windows NT</b>	1993	Windows NT (stands for <i>New Technology</i> ) was a powerful 32-bit operating system that was faster, more secure, and much more stable than Windows 95 or 98. Windows NT was designed for use in large companies where stability and security were especially important.
<b>Windows 2000</b>	2000	Windows 2000 was the successor to Windows NT. Windows 2000 includes the best features of Windows 98 (easy Plug and Play hardware installation) and Windows NT (security and stability). Windows 2000 is still widely used in many businesses.
<b>Windows XP Home</b>	2001	Windows XP (stands for eXPerience—huh?) Home is designed for home and consumer computing and is the successor to Windows ME. Windows XP has the same technology found in Windows NT and 2000, so it's much more stable than earlier versions of Windows.
<b>Windows XP Professional</b>	2001	Windows XP Professional is the business edition of Windows and is the successor to Windows NT and Windows 2000.
<b>Windows CE / Pocket PC</b>	Varies	Windows CE (stands for Consumer Electronics) is the operating system made by Microsoft used to power handheld computers or PDAs (Personal Data Assistants).
<b>Palm OS®</b>	Varies	The Palm OS is another operating system that can be found on handheld computers or PDAs.
<b>UNIX</b>	Varies	UNIX is an older, very powerful operating system that can run on a computer, mainframe, or network. UNIX features great performance, security, and reliability.
<b>Linux</b>	Varies	Linux is a newer UNIX-base operating system that is available for FREE on the Internet. Linux is becoming a popular alternative to Microsoft Windows.
<b>Mac OS X</b>	2001	Mac OS X is the latest operating system for Macintosh computers.

 **Quick Reference**
**An Operating System...**

- Loads automatically and controls just about everything on your computer.

## Lesson 4-2: The Internet

**Figure 4-4**

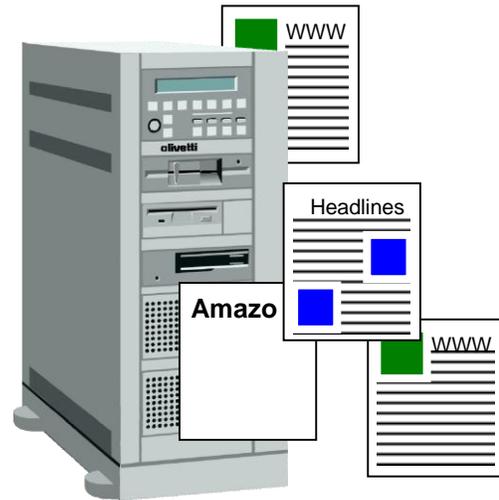
The Internet is the largest network in the world, consisting of millions of computers, all over the world, all connected together.

**Figure 4-5**

Web pages are stored on Web servers—computers that are permanently connected to the Internet.



**Figure 4-4**



**Figure 4-5**

The Internet is the largest computer network in the world. It consists of millions of computers all over the planet, all connected to each other.

The Internet was born in the 1960s when the United States military worried that a nuclear bomb could destroy its computer systems (there weren't many of them back then). So it placed several computers far apart from each other and connected them with some super-fast telephone lines so that the computers could talk to each other. If a nuclear bomb blew up one computer, another computer could instantly take over; thus, the computer network wouldn't go down. Years passed and other organizations, such as colleges and universities, started connecting their computers to this growing network to share information.

Although the Internet has been around a long time, it wasn't until the 1990's that someone thought of a wonderful idea called the *World Wide Web*. Many people use the terms Internet and World Wide Web or Web interchangeably, but in fact the terms are two separate but related things. The Internet is a massive network of networks that connects millions of computers to one another. A good analogy would be the cables that provide cable television. The World Wide Web is simply one way to communicate and share information over the Internet. Using our cable television analogy, the World Wide Web would simply be single channel that is broadcast over the cable system.

The World Wide Web consists of millions of documents that are stored on hundreds of thousands of computers that are always connected to the Internet. These documents are called *Web pages*, and you can find Web pages on every subject imaginable—from your local newspaper to online catalogs to airline schedules, and much, much more.

Web pages are stored on *Web servers*. A Web server is a computer, not unlike your own computer, only bigger and faster. There are hundreds of thousands of Web servers located all over the world. Web servers are always connected to the Internet so that people can view their Web pages 24 hours a day.

So what can you do once you're connected to the Internet? Plenty. Table 4-2: *What Can I do on the Internet?* shows just a few of the many things there are to do on the Internet.

**Table 4-2: What Can I do on the Internet?**

<b>Task</b>	<b>Description</b>
<b>Send and Receive E-mail</b>	Exchanging electronic mail (or e-mail) is the most used and most popular feature on the Internet. Just like regular paper mail, you can send and receive e-mail with people around the world, as long as they have access to a computer and the Internet. Unlike regular paper mail, e-mail is usually delivered to its destination almost instantly.
<b>Browse the World Wide Web</b>	The World Wide Web is what most people think of when they think of the Internet—although it's really only a part of the Internet. The World Wide Web is an enormous collection of interconnected documents stored on Web servers all over the world. The World Wide Web has information on every subject imaginable.
<b>Join online discussions with newsgroups</b>	Newsgroups are discussion groups on the Internet that you can join to read and post messages to and from people with similar interests. There are thousands of newsgroups on topics such as computers, education, romance, hobbies, politics, religion, and more.
<b>Chat with other online users</b>	Chatting lets you communicate with people on the Internet instantly—no matter how far away they are! Most chats are text-based, meaning you have to type when you converse with people on the Internet. A growing number of chats have voice and even video capabilities—all without having to pay long distance charges.
<b>Download software</b>	You can download pictures, demo programs, patches and drivers for your computer, and many other types of files and save them to your computer.
<b>Listen to music and watch videos</b>	You can listen to sound on the Web, such as radio stations, or music by your favorite artists.

# Using the Mouse: Dragging and Dropping

**Figure 5-7**

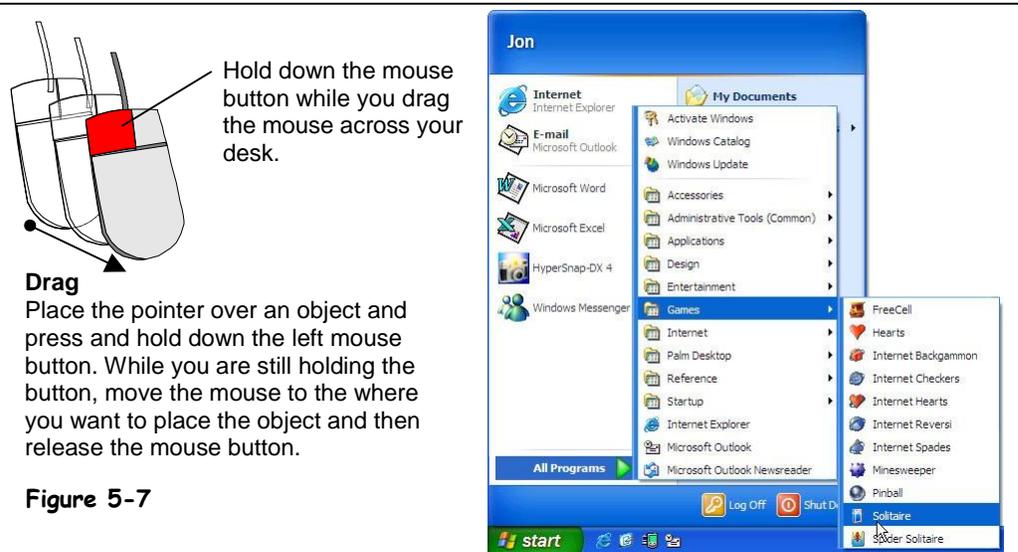
Dragging and Dropping with the mouse

**Figure 5-8**

You can start a game of Solitaire by looking under Programs → Games → Solitaire.

**Figure 5-9**

The Solitaire game, which comes with Windows



**Figure 5-7**

**Figure 5-8**



**Figure 5-9**

You can move items around your computer screen by *dragging and dropping* them with the mouse. To drag and drop something, you: (1) Move the mouse pointer over the object you want to move, then click and *hold down* the mouse button. (2) While you are still holding down the mouse button, move the mouse until the pointer is over the place you want to put the object, then (3) Release the mouse button.



**Start button**

This will probably be the most entertaining lesson in the book, because your assignment is to master dragging and dropping by playing a game of Solitaire! Microsoft included Solitaire with Windows to help people improve their mouse skills. You've probably noticed that a lot of people never stop practicing these skills with Solitaire. Here's how to open Solitaire:

1. **Click the Start button.**  
Remember the Start button is located in the bottom-left corner of your screen. The Windows XP Start menu appears.
2. **Point to the word All Programs.**  
The All Programs menu pops out to the right.
3. **Point to the word Games.**  
Another menu, the Games menu, pops out, as shown in Figure 5-8.
4. **Click the word Solitaire.**  
You're finally there! The Solitaire program opens, as shown in Figure 5-9.
5. **Play a game of Solitaire and practice dragging and dropping the cards.**  
If you don't know how to play Solitaire, you can still practice your dragging and dropping. Just point to a card, click and hold down the mouse button and move the card around the screen. Release the mouse button to drop the card. If you try dropping a card in an invalid location, the card will be whisked back to its original pile.
6. **Click the Close button located in the top right corner of the Solitaire program to exit the program when you've finished playing.**  
The Solitaire program closes.

Okay, there have to be more things to drag and drop besides cards! Although we'll be covering this stuff later on, Table 5-3: *Things you can drag and drop* gives some examples of when you can use drag and drop.

**Table 5-3: Things you can drag and drop**

<i>You can do this:</i>	<i>By dragging this:</i>
<b>Move a window to a new location on the screen</b>	Drag the window by its title bar and drop it in a new location on the screen.
<b>Move a file to a new folder</b>	Drag the file and drop it in the desired folder.
<b>Change the size of a window</b>	Drag the borders or corners of the window.
<b>Scroll a window to see something located off-screen</b>	Drag the scroll box (the little elevator) up or down the scroll bar and drop it in a new location.
<b>Move just about anything on your computer's screen</b>	Point to the object, click, and hold down the mouse button, drag the object to a new place, and then release the mouse button.

You may have trouble mastering drag and drop right away. Don't get discouraged; this is a tricky task for beginners. Just keep practicing and you'll improve.



**Close button**

 **Quick Reference**

**To Drag-and-Drop:**

1. Point to the object you want to drag and drop and click and hold down the mouse button.
2. While you're still holding down the mouse button, drag the object to the desired location on the screen.
3. Release the mouse button.

# Using the Mouse: Right-clicking

**Figure 5-10**

Right-Clicking

**Figure 5-11**

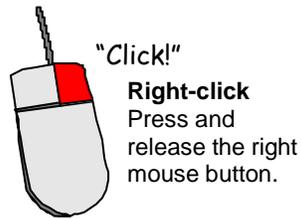
The right mouse button shortcut menu for the Recycle bin

**Figure 5-12**

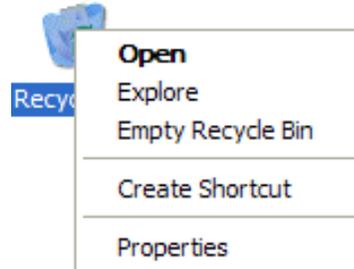
The right mouse button shortcut menu for the clock

**Figure 5-13**

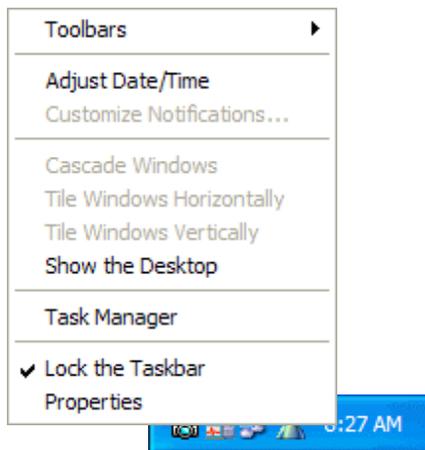
The Local disk (C:) Properties dialog box



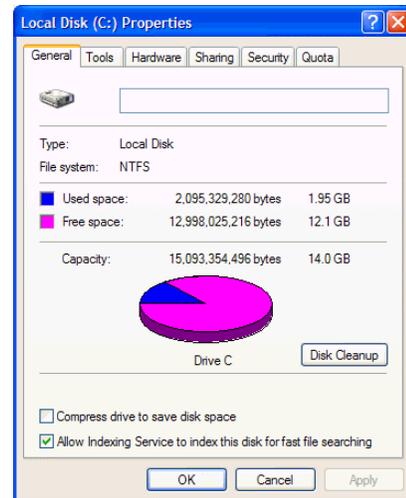
**Figure 5-10**



**Figure 5-11**



**Figure 5-12**



**Figure 5-13**

You already know that the left mouse button is the primary mouse button, used for clicking and double-clicking, and it's the mouse button you will use over 95 percent of the time when you work with Windows. So what's the right mouse button used for? Whenever you *right-click* something, it brings up a shortcut menu that lists everything you can do to the object. Whenever you're unsure or curious about what you can do with an object, point to it and click it with the right mouse button. A shortcut menu will appear with a list of commands related to the object or area you right-clicked.

Right mouse button shortcut menus are a great way to give commands to Windows because you don't have to wade through several levels of unfamiliar menus when you want to do something.



Recycle Bin

1. Move the pointer over the **Recycle Bin** icon on your desktop and click the **right mouse** button.

A shortcut menu appears with a list of commands related to the Recycle Bin, as shown in Figure 5-11.

**2. Point to and click the **Empty Recycle Bin** option on the shortcut menu with the **left mouse** button.**

You still use the left mouse button to select menu items, even if they are found in a right-mouse button shortcut menu. A dialog box appears, asking you if you are sure you want to delete the contents of the Recycle Bin. Better play it safe and...

**3. Click **No** with the left mouse button.**

Next, you realize the clock displayed on the far right side of the taskbar is ten minutes fast. You can display the clock's properties by right-clicking the clock.

**4. Move the pointer over the **Clock**, located on the far right side of the Windows Taskbar, and click the **right mouse** button.**

Another shortcut menu appears, with commands related to the Windows clock, as shown in Figure 5-12. Notice one of the commands listed on the shortcut menu is Adjust Date/Time. You would select this menu item if you really wanted to adjust the date and/or time. You don't want to adjust the date or time, however, so you can move on to the next step and close the shortcut menu without selecting anything.

**5. Click anywhere outside the **Clock** shortcut menu with the left mouse button to close the menu without selecting anything.**

The final object we'll right-click in this lesson is the computer's local disk. To get to the local disk you have to open My Computer. Do you remember how to do it?

**6. Double-click the **My Computer** icon.**

The My Computer window opens, displaying the contents of your computer. You want to see how much space is left on your computer's local disk. Right-click the Local disk (C:) icon to get this information.

**7. Right-click the **Local disk (C:)** icon.**

A shortcut menu appears, with a list of commands related to the local disk.

**8. Click the **Properties** option on the shortcut menu with the **Left mouse** button.**

A dialog box appears, showing a graph with how much space is left on your hard drive, as shown in Figure 5-13.

**9. Click **Cancel** to close the Local Disk (C:) Properties dialog box.**

You're done! You've learned all the actions you can perform with the mouse. Quick! What are they again? Pointing, Clicking, Double-clicking, Dragging and Dropping, and Right-clicking. What an accomplishment!

Right-click an object to open a shortcut menu that lists everything you can do to the object.



**Windows clock**



**My Computer**



**Local Disk (C:) icon**

 **Quick Reference**

**To Display a Shortcut Menu for Something:**

- Point to the object and click the right mouse button. Select items from the shortcut menu with the left mouse button.

**To Close a Shortcut Menu without Selecting Anything:**

- Click anywhere outside the shortcut menu with the left mouse button, or press the **<Esc>** key.

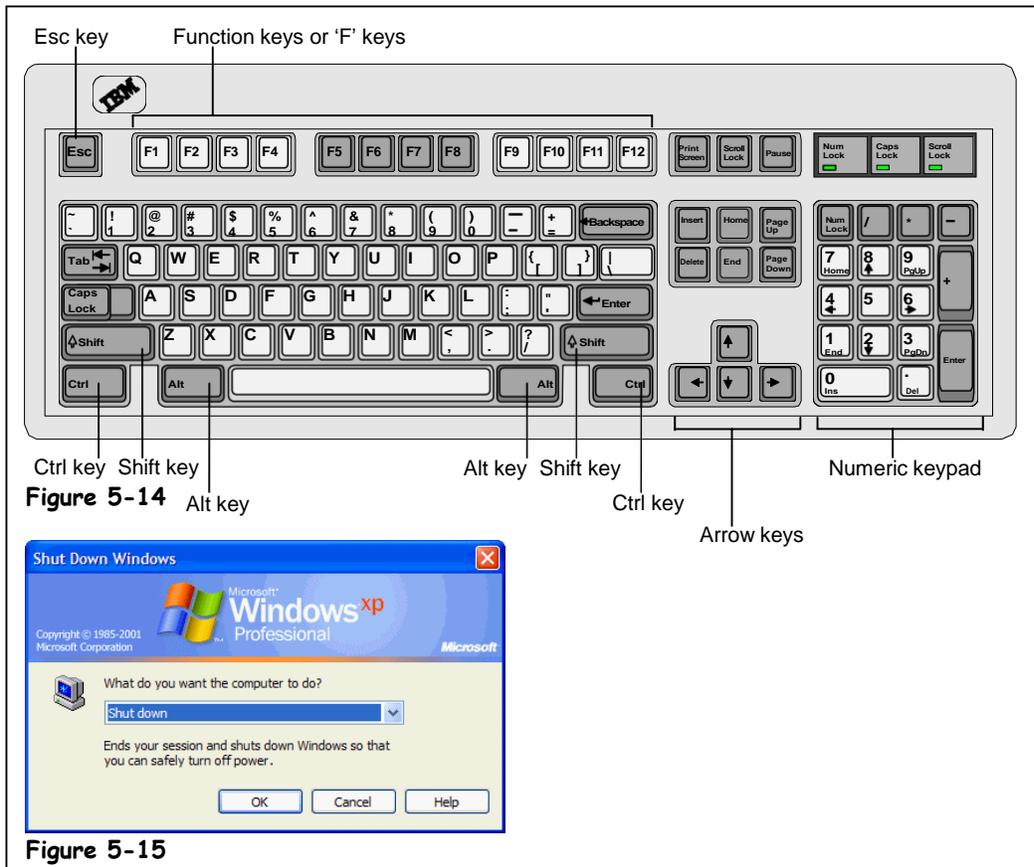
# Lesson 5-6: Using the Keyboard

**Figure 5-14**

A standard keyboard (Your computer may have a slightly different layout than the one pictured here.)

**Figure 5-15**

The Shut Down Windows dialog box



Now that you've mastered the mouse, it's time to move on to the other device that you use to control your computer: the keyboard. The keyboard may seem more familiar and easy to use than the mouse at first, but don't be fooled! Computer keyboards sneak in some extra keys that you need to know about. This lesson explains what these extra keys on the keyboard are and when to use them.

**1. Press and hold down the <Alt> key, press the <F4> key, and release both buttons.**

Pressing <Alt> + <F4> closes the currently running program. Since you're using the Windows Desktop, the Shut Down Windows dialog box appears, as shown in Figure 5-15.

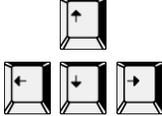
We're not ready to shut Windows down just yet (we'll cover that in a future lesson). Follow the next step to back out of the Shut Down Windows dialog box without selecting anything.

**2. Press the <Esc> key.**

Pressing <Esc> does the same thing as clicking the Cancel button. The Shut Down Windows dialog box disappears and you're back at the Windows desktop.

Table 5-4: *Special Keys and Their Functions* describes the <Alt> and <Esc> keys you just used, as well some of the other confusing keys on the keyboard.

**Table 5-4: Special Keys and Their Functions**

Key(s)	Description
	The <Alt> key doesn't do anything by itself—it needs another key to make things happen. For example, pressing the <Tab> key while holding down the <Alt> key switches between any programs that are currently running.
	Just like the <Alt> key, the <Ctrl> doesn't do anything by itself—you need to press another key with it to make things happen. For example, pressing the <X> key while holding down the <Ctrl> key cuts whatever is selected.
	The <F1> key is the help key, and pressing it displays helpful information about what you're doing.
	The <Esc> (Escape) key is the "Wait, I've changed my mind" key and is the same as clicking Cancel in a dialog box. For example, if you click something and an unfamiliar dialog box appears, you can close it by pressing the <Esc> key.
	The <Enter> key is the "Carry out my orders" key and is the same as clicking the OK button in a dialog box. For example, after you've typed the name of a program you want to run in a dialog box, press <Enter> to run the program. The <Enter> key also adds new lines and starts new paragraphs if you're entering text.
	When you're in a dialog box, pressing the <Tab> key moves to the next field. When you're using a word processor, the <Tab> key works just like you'd think it would and jumps to the nearest tab stop whenever you press it.
	The arrow keys move your computer's cursor across the screen.
	Nothing surprising here. The <Delete> key deletes or erases whatever you select—files, text, or graphical objects. If you're working with text, the <Delete> key erases characters to the right of the insertion point.
	Use the <Backspace> key to fix your typing mistakes—it erases characters to the left of the insertion point.
	The <Home> key jumps to the beginning of the current line when you're working with text.
	The <End> key jumps to the end of the current line when you're working with text.
	The <Page Up> key moves up one screen.
	The <Page Down> key moves down one screen.

 **Quick Reference**

**To Use a Keystroke Combination:**

- Press and hold down the first key, press the second key, then release both keys. For example, press the <Tab> key while you're holding down the <Alt> key.

**To Use the Special Keys on the Keyboard:**

- Refer to Table 5-4: *Special Keys and Their Functions*.

# Starting a Program

**Figure 6-1**

Click on the Start button to open the menu, and then point to All Programs to open the menu.

**Figure 6-2**

Click on Accessories to open the menu, and then click on WordPad to open the program.

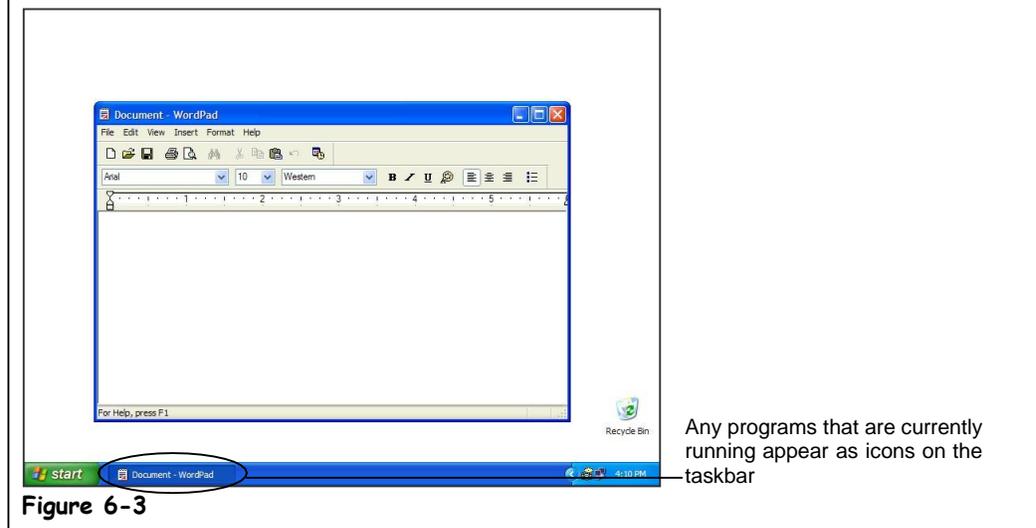
**Figure 6-3**

The WordPad program



**Figure 6-1**

**Figure 6-2**



**Figure 6-3**



**Start button**

To do just about anything with your computer, you need to run a program. A *program* is a complex set of instructions that tells your computer how to do something. Your word processor is a program, and so is the Solitaire game that comes with Windows. The easiest way to start a program is by clicking the Windows Start button and then selecting the program from the All Programs menu. This lesson explains one of the most basic operations you can do with Windows: starting a program.

## 1. Click the **Start** button.

Remember that the Start button resides in the bottom-left corner of the computer screen. The Start menu pops up.

**2. Point to All Programs.**

A menu listing the different program categories pops out above the Start menu, as shown in Figure 6-1.

**3. Point to the word Accessories.**

Another menu, the Accessories menu, shoots out to the side of the All Programs menu, as shown in Figure 6-2. The program you want to load, WordPad, is in the Accessories menu. Can you find it?

**4. Click the word WordPad.**

The WordPad program appears on the screen in its own window, as shown in Figure 6-3. WordPad is a simple word processing program that is included with Microsoft Windows.

**NOTE:** The All Programs menu is merely a list of the programs that should be available on your computer. When installed, programs should automatically add themselves to the Start menu. Occasionally, old MS-DOS programs or programs that are poorly written may not put themselves on the Start menu when you install them, and you will have to find and add the program to the All Programs menu yourself. You'll learn how to manually add programs to the Start menu in an upcoming lesson.

Great! You've just started your first program. Turn the page and we'll examine the parts of the WordPad window.

All Programs 

All Programs

 Accessories

Accessories

 WordPad

WordPad program

Most programs run in their own separate window on the screen.

 **Quick Reference**

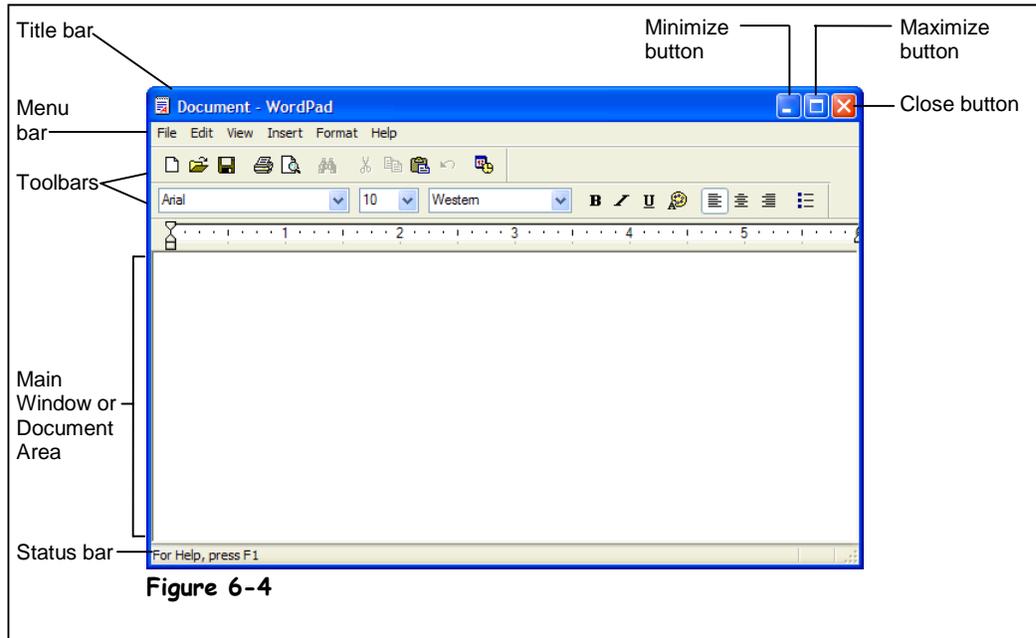
**To Start a Program:**

1. Click the **Start** button.
2. If the program appears on the Start menu click it, otherwise point to the **All Programs** option.
3. Click the menu and any submenus where the program you want to run is located.
4. Click the name of the program you want to run.

# Understanding the Parts of a Window

**Figure 6-4**

The parts of a typical window



Located in every window are several little buttons, menus, and controls that you use to control the program and window. Because they appear in every Windows program, you're going to have to learn what these little buttons, menus, and controls are and learn how to use them. Here's the good news: once you can find your way around a window for one program, you'll be familiar with the windows for most programs since this window/menu/button concept appears in just about every Windows program.

There are no exercises or homework for you in this lesson—it's just here to help you become familiar with the parts of a window. All you have to do is look at Figure 6-4 and then refer to Table 6-1: *Parts of a Window* to identify what you're looking at.

And don't worry; you'll get a chance to play with some of these buttons and menus later on.

**Table 6-1: Parts of a Window**

<b>Part</b>	<b>Description</b>
<b>Title bar</b>	Displays the name of the program or window
<b>Minimize button</b>	Minimizes a window, hiding it from your screen but keeping it running in your computer's memory, ready for quick use. You can minimize a program you're not using so that it is still running, but is out of sight.
<b>Maximize/Restore button</b>	Depending on the size of the window, this button toggles between maximize and restore. Here's what each one does:  <b>Maximize:</b> Enlarges the window so that it fills the entire screen. This lets you see more of the window's contents. The Maximize button only appears when the window isn't maximized (doesn't fill the entire screen). <b>Restore:</b> When a window is maximized (fills the entire screen), clicking the Restore button returns the window to its previous size.
<b>Close button</b>	Closes the window or program when you're finished working with it, removing it from the screen and the computer's memory.
<b>Menu bar</b>	Controls what the program does. The items listed on the menu bar change from program to program, but the menu bar's location doesn't—it's always perched near the top of a window, right below the Title bar.
<b>Toolbar</b>	Some (but not all) windows and programs have one or more toolbars, which contain buttons you point and/or click to access frequently used commands.
<b>Main Window or Document Area</b>	This is where all the action takes place—where you work on whatever you're working on. If you were using a word processor, this is where your letter would appear. If you were browsing the Internet, this is where the Web pages would appear.
<b>Status bar</b>	Displays information such as instructions, messages about the state of the computer, or your location in the window.

Got everything down? Don't worry if you don't; this lesson is just a quick-guided tour of a typical window. The rest of the lessons in this chapter focus on how to use a window's controls, buttons, and menus.

# Minimizing, Maximizing, and Restoring a Window

**Figure 6-5**

The Minimize, Maximize, and Restore buttons appear in the upper right corner of most programs.

**Figure 6-6**

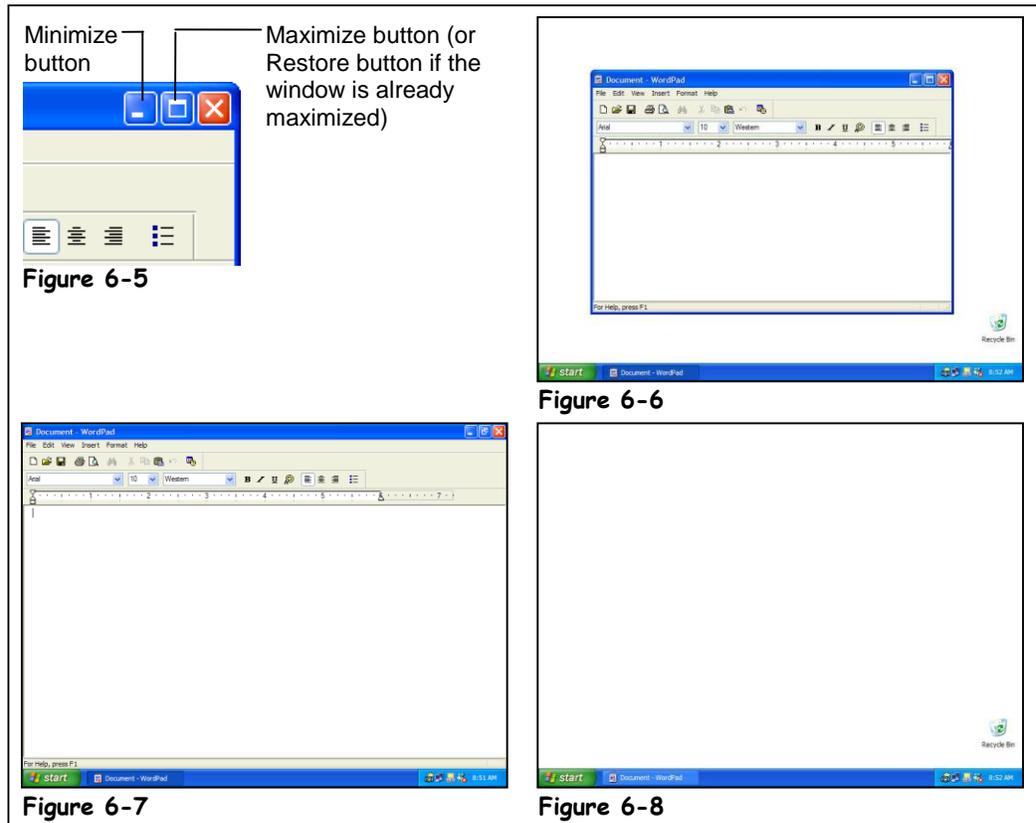
A window in a restored state only fills up part of the screen.

**Figure 6-7**

A window in a maximized state fills up the entire screen.

**Figure 6-8**

A window in a minimized state appears only as an icon on the taskbar.



One of the benefits of Windows XP is that it enables you to open and work with several programs at the same time. To make working with several programs at once easier, you can change the size of the windows. You can *maximize*, or enlarge, a window so it takes up the entire screen; *minimize*, or reduce, a window so that it only appears as a button in the Windows taskbar; or size a window somewhere in between. This lesson explains how to change the size of a window by *maximizing*, *minimizing*, and *restoring*.

First, let's look at how to *maximize* a window. Some programs, such as word processors and Web browsers, are easier to work with and fill the entire screen. To enlarge a window to fill your computer screen, click the Maximize button.

1. Click the WordPad window's **Maximize** button—the middle button in WordPad's titlebar.

The WordPad program maximizes, filling the entire screen. You can change a maximized window back to its original size by clicking the Restore button. The Restore button appears in place of the Maximize button whenever a window is already in a maximized state.



**Maximize button**



**Restore button**

**2. Click the WordPad window's **Restore** button to restore the WordPad window back to its previous size.**

The window returns to its previous size.

Just like you can keep several papers on top of your desk, Windows can run more than one program at a time. For example, you can work on a letter with your word processing program while your Web browser is open and downloading a file from the Internet. There is a potential pitfall with running several programs simultaneously though—there isn't enough room for all of them to fit on your computer screen!

Luckily, you can tuck programs away, keeping them running and ready for use, yet away from view, by *minimizing* them.

**3. Click the WordPad window's **Minimize** button to minimize the WordPad program.**

The WordPad program shrinks to an icon located in the Windows taskbar. WordPad is still open and running—it's just hidden from view, tucked away and ready for future use. It's important to note that minimized programs can still run in the background. If a program is doing something, such as downloading a file from the Internet, it will keep going, even when the program is minimized.

It's easy to redisplay a minimized program or window when you're ready to use it again.

**4. Find and click the **WordPad** icon in the Windows taskbar.**

The WordPad program springs back to life and appears on the screen.

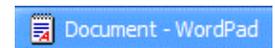
It's important that you get all this maximize/minimize/restore stuff down, because it will help you be more productive with your computer.

**Other Ways to Maximize and Restore a Window:**

- Double-click the title bar of the window to toggle between maximized and restored states.



**Minimize button**



**WordPad icon**

 **Quick Reference**

**To Maximize a Window:**

- Click the window's **Maximize** button.

Or...

- Double-click the window's title bar.

**To Restore a Maximized Window:**

- Click the window's **Restore** button.

Or...

- Double-click the window's title bar.

**To Minimize a Window:**

- Click the window's **Minimize** button.

**To Restore a Minimized Window:**

- Click the window's **icon** on the taskbar.

# Closing a Window

## Figure 6-9

Click the Close button on the window you want to close.

## Figure 6-10

The window disappears from your screen.



### Close button

#### Other Ways to Close a Window:

- Select **File** → **Exit** from the menu.
- Right-click the program's icon on the task bar and select **Close** from the shortcut menu.
- Press **<Alt> + <F4>**.

#### Quick Reference

##### To Close a Window:

- Click the window's **Close** button.

Or...

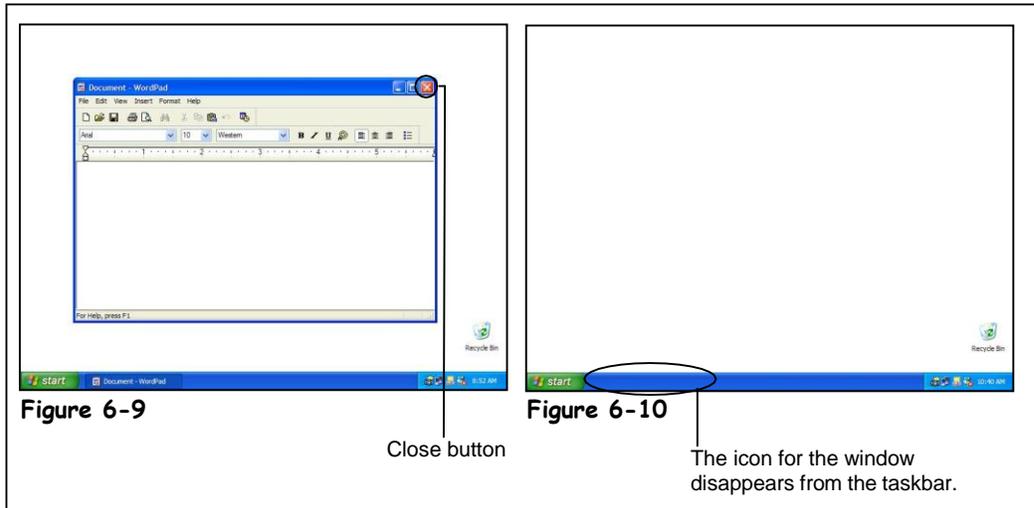
- Right-click the program's icon on the task bar and select **Close** from the shortcut menu.

Or...

- Press **<Alt> + <F4>**.

##### To Close All Open Windows:

- Hold down the **<Shift>** key while you click the **Close** button of any window.



When you're finished working with a window or program, you can close it to remove it from the screen and computer's memory. You can close any window or program by clicking its Close button, which appears in the upper-right corner of the window.

### 1. Click the WordPad window's **Close** button.

The WordPad program closes. Notice the WordPad icon no longer appears in the Windows taskbar at the bottom of the screen. That's all there is to closing a window or program.

**NOTE:** If a program has more than one window open, you can close all of its open windows by holding down the **<Shift>** key when you click the Close button for any window.

Since you're going to be working with the WordPad program in the next few lessons, you will need to open it again.

### 2. Click the **Start** button.

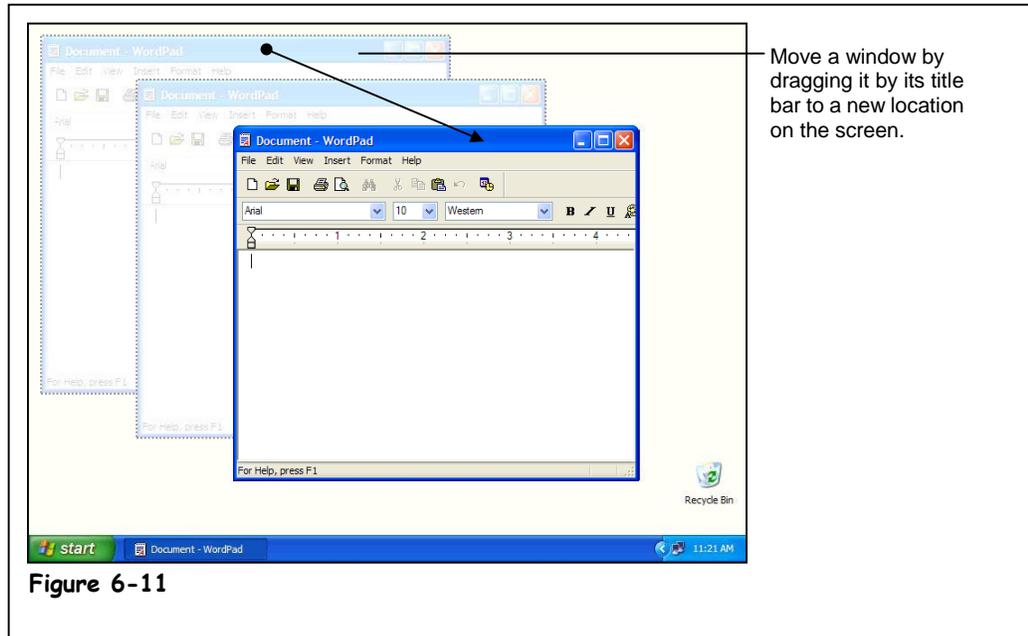
The Windows XP Start menu appears.

### 3. Select **All Programs** → **Accessories** → **WordPad** from the Start menu.

The WordPad program reappears.

If a program happens to be minimized, you need to restore it by clicking its icon on the taskbar before you can see and click the window's close button.

# Moving a Window



**Figure 6-11**

Moving a window to a new location on the screen

When you have several programs or windows open, you may find that one window covers the other windows or other items on your screen. When this happens, you can simply move a window to a new location on the screen—just like you would move a report or folder to a different location on your desk. Here’s how to move a window:

- 1. Position the mouse pointer over the **title** bar of the WordPad program.**  
Remember that the title bar is the colored bar at the very top of a window or program. It displays the name of the program or window.
- 2. Click the **title** bar and move the mouse while still holding down the mouse button.**  
Yep, it’s that drag and drop stuff you learned earlier. An outline of the window follows your mouse as you drag the window, as shown in Figure 6-11, showing you where you are moving it.
- 3. Release the mouse button to drop the window to a new location.**

## Quick Reference

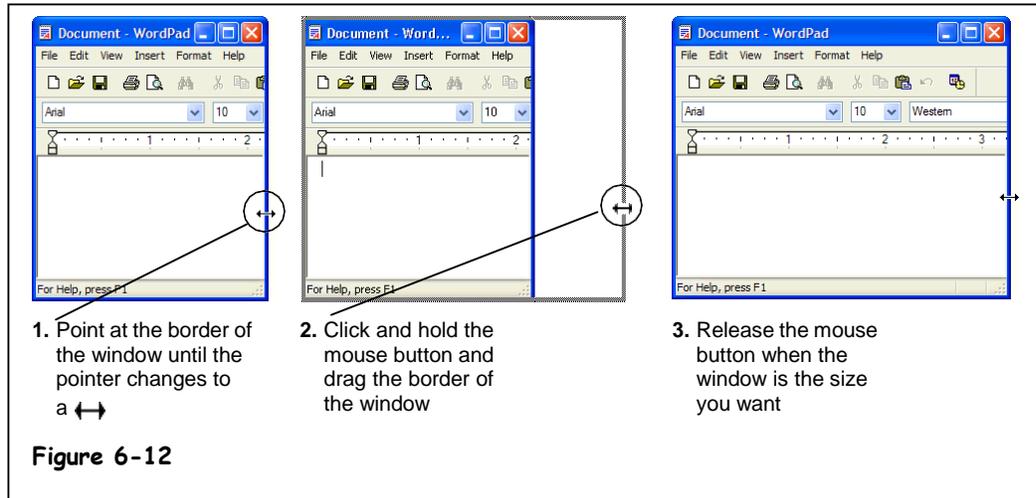
### To Move a Window:

- Click and drag the window by its **title** bar. Release the mouse button to drop the window in the desired location on the screen.

## Sizing a Window

**Figure 6-12**

Dragging a window's edge or corner changes the size of the window.



If you've been following the lessons in this chapter, you should already know how to change the size of a window or program by minimizing, maximizing, and restoring it. This lesson explains how you can fine-tune the size of a window to meet your own specific needs.



The mouse pointer changes shapes over the border of a window.

- 1. Make sure the WordPad program appears as a window and doesn't fill the entire screen.**

A window doesn't have to be maximized (fill up the entire screen) or minimized (appear only as a button on the Taskbar) if you want to manually size it.
- 2. Position the mouse pointer over the right border of the WordPad window until it changes to a .**

The two arrows point in the directions that you can drag the window's border, in this case, left or right. Had you positioned the pointer over the top or bottom of the window, the pointer would have changed to a , indicating that you could drag the top or bottom of the window up or down.

**NOTE:** Windows is very picky where you place the pointer, and sometimes it can be tricky finding the exact spot where the pointer changes. It's there—just move the pointer slowly over the border until you find it.
- 3. Click and hold down the left mouse button and drag the mouse to the right 1 inch to move the window border.**

Notice that the window stretches as you drag the mouse. When the window is the size you want, you can release the mouse button.
- 4. Release the mouse button.**

The window is displayed in its new size.

This lesson explained how to resize a window by adjusting the right border of a window, but you can change a window's size by dragging its left, top, and bottom borders. You can also resize a window by dragging its corners just like you drag its borders.

## Switching Between Windows

**Figure 6-13**

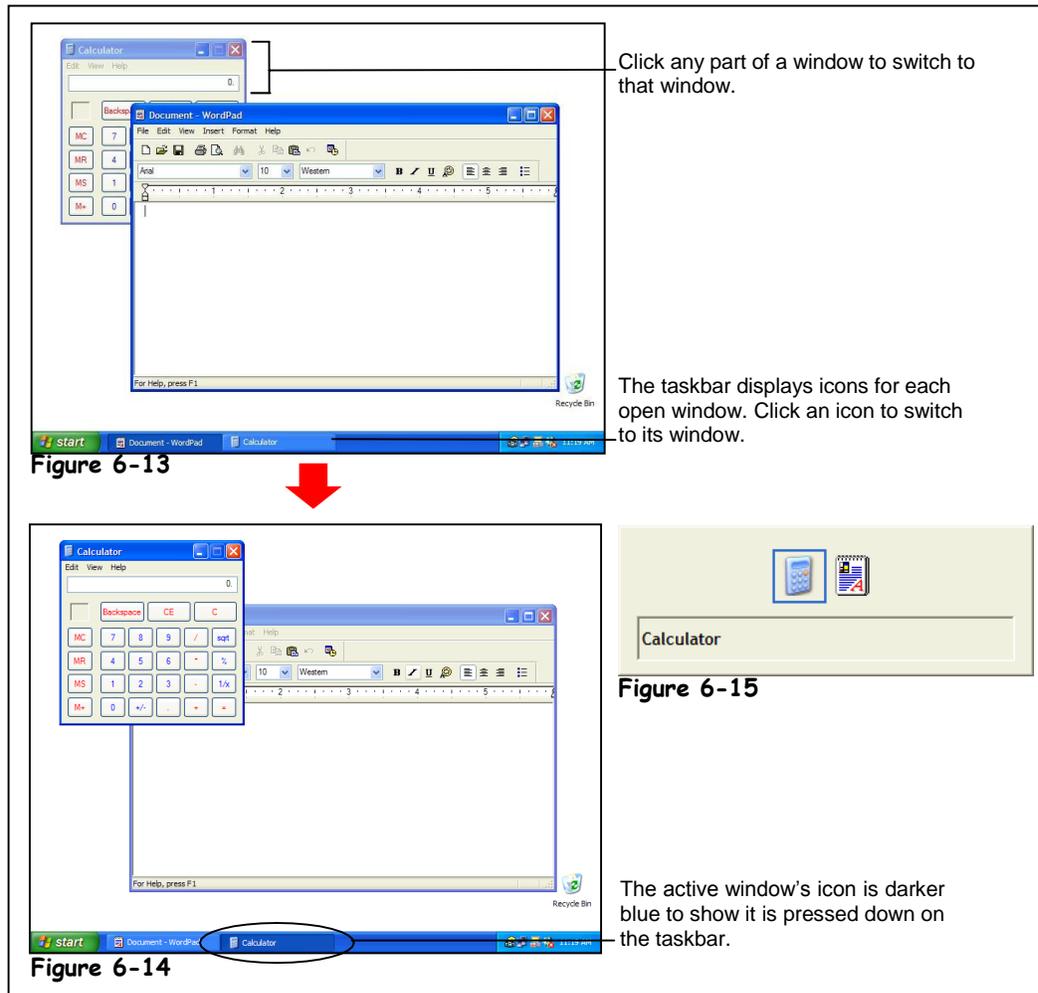
You can only work in one window at a time. Notice that WordPad appears in front of all other windows and has a blue title bar.

**Figure 6-14**

Click any part of the Calculator window or its button on the taskbar so that it appears in front of all the other windows.

**Figure 6-15**

Pressing <Alt> + <Tab> lists all the programs that are currently running.



You can have several programs or windows open and running simultaneously, but you can only *work* in one window at a time. The window you're working with is called the *active window* and always appears on top of any other windows that you have open. If you think about it, you do the same thing when you work at your desk. When you want to work on a piece of paper, you place it on top of everything else on your desk.

This lesson explains how to switch between the programs you're running. There are actually several ways to switch between windows, and we'll cover all of them in this lesson. First, you need to make sure you have several programs running...

### 1. Make sure the WordPad program is still open.

If it isn't open, click the Start button and select All Programs → Accessories → WordPad. Notice an icon for the WordPad program appears on the taskbar. Next, you need to open another program that comes with Windows XP—the calculator.

**2. Start the calculator by clicking the **Start** button and selecting **All Programs** → **Accessories** → **Calculator**.**

The calculator program appears in front of the WordPad program. An icon for the Calculator program also appears in the taskbar, next to the WordPad icon. Notice the Calculator program appears in front, and its icon is depressed on the taskbar, which indicates it is the active window. You can make WordPad the active window by clicking its icon on the taskbar.

**3. Click the **WordPad** button on the taskbar.**

The WordPad program appears in front, and its icon on the taskbar is depressed, which indicates it is the active window. You can make another open window the active window by clicking on any visible part of the window.

**4. Click any portion of the **Calculator** window.**

If you can't see the Calculator window at all, it's because the Calculator window is completely covered by the WordPad window. In this case, you will have to click the Calculator icon on the taskbar.

Yet another method of switching between windows is the most famous keystroke combination in Windows: <Alt> + <Tab>.

**5. Press and hold down the **<Alt>** key, press and release the **<Tab>** key, but don't release the **<Alt>** key.**

The task window appears, as shown in Figure 6-15. The task window lists all the windows and programs that are currently running. Move on to the next step to see how you can retrieve a program or window from the task list.

**6. While still holding down the **<Alt>** key, press and release the **<Tab>** key until the **WordPad** program is selected, then release the **<Alt>** key.**

When you release the <Alt> key, the selected window or program is activated and displayed in front of any other windows.

**NOTE:** <Alt> + <Tab> is especially useful when you use programs that fill the entire computer screen, such as MS-DOS programs and some games. When you can't see the taskbar or any part of another window, <Alt> + <Tab> is the only way you can switch between programs.

**NOTE:** When you're working with multiple programs, be careful not to accidentally run a second copy of the same program. This wastes memory and makes things confusing. For example, if you've been using the Calculator program and want to bring it back up, make sure you check the taskbar to see if it's already running (a Calculator icon appears on the taskbar). If it is, use any of the methods you've learned in this lesson to switch to it. If a program is already running and you load it again from the Start menu, a second copy of the program opens and two icons for the program will appear on the taskbar.

Think you have a handle on switching between programs and windows? Good, because when you work with Windows, you'll find yourself switching between programs and windows throughout the day.

# Working with Files and Folders

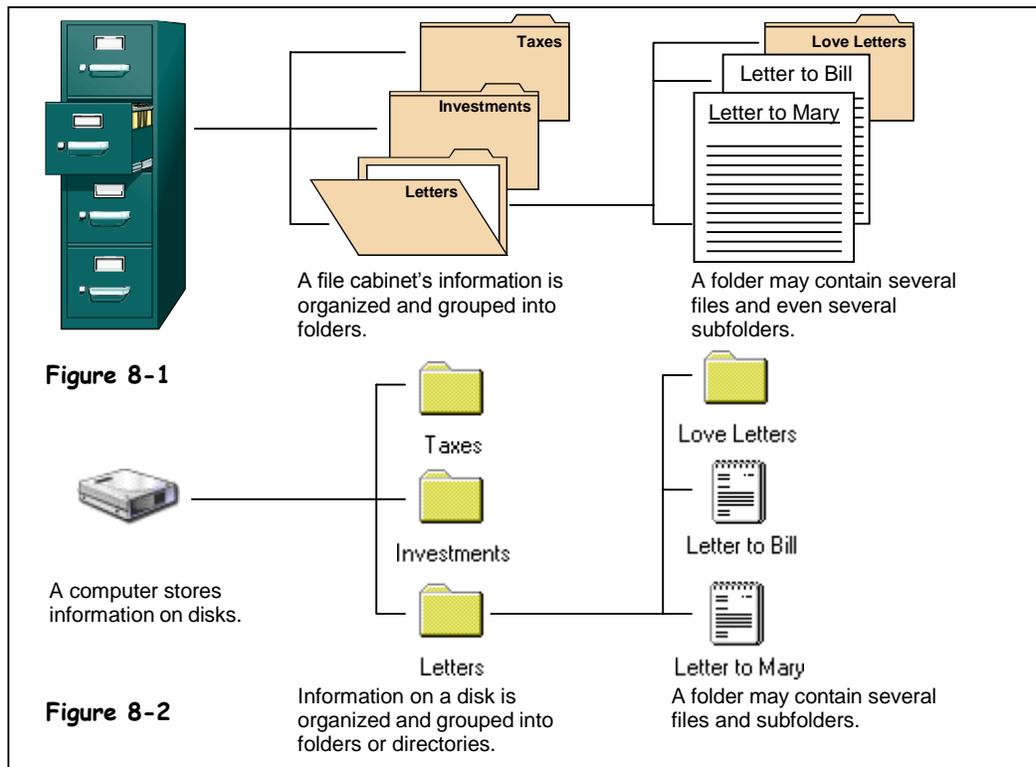
## Understanding Storage Devices, Folders, and Files

**Figure 8-1**

How information is stored in a file cabinet

**Figure 8-2**

How information is stored on a disk



In order to understand *file management*, you need to understand how your computer stores information. Filing cabinets store information in files, which are organized and grouped in folders and kept in big drawers. Computers also store information in files, which are also organized and grouped in folders, and stored not in big drawers but on *disks*. A *disk drive* is the part of the computer that reads and writes information onto disks, just like a tape recorder records and plays music on a cassette. There are four main types of disks/drives computers use to store their information, as shown in the following table:

**Table 8-1: Common Computer Disks/Drives**

Type	Drive Letter	Size	Description
 Floppy Disk	A or B	1.44 MB	Floppy disks are the square plastic things that look like coffee coasters. Floppy drives can't hold a lot of information, but they're ideal for moving small files, such as word processing documents, between computers.

Type	Drive Letter	Size	Description
 <b>Hard Disk</b>	C and above	Over 4 GB	Hard disks hide permanently inside your computer. Your computer's hard disk is its main filing cabinet—where it stores almost all of its programs and files.
 <b>CD-ROM</b>	D or above	600 MB	Compact discs, or CD-ROMs, look like the audio discs you play in your stereo. CD-ROMs are cheap and they can store a lot of information, which is why they're used to install software for games and programs with a lot of multimedia. Unlike floppy or hard disks, most CD-ROMs can only read information—you can't save anything on them.
 <b>Removable Drive</b>	D or above	Over 100 MB	Removable storage drives have features of both hard disks and floppy disks. Removable drives are like a floppy drive because they read and write information on small, removable cassettes that are about the size of a floppy disk. They are like hard drives because each cassette can usually hold more than 100 MB and is almost as fast as a hard drive.

Most computers come with a floppy drive, a hard drive, and a CD-ROM drive. Your computer labels these drives with letters, as shown in Table 8-1: *Common Computer Disks/Drives*.

Just as liquids are measured in quarts and gallons, computers save their information in units called *bytes*. Unlike gallons, computers use the metric system, so 1,000 bytes make up a *kilobyte* and 1,000,000 (one million) bytes make up a *megabyte*, as shown in Table 8-2: *How Memory is Measured*.

**Table 8-2: How Memory is Measured**

Term	Description	Size
<b>Byte</b>	A <b>byte</b> can store a single character, such as the letter j or numeral 8.	A single character.
<b>Kilobyte (K or KB)</b>	A <b>kilobyte (K)</b> is about 1,000 bytes (1,024 to be exact). A kilobyte is equivalent to a page of double-spaced typing.	1,024 bytes
<b>Megabyte (MB or MEG)</b>	A <b>megabyte (MB)</b> is about one million bytes—about as much text as an average-length novel.	1,048,576 bytes

# Using My Computer to See What's in Your Computer

**Figure 8-3**

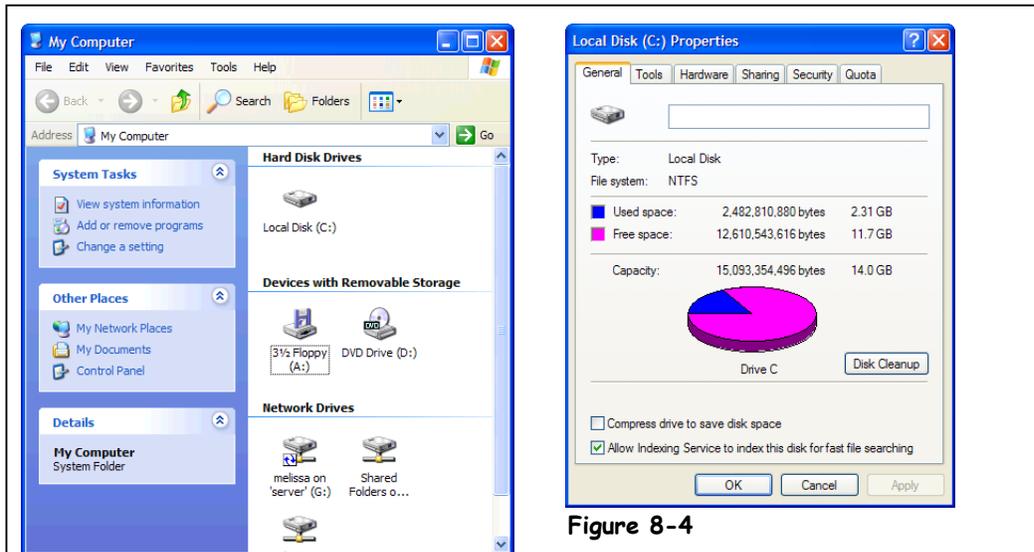
My Computer displays the drives, folders (directories), and files that are in your computer.

**Figure 8-4**

The Properties dialog box for a Local Disk (C:) drive.

**Figure 8-5**

The My Computer toolbar.



**Figure 8-4**

**Figure 8-3**

Moves back or up to the previous folder or level

Moves back or up to the previous folder or level

Changes how the contents of the folder are displayed



**Figure 8-5**

Moves forward to the last subfolder or level

Search for files and folders on your computer or on the network

Displays a history of files you have opened recently

When you want to see what's in a file cabinet, you simply pull open one of its drawers. You can view the information stored on your computer's drives in much the same way—by opening the drive you want to access. This lesson will show you how to look at the drives, folders, and files in your computer.



**Start button**



**My Computer**

## 1. Click the **Start** button and select the **My Computer** icon.

The My Computer window appears, as shown in Figure 8-3. The main window lists all the drives on the computer. Since your computer may have different drives, the contents of your computer may differ from those shown in Figure 8-3. Want to see what's inside something? All you have to do is double-click the drive, folder, or file you want to open.

Notice that My Computer appears in its own window, with its own little buttons, scroll bars, and menus. The My Computer window works just like the other windows you've been working with. You can move it, resize it, and minimize it.

**2. Double-click the (C:) Local Disk icon.**

The contents of the (C:) drive appear in the window. What do all those symbols in the window mean? Each item you see has an icon, or symbol, to help you identify what type of item it is. We'll take a look at what each of these symbols mean in an upcoming lesson.

To move back to the previous folder or level, click the Up button on the toolbar.

**3. Click the Up button on the toolbar to move back to the My Computer level.**

You've moved from the (C:) drive back to My Computer. Now that you know the procedure for displaying the contents of a drive, move on to the next step to display the properties of the Local Disk (C:) drive.

**4. Right-click the (C:) Local Disk icon and select Properties from the shortcut menu.**

The floppy drive hums as Windows examines it. After a moment, the Properties window appears, as shown in Figure 8-4. The Properties window displays the amount of used and free space on the disk in megabytes (MB) and gigabytes (GB). Refer to the previous lesson if you're unfamiliar with these terms.

**5. Close the Properties dialog box by clicking its Close button.**

The Properties dialog box closes. Go ahead and close the My Computer window to complete the lesson.

**6. Close the My Computer window.**

Getting the hang of opening and exploring your computer? Good, because we'll be doing a lot more snooping inside the contents of your computer throughout the rest of this chapter

Your computer stores related files together in folders, just like you do with your file cabinet. In the previous lesson, you learned how to use My Computer to view the contents of your computer and open a disk drive and display its contents. In this lesson, we'll go a little bit further and show you how to open a folder.

Windows XP gives you your very own a special folder named "My Documents" as a convenient location to store all your files. Here's how to open the My Documents folder (and any other folder).



**My Documents**

**1. Click the Start button and select My Documents.**

The contents of the My Documents—several files and subfolders—appear in the window. The My Documents folder contains several folders, or *subfolders*. If you think about it, you probably do the same thing—keep several subfolders inside a larger folder—in your own file cabinet.

## 2. Double-click the **My Pictures** folder.

The contents of the My Pictures folder appear in the Window. Notice the Address bar displays the current folder you are in: My Pictures.

Instead of clicking the Up button several times to jump back through several levels of folders, you can click the Address bar to quickly jump to the root directory of any of drive on your computer.

**NOTE:** This is where the comparison we've been using between a file cabinet and a computer begins to break down a bit. When you file things in your file cabinet, you probably never have more than two, possibly three nested folders (i.e. a folder inside another folder). Your computer's folders, on the other hand, can contain as many subfolders as you want, nested as deep as you want, so you can have a folder inside a folder inside a folder—ad infinitum.

## 3. Click the **Address Bar** arrow .

A list of your computer's drives and the folder you are currently in appears. You can click any folder or drive to go to that folder or drive.

## 4. Select the **Local Disk (C:)** drive from the list.

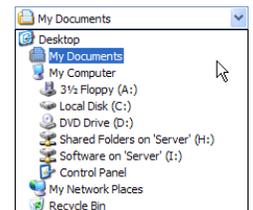
You return to the root directory of the (C:) drive. The Address bar is a fast way of selecting a drive, especially if you are in a folder that is nested several levels deep.

You can think of the Address Bar as your compass because even when you're exploring unfamiliar folders nested deep in the far recesses of your computer, it always tells you where you are. If you get really lost, you can always click the Address Bar and jump back to the familiar (C:) drive.

All this moving around your computer, opening disk drives and folders is a little boring, but it's something you have to get used to if you want to have any degree of proficiency with Windows. Going back to our trusty file cabinet metaphor, imagine what would happen if you didn't know how to open the drawers and folders in your file cabinet. How would you find your tax returns if you were audited, or your insurance policy if you were in an accident? Opening disk drives and folders, and being able to navigate through the contents of your computer are among of the most important Windows skills you can learn.



**My Pictures**



**Address Bar**

### **Quick Reference**

#### **To Open a Folder:**

- Double-click the folder.

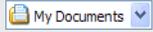
#### **To Move Back or Up to the Previous Level or Folder:**

- Click the  **Up button** on the toolbar.

Or...

- Click the  **Back button** on the toolbar.

Or...

- Click the  **Address Bar** on the toolbar and select the appropriate drive or folder.

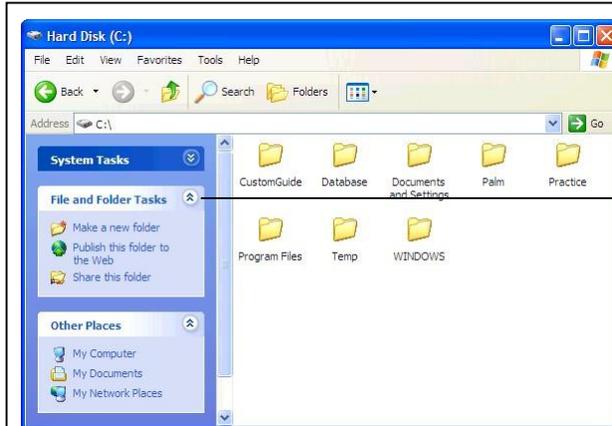
# Creating and Renaming a Folder

**Figure 8-8**

The expanded File and Folder Tasks menu

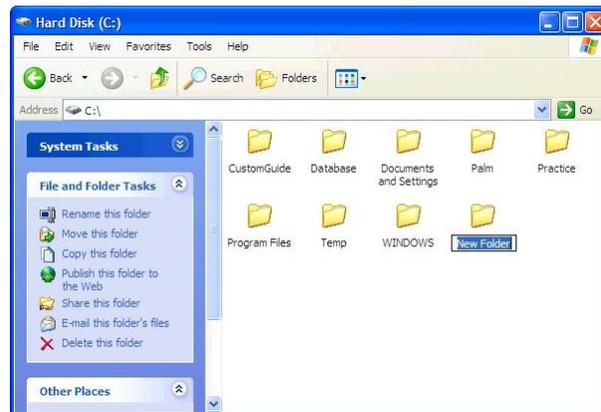
**Figure 8-9**

A newly created folder

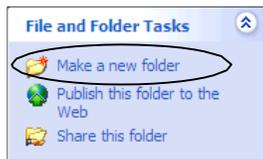


Every Windows XP folder provides easy access to common file and folder management tasks. You can select a file or folder and then click one of the tasks described in Table 8-3: File and Folder Tasks.

**Figure 8-8**



**Figure 8-9**



## File and Folder Tasks panel

### Other Ways to Create a Folder:

- Right-click on an empty area of the (C:) drive window and select **New** → **Folder** from the shortcut menu.

Windows XP comes with the My Documents folder which you can use to save your files in, but sooner or later you'll want to expand your horizons and create your own folders inside the My Documents folder or on the network to help you better organize your files. This lesson will show you how to create a new folder to hold and organize your files. You'll also learn how to rename an existing folder.

### 1. Click the **Start** button and select the **My Computer** icon.

The My Computer window appears after you click the My Computer icon.

### 2. Click the **Local Disk (C:)** icon.

The contents of the (C:) drive appear.

New to Windows XP is the *folder task pane* which makes working with files and folders even easier. If the My Computer window is small the contents of the folder task pane may be hidden from view at first.

3. If necessary, click the  **File and Folder Tasks** arrow in the folder task panel.

The contents of the File and Folder Tasks panel appear.

4. Select  **Make a new folder** task from the File and Folder Tasks panel.

A new folder appears with a temporary name “New Folder” as shown in Figure 8-9. Now all you have to do is move on to the next step and give the new folder a name.

5. Type **Practice Folder** as the name for the new folder, and then press **<Enter>**.

Your new Practice Folder is located in the root directory, or first folder, of the (C:) drive. You can create a folder inside any existing folder the same way—by opening the folder and then repeating Steps 3-5. You can create as many folders as you like to develop your own filing system to help organize your files and folders. Open the Practice Folder to display its contents.

**NOTE:** A file name can contain up to 255 characters, including spaces. File names cannot contain the following characters: \ / : \* ? " < > |

6. Double-click the **Practice Folder** to open it.

The contents of the Practice Folder appear in the window. That’s right, there’s nothing there. The Practice Folder is an empty folder, since you just created it.

7. Click the  **Up button** to move back to the root directory.

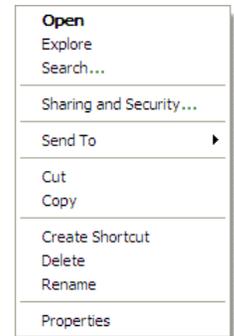
You can easily change the name of a folder. Here’s how:

8. Click the **Practice Folder** icon.

Now let’s rename the folder. Here’s how:

9. Select  **Rename this folder** from the Files and Folders Tasks panel, type **Temp Folder** and press **<Enter>**.

The “Practice Folder” is renamed “Temp Folder.”



#### Other Ways to Rename a Folder:

- Right-click the folder and select **Rename** from the shortcut menu.

#### Quick Reference

##### To Create a New Folder:

1. Open the disk or folder where you want to place the new folder.
2. Select  **Make a new folder** task from the File and Folder Tasks panel. Or...  
Select **File and Folder Tasks** → **Make a new folder** from the menu. Or...  
Right-click any empty area in the window and select **New** → **Folder** from the shortcut menu.
3. Type a name for the folder and press **<Enter>**.

##### To Rename a Folder:

- Click the folder to select it, select  **Rename this folder** from the Files and Folders Tasks panel, type a name for the folder and press **<Enter>**. Or...  
• Right-click the folder, select **Rename** from the shortcut menu, type a name for the folder and press **<Enter>**.

**Table 8-3: File and Folder Tasks**

<i>Task</i>	<i>Description</i>
 <b>Make a new folder</b>	Creates a new folder.
 <b>Rename this folder</b>	Gives the selected file or folder a new name.
 <b>Move this folder</b>	Moves the selected items to the destination you choose.
 <b>Copy this folder</b>	Copies the selected items to the destination you choose.
 <b>Publish this folder to the Web</b>	Transfers a copy of the selected items to a public Web page so that you can share them with other people.
 <b>Share this folder</b>	Makes the selected folder available to computers on a network so that other people can access it.
 <b>E-mail this folder's files</b>	Sends an e-mail message with copies of the selected items attached.
 <b>Delete this folder</b>	Deletes the selected items and sends them to the Recycle Bin.

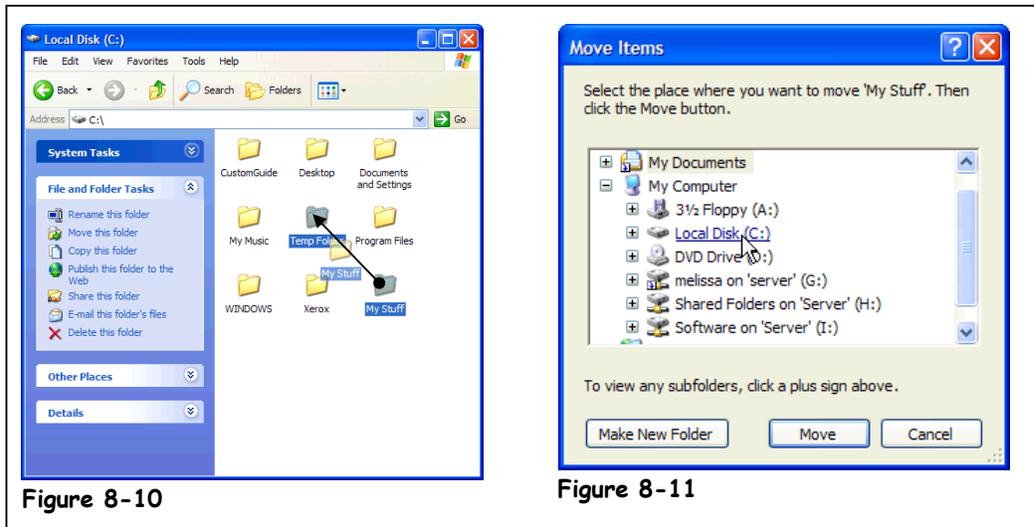
# Copying, Moving, and Deleting a Folder

**Figure 8-10**

To move a folder, drag it to a new location on your computer, in this case to the Temp Folder.

**Figure 8-11**

The Move Items dialog box lets you specify where you want to move or copy a file or folder.



**Figure 8-10**

**Figure 8-11**

You probably don't reorganize the folders in your file cabinet very often—and you probably won't need to move or copy the folders on your computer very often either. When you find you *do* need to move or copy a folder however, you can do so by using one of two simple methods:

- Drag-and-dropping
- Using the File and Folder Tasks panel

To copy a folder, hold down the <Ctrl> key as you drag the folder to the new location.

You'll learn how to use both methods in this lesson and how to delete a folder when you no longer need it.

## Other Ways to Move a File or Folder:

- "Cut" the file or folder by selecting **Edit** → **Cut** from the menu or pressing <Ctrl> + <X>, moving to the desired location and then "paste" the file or folder by selecting **Edit** → **Paste** from the menu, or pressing <Ctrl> + <V>.

- 1. Create a new folder called *My Stuff* in your (C:) drive.**  
You learned how to create a folder in the previous lesson.
- 2. Drag the *My Stuff* folder to the **Temp Folder**, as shown in Figure 8-10.**  
Already forgot how to drag and drop? If so, here it is one more time: position the mouse over the *My Stuff* folder, click and hold down the mouse button as you move the pointer to the **Temp Folder**, then release the mouse button. The *My Stuff* folder is moved inside the **Temp Folder**. Let's make sure we really moved the *My Stuff* folder.
- 3. Double-click the **Temp Folder** to open it.**  
Yep, there's the *My Stuff* folder. Here's another method for moving folders you might want to know—using Window XP's blue side panel.
- 4. Click the *My Stuff* folder to select it.**  
Once you have selected the folder you want to move, go to the File and Folder Tasks menu in the blue side panel.

**5. Select  Move this folder from the File and Folder Tasks menu.**

The Move Items dialog box appears, as shown in Figure 8-11. This is where you tell Windows where you want to move the selected folder. The Move Items dialog box displays the drives and folders on your computer in a *hierarchical* view. A plus symbol (+) or a minus symbol (-) beside a folder means a folder contains several subfolders. Normally these subfolders are hidden. You can display the hidden folders within a folder by clicking the plus sign (+) beside the folder.

**6. Click the  Plus Symbol to the left of the  My Computer icon.**

My Computer expands and displays its contents. The Local Disk (C:) is where you want to move the My Stuff folder.

**7. Click the  Local Disk (C:) icon and click OK.**

The My Stuff folder is moved from the Temp Folder back to the root directory of the (C:) drive.

**8. Click the **Up** button on the toolbar to move back to the root directory.**

If you can move a folder you can copy a folder—because all you need to do to copy a folder is hold down the <Ctrl> key while you drag the folder to where you want it copied.

**9. Hold down the <Ctrl> key while you drag the **My Stuff** folder to the **Temp Folder**.**

Although you can't see it, the My Stuff folder has been copied to the Temp Folder. Let's make sure.

**10. Double-click the **Temp Folder** to open it.**

The contents of the Temp Folder appear in the window. Sure enough, the My Stuff folder has been copied.

**11. Click the **Up** button to move back to the root directory.**

Next we'll delete a folder.

**12. Click the **Temp Folder** to select it and then press the <Delete> key.**

A dialog box may appear, asking you to confirm the action.

**13. Click **Yes** to delete the folder.**

The Temp Folder and all its contents are deleted and disappear from the window. Windows places any deleted files or folders in the Recycle Bin in case you change your mind later on and decide you want to restore the file or folder. We'll discuss the Recycle Bin in an upcoming lesson.

**NOTE:** Deleting a folder can be dangerous. Before you delete a folder, make sure it doesn't contain any important files. If you don't know what the contents of a folder are, you shouldn't delete it.

**14. Delete the **My Stuff** folder by repeating the procedure in Steps 12 and 13 and then close the My Computer window.**

We've worked on copying and moving folders to locations on the same drive, but you can also copy a folder to a different drive by dragging it to the drive icon where you want it copied. If you can't see the drive or folder where you want to move or copy something, you can open a second My Computer window and drag the folder from one window to the other.

 **Quick Reference**

**To Move a Folder:**

- Drag the folder to the desired location (you might have to open another My Computer window).

Or...

1. Select the folder and click  **Move this folder** from the File and Folder Tasks menu in the side panel.
2. Select the folder or disk where you want to move the folder and click **OK**.

**To Copy a Folder:**

- Hold down the <Ctrl> key while you drag the folder to the desired location (you might have to open another My Computer window).

Or...

1. Select the folder and click  **Copy this folder** from the File and Folder Tasks menu in the side panel.
2. Select the folder or disk where you want to move the folder and click **OK**.

**To Delete a Folder:**

- Select the folder and press the <Delete> key. Click **Yes** to confirm the folder deletion.

Or...

- Select the folder and click **Delete this folder** from the File and Folder Tasks menu in the side panel. Click **Yes** to confirm the folder deletion.

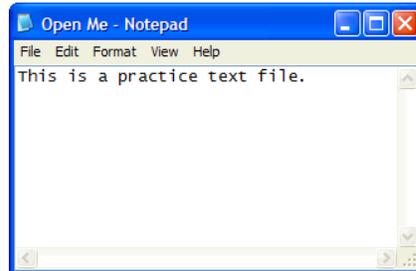
# Opening, Renaming, and Deleting a File

**Figure 8-12**

Double-clicking the Open Me file opens it in the Notepad program.

**Figure 8-13**

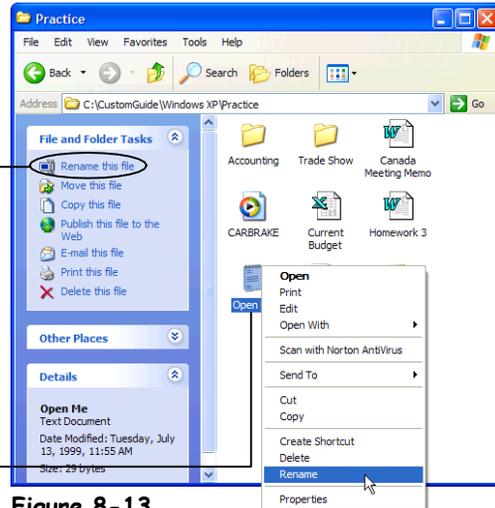
Select a file to show all File and Folder Tasks, or right-click a file to display a list of things you can do to it.



**Figure 8-12**

You can rename a file by selecting the file and clicking **Rename this file** from the File and Folder Tasks panel...

...or by right-clicking the file and selecting **Rename** from the shortcut menu.



**Figure 8-13**

In the past few lessons, you've learned all about folders—how to open, rename, move, copy, and delete them. In the next couple of lessons, we'll be working with the files that are stored in those folders. Working with files is very, very similar to working with folders. So similar, in fact, that the procedures for opening, renaming, moving, copying, and deleting a file are exactly the same as opening, renaming, moving, copying, and deleting a folder!



**Start button**



**My Computer**



**Open Me**

**1. Click the **Start button** and select **My Computer**.**

The My Computer window appears.

**2. Navigate to and open your Practice folder or floppy disk.**

Every folder window has its own toolbar that make it easy to browse through your computer's drives and folders. Two controls on this toolbar are particularly helpful:

- **Look in:** Practice **Address List:** Click to list the drives on your computer and the current folder, then select the drive and/or folder whose contents you want to display.
- **Up One Level button:** Click to move up one folder.

If necessary, follow your instructor's directions to select the appropriate drive and folder where your practice files are located.

**3. Find and double-click the **Open Me** file.**

The Open Me file opens in the NotePad program—the program it was created in, as shown in Figure 8-12. You could review, make changes to, and then save the Open Me file if you wanted at this point.

**4. Click the Notepad program's **close button** to close the program and the Open Me file.**

The Notepad program closes.

You've already learned how to rename and delete a folder, so the next few steps should be really easy for you because you rename and delete a file in exactly the same way.

**5. Select the **Open Me** file.**

Now we can rename the Open Me file using the File and Folder Tasks panel.

**6. Select  **Rename this file** from the File and Folder Tasks panel, type **Text File** as the new name for the folder, then press **<Enter>**.**

The "Open Me" file is renamed "Text File".

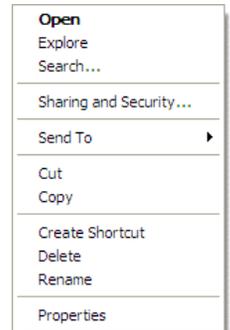
**7. Click the **Text File** to select it, and then press the **<Delete>** key.**

A dialog box may appear, asking you to confirm the file deletion.

**8. Click **Yes** to delete the selected file.**

The Text File is deleted and disappears from the window. Deleting a file isn't quite as dangerous as deleting a folder is, but you should always consider if you might need the file again. Don't delete a file unless you're absolutely sure you will never need it again. And NEVER delete a file if you don't know what it is.

**9. Close the My Computer window.**



**Other Ways to Rename a File:**

- Right-click on the file and select **Rename** from the shortcut menu.

**Other Ways to Delete a File:**

- Right-click on the file and select **Delete** from the shortcut menu.

 **Quick Reference**

**To Open a File:**

- Double-click the file.

**To Rename a File:**

- Click the file to select it, select **Rename this file** from the File and Folder Tasks menu, type a name for the folder and press **<Enter>**.

Or...

- Right-click the file, select **Rename** from the shortcut menu, type a name for the folder and press **<Enter>**.

**To Delete a File:**

- Click the file to select it and select **Delete this file** from the File and Folder Tasks menu. Click **Yes** to confirm the folder deletion.
- Select the file and press the **<Delete>** key. Click **Yes** to confirm the folder deletion.

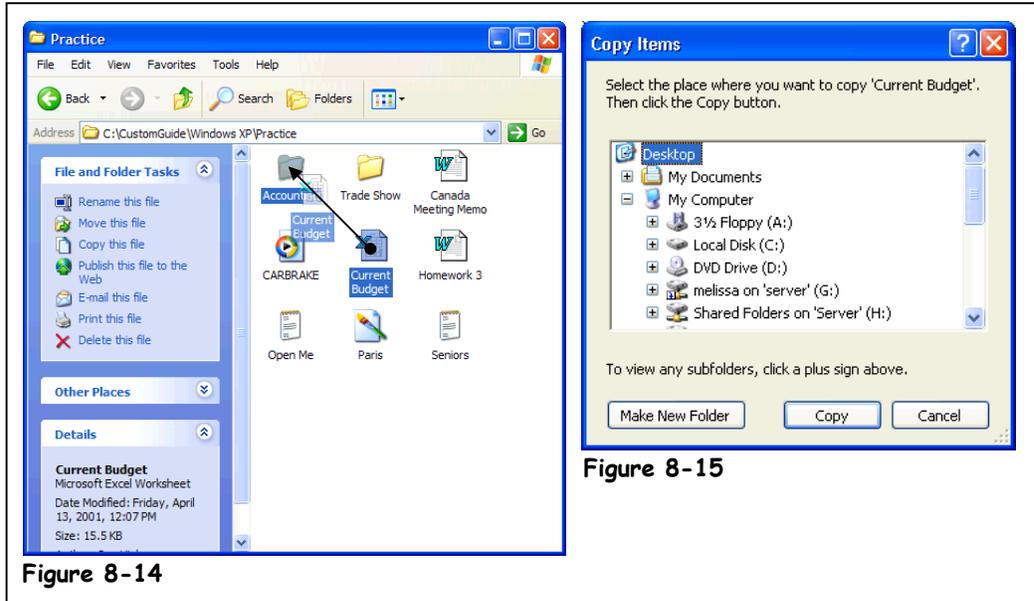
# : Copying and Moving a File

**Figure 8-14**

To move a file, drag the file to the desired location.

**Figure 8-15**

The Copy Items dialog box.



**Figure 8-14**

**Figure 8-15**



**Start button**



**My Computer**

### Other Ways to Move or Copy a file:

- Click the file to select it, click Edit, and select Move to or Copy to from the menu.

Or...

- Right-click the file and select where you want to copy the file from the shortcut menu.

The procedure for moving and copying files is no different than moving or copying folders. This lesson about moving and copying files should be a refresher for you.

**1. Click the Start button and select My Computer.**

The My Computer window appears.

**2. Navigate to and open your Practice folder or floppy disk.**

Again, you can use the following toolbar buttons to find your way around your computer:

- **Address List:** Click to list the drives on your computer and the current folder, then select the drive and/or folder whose contents you want to display.
- **Up One Level button:** Click to move up one folder.

If necessary, follow your instructor's directions to select the appropriate drive and folder where your practice files are located.

When copying or moving files or folders, you may find it easier if you have two windows open at the same time: one window with the source file(s) and another window for the destination where you want to move or copy the file(s).

**3. Drag the Current Budget file to the Accounting folder.**

The Current Budget file is moved to, or inside, the Accounting folder. Open the Accounting folder to make sure the file was moved.

**4. Double-click the Accounting folder to open it.**

Sure enough, the Current Budget file has been moved to the Accounting folder.

To copy a file using the drag and drop method, press the <Ctrl> key as you drag the file to a new folder.

You can also copy files.

**5. Click the **Current Budget** file to select it.**

Now that the file is selected, you can move it to a different location.

**6. Click **Copy this file** in the File and Folder Tasks panel.**

The Copy Items dialog box appears, as shown in Figure 8-15. Now you can tell Windows where you want to move the selected file.

The Copy Items dialog box displays the drives and folders on your computer in a *hierarchical* view. A plus symbol (+) or a minus symbol (-) beside a folder means a folder contains several subfolders. Normally these subfolders are hidden. You can display the hidden folders within a folder by clicking the plus sign (+) beside the folder.

Now copy the file to the Desktop of your computer.

**7. Select  **Desktop** in the Copy Items dialog box and click **Copy**.**

The Current Budget file is copied to your computer's Desktop.

**NOTE:** Some people actually do save their most important files to the Desktop so that they won't lose them. Just make sure that you don't save too many files there—nobody likes a messy desktop!

We don't want to clutter your computer's desktop with practice files, so let's delete the Current Budget files from the Desktop.

**8. Close the file windows.**

The windows close, allowing you to view the Desktop and the copied Current Budget file.

**9. Select the **Current Budget** file and press <Delete>.**

A dialog box appears, asking if you really want to delete the file.

**10. Click **Yes**.**

The dialog box closes and the Windows deletes the file.

 **Quick Reference**

**To Move a File:**

- Drag the file to the desired location (you may have to open another window).

Or...

1. Click the file to select it, and click **Move this file** from the File and Folder Tasks menu.
2. Select the folder where you want to move the file and click **OK**.

Or...

1. Select the file, click **Edit** from the menu bar, and select **Move to**.
2. Select the folder you want to move the file to and click **OK**.

**To Copy a File:**

1. Hold down the <Ctrl> key while you drag the file to the desired location (you might have to open another My Computer window).

Or...

1. Click the file to select it and select **Copy this file** from the File and Folder Tasks menu.
2. Select the folder where you want to copy the file and click **OK**.

Or...

1. Select the file, click **Edit** from the menu bar, and select **Copy to** from the menu.
2. Select the folder where you want to copy the file and click **OK**.

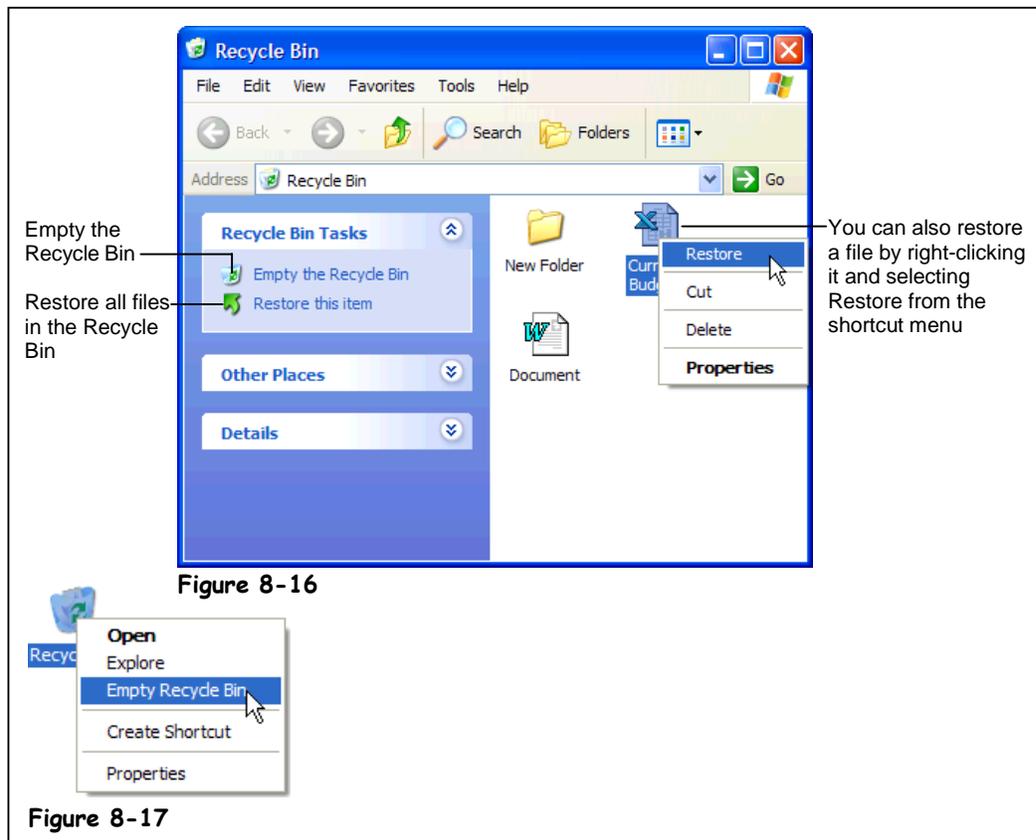
# Restoring a Deleted File and Emptying the Recycle Bin

**Figure 8-16**

Restoring files and emptying the Recycle Bin

**Figure 8-17**

The Recycle Bin shortcut menu



**Figure 8-16**

**Figure 8-17**

Just like a wastebasket, the *Recycle Bin* stores all of the files and folders you have deleted. If you change your mind and decide you need a deleted file, it's easy to find and retrieve it. This lesson will show you how to open the Recycle Bin and see what's inside, restore a previously deleted file, and empty the Recycle Bin to free up some space on your hard disk.

- 1. Double-click the **Recycle Bin** to open it.**  
The Recycle Bin opens and displays all the files you have recently deleted. If you accidentally delete a file or folder, you can retrieve it from the Recycle Bin.
- 2. Find and select the **Current Budget** file.**  
You can restore a selected file by selecting Restore this item from the Recycle Bin Tasks panel. Let's try it!
- 3. Select **Restore this item** from the Recycle Bin Tasks panel.**  
Restoring a file pulls it out of the Recycle Bin and puts it back in its original location.
- 4. Close the Recycle Bin window.**  
Now, make sure the Current Budget file is in its original location.
- 5. Verify that the **Current Budget** file has been retrieved to the Desktop.**  
Okay, you can delete the Current Budget file from the Desktop again, and this time we won't restore it.

  
**Recycle Bin contains deleted files**

  
**Recycle Bin does not contain deleted files**

**6. Delete the **Current Budget** file from the Desktop.**

There is theoretically a limit to how many deleted files and folders the Recycle bin can hold. The maximum size of the Recycle bin is normally set 10 percent of the hard drive. So for example, if you have a 10GB hard drive, the maximum amount of files the recycle bin could hold would be 1GB. When the Recycle Bin reaches its limit, Windows automatically starts deleting files from the Recycle bin, starting with the oldest file.

You can adjust the properties for the Recycle Bin, so you could adjust its maximum size from 10 percent of the hard drive to 5 percent, by right-clicking the Recycle Bin and selecting Properties from the shortcut menu.

Usually it's best to let Windows automatically handle the Recycle Bin, but you can also manually empty the Recycle Bin if you need more free space on your computer.

**7. Double-click the **Recycle Bin** to open it.**

The contents of the Recycle Bin appear.

**8. Click  **Empty the Recycle Bin** from the Recycle Bin Tasks panel.**

A dialog box may appear and ask you to confirm your deletion.

**9. Click **Yes** if asked to confirm the deletion(s).**

All the files and folders are permanently deleted from your computer. Notice the Recycle Bin icon no longer displays any trash, indicating that it is empty.

**NOTE:** Be careful when emptying the Recycle Bin. Since Windows automatically erases the oldest files from the Recycle Bin, you shouldn't have to manually empty the Recycle Bin much at all. A lot of users empty the Recycle Bin just about every time they delete something—and then later kick themselves because they realize they needed the file they just permanently erased.

One final word about the Recycle Bin—any files you delete from a floppy disk are *not* placed in the Recycle Bin. So be extra careful when you're deleting files from a floppy disk, because the Recycle Bin won't be able to restore them.

**Other Ways to Empty the Recycle Bin:**

- Right-click the **Recycle Bin** and select **Empty Recycle Bin** from the menu, as shown in Figure 8-17.

 **Quick Reference**

**To Restore a Deleted File:**

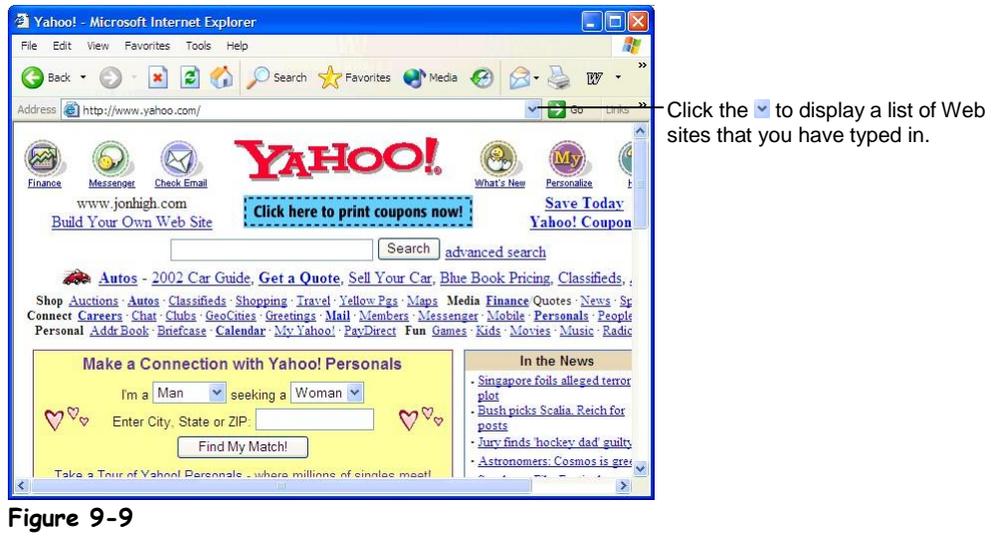
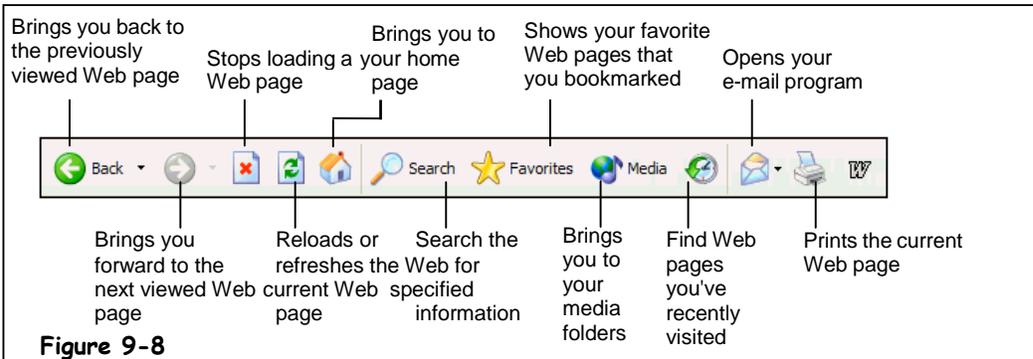
1. Double-click the Recycle Bin to open it.
2. Find and right-click the deleted file and select  **Restore this item** from the Recycle Bin Tasks menu.

Or...

2. Find and right-click the deleted file and select **Restore** from the shortcut menu.

**To Empty the Recycle Bin:**

- Right-click the Recycle Bin and select **Empty Recycle Bin** from the shortcut menu.



**Back button**



**Tip:** Instead of repeatedly clicking the Back and Forward buttons, you can click their down arrows to display a list of previous Web pages.

Luckily, the World Wide Web is remarkably easy to navigate. It's so easy, in fact, that most users seem to have an uncanny ability to browse through Web pages without any previous training—even if they have difficulty with other computer programs. This chapter explains how to find your way through the millions of Web pages that are on the Internet. Even if you already think you have browsing down, you should read this chapter—you might learn a trick or two you didn't know.

**1. Make sure your Web browser is open so that you're connected to the Internet.**

Hopefully you know how to do this by now!

**2. Go to the Yahoo home page by clicking the **Address bar**, typing **www.yahoo.com**, and pressing **<Enter>**.**

The Yahoo home page fills the screen. Many of the underlined words and pictures you see on the Yahoo page are actually *hyperlinks*. When you position the pointer over a hyperlink, it changes to a . Clicking a hyperlink will automatically:

- Take you to a different page within the same Web site.
- Take you to a different page in a different Web site.
- Take you to a different part of the same Web site.

- Allow you to download a file.
- Send an e-mail to a specified e-mail address.
- Play a video or sound.

**3. Position the pointer over the **What's New** icon near the top of the Yahoo page.**

The pointer changes into a  anytime it is over a link. Remember, links can be either text or pictures.

**4. Click the **What's New** icon or text.**

The What's New Web page connected to the link appears. Notice the address bar displays the address of the new Web page, <http://www.yahoo.com/new/>. You can easily move back to the previous Web page.

**5. Click the **Back** button on the toolbar.**

You're back at the Yahoo home page. The Forward button moves forward through the Web pages you have viewed.

**6. Click the **Forward** button on the toolbar.**

You return to the What's New Web page.

Just like a metro highway system at rush hour, the Internet often becomes congested when too many users try to view the same Web site at the same time. When this happens, it may take a long time for the Web page to appear on screen, or you may even get a screen like the one shown in Figure 9-7. Here are a few strategies to try if you are having problems displaying Web pages.

If a Web page is taking too long to display on your computer screen, you can stop loading the page and try again later. Here's how to stop transmitting a page:

**7. Click the **Address bar**, type [www.microsoft.com](http://www.microsoft.com), and press **<Enter>**. After a second or two—before the Microsoft home page completely loads—click the **Stop** button on the toolbar.**

You can also try *refreshing* a sluggish or difficult Web page. There are basically two reasons to refresh a Web page:

- To attempt to view a Web page that is not loading.
- To update a Web page that contains information that is constantly changing, such as headline news stories or financial information.

**8. Click the **Refresh** button on the toolbar.**

Another way you can return to previously visited Web sites is to use the Address bar, which remembers every Web address that you've manually typed into it.

**9. Click the **Address bar** list arrow.**

A list of the Web addresses you've previously entered appears below the address bar.

**10. Select the <http://www.yahoo.com> site from the list.**

You return to the Yahoo Web site.



**Forward button**



**Stop button**



**Refresh button**

 **Quick Reference**

**To Use a Hyperlink:**

- Click the hyperlink with the  pointer.

**To Go Back to the Previous Page:**

- Click the **Back** button on the toolbar.

**To Stop the Transfer of Information:**

- Click the **Stop** button on the toolbar.

**To Refresh a Web Page:**

- Click the **Refresh** button on the toolbar.

**To Return to a Web Address you Typed in the Address Bar:**

- Click Address bar's  arrow and select the Web address.

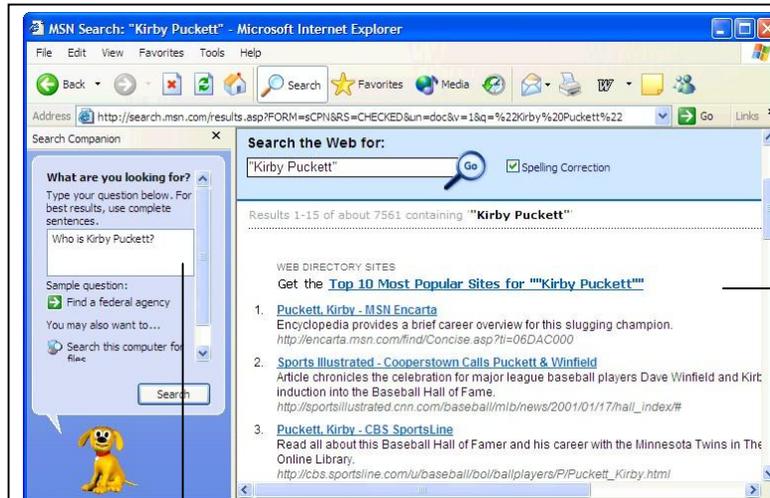
# Search the Web

**Figure 9-10**

You can search the Web with Internet Explorer's integrated search function.

**Figure 9-11**

You can search the Web with Yahoo.



Your search results appear here.

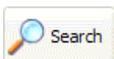
**Figure 9-10** Enter a word or phrase you want to search for here and click Search.



Enter a word or phrase you want to search for here and click search.

**Figure 9-11**

The Internet's greatest strength is also its greatest weakness: with so much information—literally millions of Web pages—it can be extremely difficult to find what you're looking for. Fortunately, there are many search engines that catalog the millions of Web pages on the Internet so that you can find Web pages on topics that interest you. There are many search engines available on the Internet—you've probably heard of some of the more popular ones, like Yahoo, Excite, and HotBot. In this lesson, you'll learn how you can search the Web to find information on the topics you specify.



**Search button**

1. **Make sure your Web browser is open so you are connected to the Internet.**
2. **Click the **Search** button on the toolbar.**

A Search pane appears on the left side of Internet Explorer, as shown in Figure 9-10. This is where you specify what you want to search for.

**3. Click the **Search** box and type in the word or phrase you want to search for.**

For better search results, use complete sentences or several keywords that describe what you're looking for. For example, typing "Where can I find a good oyster restaurant in Chicago?" would yield better results than simply "oysters".

**4. Click **Search**.**

The Security Alert dialog box may appear (it appears any time you send information over the Internet, unless you check the "In the future do not show the warning" check box). If it does, you can safely click OK.

Microsoft Internet Explorer returns a list of Web pages, ranked by relevance, that contain the word or phrase you specified. You may have to scroll down to view the entire list.

**5. Click the Web page you want to view.**

Are you finding mostly irrelevant information in your search results? Then you may have to refine your search. For example, a search on the word "Windows" may result in links to "Anderson® Windows," "Stained Glass Windows," and "Microsoft Windows", while a search on the phrase "Microsoft Windows" will result in links to "Microsoft Windows." Some search engines will let you search within your results. For example, you could do a search for "Microsoft Windows" and then further refine your search by searching the results for the word "Networking."

**6. Click the **Search** button to close the search panel.**

You don't have to click Microsoft Internet Explorer's search button to look for information on the Web—you can also go directly to a search engine's Web site and specify what you want to look for there. Table 9-2: *Popular Search Engines on the Web* is by no means a definitive inventory of the dozens of search engines that are currently available on the Web, but it lists the best and most popular Web search engines and their Web addresses.

**Table 9-2: Popular Search Engines on the Web**

Site	Web Address	Description
AltaVista	www.altavista.com	Operated by Digital, AltaVista claims to catalog and index more Web pages than any other search engine.
Excite	www.excite.com	Excite has a powerful, highly rated search engine, and it also has one of the best customizable home pages on the Internet.
Google	www.google.com	Google is consistently ranked as the best and most relevant search engine. However, it doesn't contain many other features other than search.
Hotbot	www.hotbot.com	Though not as popular as some of the others, HotBot consistently ranks as one of the best, most relevant search engines.
Lycos	www.lycos.com	Lycos is another powerful search engine, especially if you're looking for information in formats other than Web pages, such as MP3 sound files.
Yahoo	www.yahoo.com	The mother of all Web pages, Yahoo is actually more of a directory service than a search engine, but it makes it very easy to find topics, especially if you're new to the Internet.

**What are you looking for?**

Type your question below. For best results, use complete sentences.

Please type your query here, then press <Enter>.

**Search Box**

 **Quick Reference**

**To Search the Web for Information Using Internet Explorer:**

1. Click the  **Search** button on the toolbar.
2. Type the word or phrase you want to search for in the **Search the Web for** box and click **Search**.
3. Click the link for the Web page you want to look at.
4. Click the  **Search** button on the toolbar to close the search panel.

**To Search the Web for Information Using a Search Engine:**

- Type the Web address for the search engine in the **Address bar** and press <Enter>. Type the word or phrase you want to search for in the Web page's **search** box and press <Enter>.

# Introduction to E-mail

**Figure 9-20**

Microsoft Outlook Express is the e-mail program that is included with Windows XP.

**Figure 9-21**

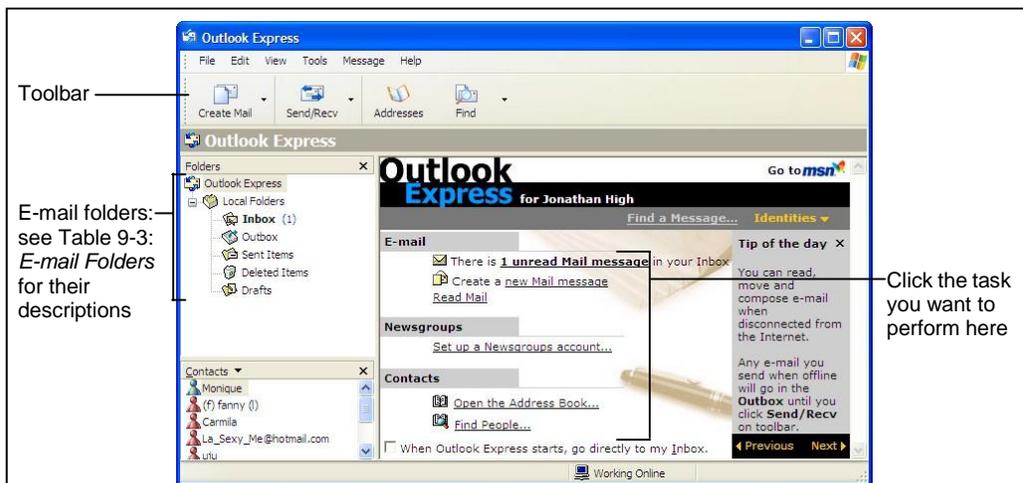
Outlook Express's toolbar

**Figure 9-22**

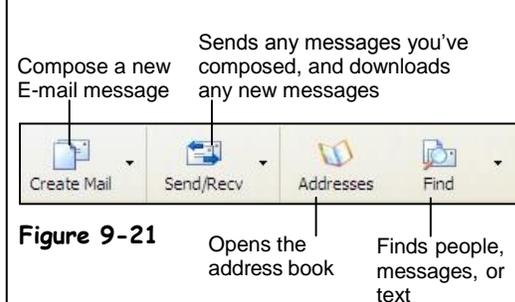
Many people prefer to use Web-based e-mail, such as Hotmail, since you can use it anywhere on any computer that has a connection to the Internet.

**Figure 9-23**

An Internet e-mail address consists of two parts: a user name and a domain name, separated by the @ symbol.



**Figure 9-20**



**Figure 9-21**



**Figure 9-22**

JaneDoe@zipcorp.com

**User Name**  
This is the name of the person's e-mail account. It is similar to the person's name on an envelope.

**Domain Name**  
This is the location of the person's account on the Internet. It is similar to the address on an envelope.

**Figure 9-23**

Do you really need a definition of e-mail? You already know that you can use e-mail to send messages to the staff at the office or to people all over the world. You probably also know that e-mail is fast (almost instantaneous) and economical (many e-mail accounts are completely free!).

Just like you need to know a person's street address if you want to send them a letter, you need to know a person's e-mail address if you want to send that person an e-mail message. Figure 9-23 is an example of what a typical e-mail address looks like.

Windows XP comes with an e-mail program called *Outlook Express*. Outlook Express is a stripped-down version of Microsoft's full-featured e-mail program *Outlook*, which comes with Microsoft Office. Outlook Express allows you compose, send, and receive e-mail

messages over the Internet. The remainder of the lessons in this lesson will show you how to accomplish these tasks.

Move on to the one and only step in this lesson and we'll take a quick look at Outlook Express before we move on and learn how to compose, send, and receive e-mail.

## 1. Open Outlook Express by clicking the **Outlook Express** button on the taskbar's Quick Launch toolbar.

The main screen of Outlook Express appears, as shown in Figure 9-26. Notice the folders in the left pane of Outlook Express? These folders categorize your messages and work just like the In and Out boxes you've seen at the office. Table 9-3: E-mail Folders describes each of these folders.

Although we'll be working in Microsoft Outlook Express throughout the remaining lessons in this chapter, Outlook Express is by no means the only program you can use to send and receive e-mail. There are many, many different e-mail programs available, such as GroupWise, Lotus Notes, and even America Online that can also send and receive e-mail. In fact, if you're connected to the Internet and have a Web browser, you don't even need an e-mail program at all to send and receive e-mail—you can do it right from the Web! Web based e-mail is usually free, and it allows you to compose, send, and receive e-mail using a Web page instead of an e-mail program. Many people actually prefer using Web-based e-mail instead of an e-mail program because it's free and can be accessed anywhere there is a computer with an Internet connection. Hotmail, shown in Figure 9-22, owned by Microsoft (who else?) is the largest Web based e-mail program in the world.



### Outlook Express button

#### Other Ways to Start Outlook Express:

- Select **Go** → **Mail** from Internet Explorer's menu.

**Table 9-3: E-mail Folders**

<i>Folder</i>	<i>Description</i>
 <b>Inbox</b>	Stores the messages you've received
 <b>Outbox</b>	Temporarily stores any messages that you've composed that have not been sent
 <b>Sent Items</b>	Stores copies of messages you have sent
 <b>Deleted Items</b>	Stores messages that you've deleted
 <b>Drafts</b>	Stores draft messages that you haven't completed yet

#### Quick Reference

##### To Start Outlook Express:

- Click the **Outlook Express** button on the taskbar's Quick Launch toolbar.

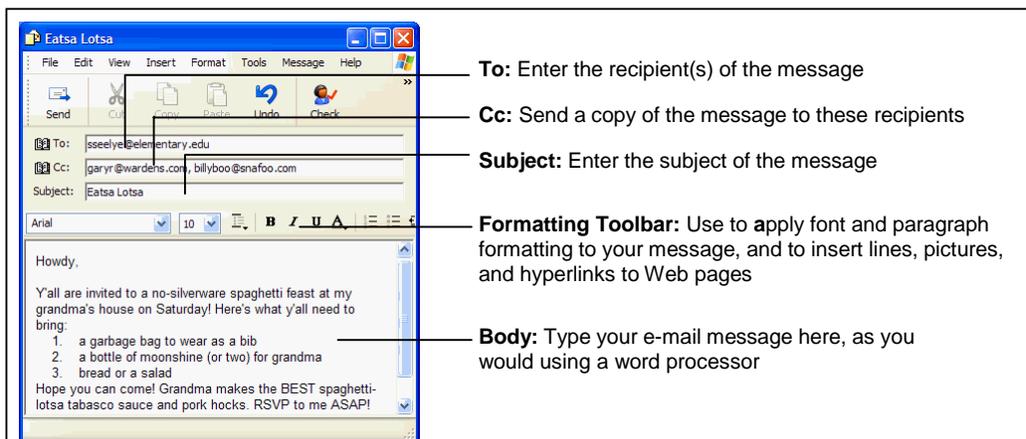
# Composing and Sending E-mail

**Figure 9-24**

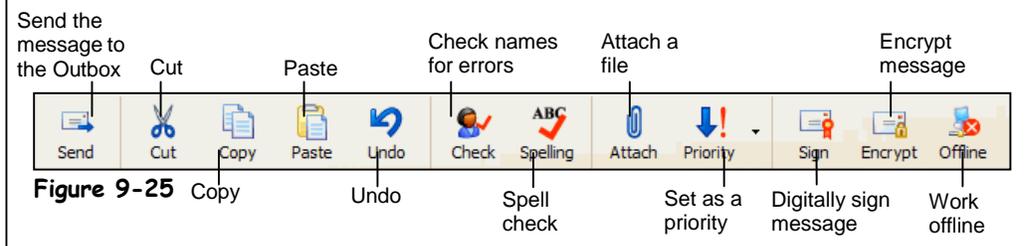
The New Message window

**Figure 9-25**

The New Message toolbar



**Figure 9-24**



**Figure 9-25**



**Outlook Express button**



**Create Mail button**

**Other Ways to Compose a Message:**

- Select **Compose** → **New Message** from the menu.
- Press **<Ctrl> + <N>**.



**Select Recipients from List button**

Here's a quick explanation on how to compose and send an e-mail message:

1. **If it's not already opened, start Outlook Express by clicking the Outlook Express button on the taskbar's Quick Launch toolbar.**  
The Outlook Express program appears.
2. **Click the Create Mail button on the Outlook Express toolbar.**  
The New Message window appears, as shown in Figure 9-24, ready for you to write your e-mail message. The first thing you have to do is specify the recipient's e-mail address in the To: field. You can either type this address in the To: box, or you can click the Select Recipients from a list button that appears immediately to the left of the To: box.  
If the recipient of your e-mail isn't in the Address Book or if you want to type out their address in the To: field, move on to the next step. If you want to select your recipient's name from the Address Book (providing that they are in the address book), skip to Step 4.
3. **Type the recipient's e-mail address in the To: field.**  
If you need to send a message to more than one person, simply enter all the recipient's e-mail addresses, making sure you separate them with a comma (,) like this: JohnWilson@acme.com, BettyT@yahoo.com. Skip to Step 7 when you're finished.
4. **If the recipient is in your Address Book, click the Select recipients from a list button to the left of the To: field.**  
The Select Recipients dialog box appears, as shown in Figure 9-27.

**5. Click the name of the recipient in the Name list and click the **To:** button.**

If you need to send a message to more than one person, you can repeat Step 5 to add the other recipients. When you're finished, move on to the next step.

**6. Click **OK**.**

The Select Recipients dialog box closes and the recipient(s) appear in the To: field.

**7. (Optional) To send a copy of a message to someone, click in the **Cc:** field and/or the **Bcc:** field and Repeat Steps 3-6 to enter their e-mail addresses, only click the **Cc:** or **Bcc:** button instead of the **To:** button.**

Table 9-4: *Ways to Address an E-mail Message* gives a description of carbon copies (Cc) and Blind Carbon Copies (Bcc). Next, you have to enter the subject of the message so your recipient(s) will know what your message is about. The subject will appear in the heading of the message in the recipient's inbox.

**8. Click the **Subject** field and enter a subject for the e-mail.**

Now you can type an actual e-mail message.

**9. Click the pointer in the body of the message, in the lower pane, then type the message as you would in a word processor.**

Keep in mind that all the generic Windows programs commands you've learned—such as cutting, copying, pasting, and formatting text—will work in Outlook Express.

**10. (Optional) To check the spelling of your message, select **Tools** → **Spelling** from the menu.**

Outlook Express checks the spelling in your message, flags each word it can't find in its dictionary, and suggests an alternate word. To replace an unknown word with a suggestion, select the suggestion in the Change To list and click the Change button. To ignore a word the spell checker doesn't recognize, such as the name of a city, click Ignore All.

**11. (Optional) To send a file or picture along with your message click the **Attach** button on the toolbar and then select the file in the Insert Attachment dialog box.**

**12. When you're finished with the message, click the **Send Message** button on the toolbar.**

The message is sent to the Outbox folder, and will be sent the next time you click the Send and Receive button. Go to Step 13 if you want to send the message immediately.

**13. Click the **Send and Receive** button on the Outlook toolbar.**

Outlook sends all the messages that are stored in the Outbox folder and retrieves any new e-mail messages it finds on the e-mail server.



**Attach button**



**Send and Receive button**

**Quick Reference**

**To Compose a Message:**

1. Open Outlook Express.
2. Click the **Create Mail** button on the Outlook Express toolbar.
3. Type the recipient's address in the **To:** field.

Or...

- Click the **Select recipients from a list** button to the left of the **To:** field, click the name of the recipient in the Name list, then click the **To:** button. Click **OK** when you're finished.
4. Click the **Subject** field and enter the message's subject.
5. Click the pointer in the lower pane and type the message.
6. (Optional) Check the spelling of your message by selecting **Tools** → **Spelling** from the menu.
7. (Optional) Attach a file by clicking the **Attach** button on the toolbar and then selecting the file in the Insert Attachment dialog box.
8. Click the **Send Message** button on the toolbar to send the message.

**Table 9-4: Ways to Address an E-mail Message**

<b>Address</b>	<b>Description</b>
<b>To</b>	Sends the message to the recipient you specify (required)
<b>Carbon Copy (Cc)</b>	Sends a copy of the message to a recipient who is not directly involved, but would be interested in the message
<b>Blind Carbon Copy (Bcc)</b>	Sends a copy of the message to a recipient without anyone else knowing that they received the message

# Adding a Name to the Address Book

**Figure 9-26**

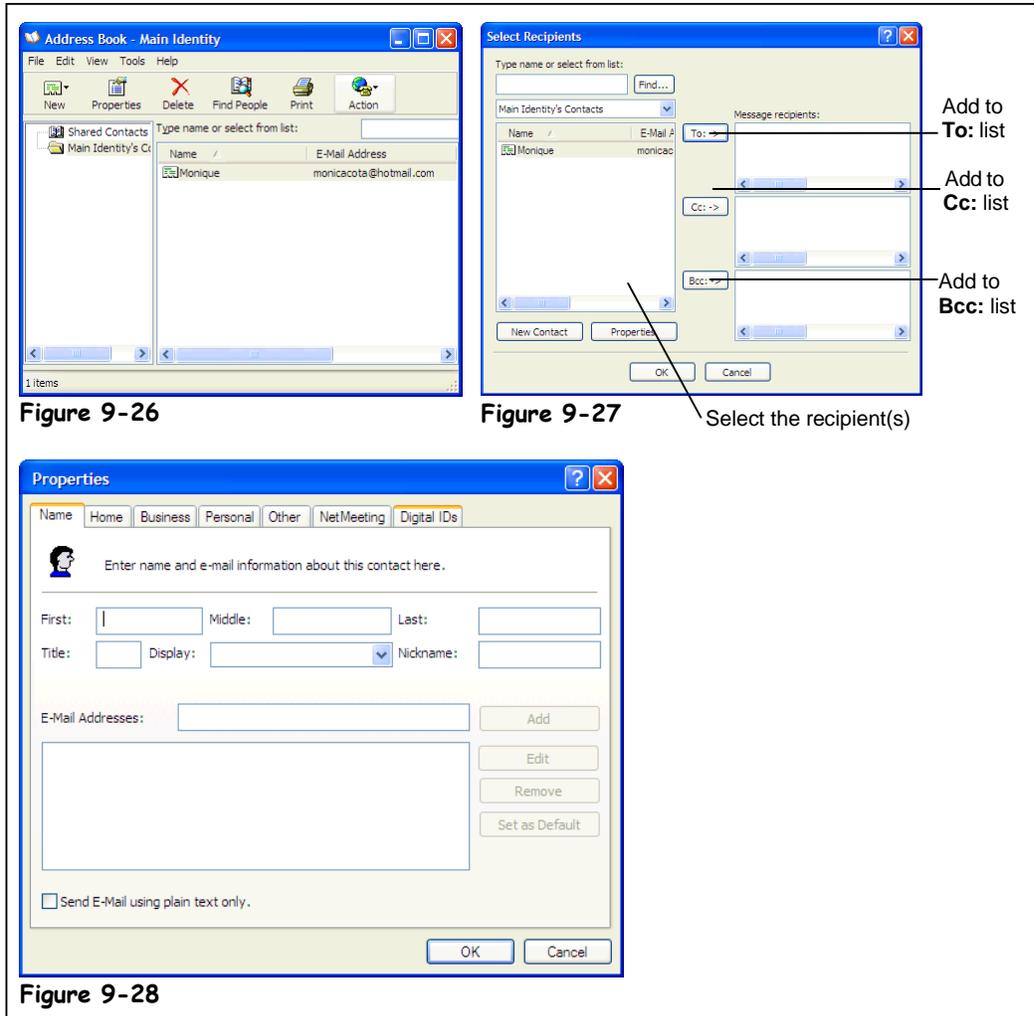
The Address Book window

**Figure 9-27**

The Select Names window

**Figure 9-28**

The Contact Properties dialog box



## Address Book button

Other Ways to Open the Address Book:

- Press **<Ctrl> + <B>**.

Unless you only write to two or three people, it's almost impossible to memorize the e-mail addresses of everyone you correspond with, especially when they have e-mail addresses that look something like `brad.james.traindept@gold.tc.umn.edu`. Fortunately, if you use the Windows Address Book, you don't have to. Simply enter the peoples' name and e-mail addresses to whom you regularly send messages, and you'll never have to remember another obscure e-mail address again. This lesson will show you how to add an e-mail address to the Address Book.

- 1.** If it isn't already open, start Outlook Express by clicking the **Outlook Express** button on the taskbar's Quick Launch toolbar.

The Outlook Express main program screen appears.

2. Click the **Address Book** button on the Outlook Express toolbar. The Address Book window appears, as shown in Figure 9-26. Two types of items appear in the Windows Address Book:
  -  **Contacts:** Contacts are the individual recipients in your Address Book.
  -  **Groups:** A group allows you to send messages to a group of recipients.
3. Click the **New** button on the Windows Address Book toolbar.
 

The New Entry dialog box appears with the Personal tab in front, as shown in Figure 9-28. Choose what type of entry you'd like to create, and where you want to put it.
4. Choose **Internet Mail Address** in the Select the Entry Type box, and select **Personal Address Book** from the Put This Entry box. Select **OK**.
 

The New cc:Mail Address Properties dialog box appears.



### New Contact button

5. Type the recipient's first and last name in the appropriate fields.
6. Enter the recipient's name in the **Display Name** box, then enter the e-mail address
 

You can also click on the other tabs in the New Internet Mail Address Properties dialog box to add additional information—such as phone numbers and addresses—about the recipient.
7. Click **OK** to close the Properties dialog box.
 

You return to the Windows Address Book window, where the new contact appears.
8. Click the Address Window's **Close** button to close it.

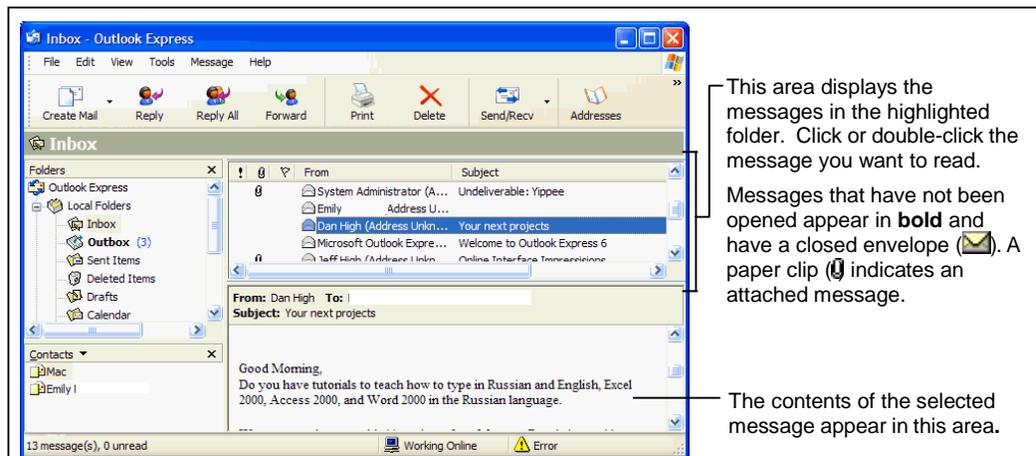
## Receiving E-mail

**Figure 9-29**

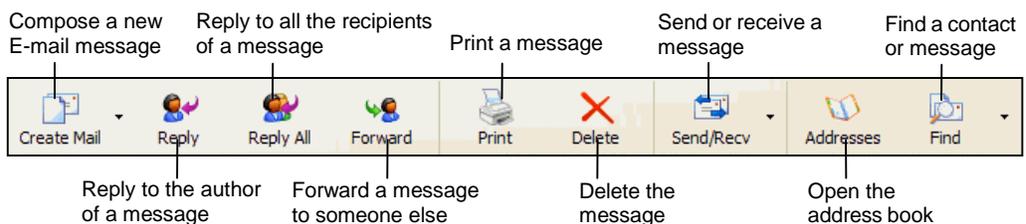
Outlook Express's Inbox folder

**Figure 9-30**

Outlook Express's Inbox toolbar



**Figure 9-29**



**Figure 9-30**

This lesson explains how to receive and read your e-mail messages with Outlook Express. You'll find it's a lot easier to retrieve and read e-mail messages than it is to sort through and read postal mail—no envelopes to rip open, no scribbled handwriting to decipher, no junk mail to go through... well that's not quite true. Unfortunately, the online world is plagued with junk mail, called *Spam*, just like the postal world. Oh well.

**1. If it isn't already open, start Outlook Express by clicking the OutlookExpress button on the taskbar's Quick Launch toolbar.**

The Outlook Express main program screen appears.

**2. Click the Inbox folder in the left pane of the Outlook Express window.**

The contents of the Inbox folder appear in the upper-right pane of the Outlook Express window, as shown in Figure 9-29. Let's check and see if you have any new e-mail.

**3. Click the Send and Receive button on the Outlook Express toolbar.**

Normally, Outlook Express automatically checks your mail server for new messages every 30 minutes. If it finds any new messages on your mail server, it downloads them and saves them to your computer. You can force Outlook to check for new messages by clicking the Send and Receive button. If you connect to the Internet with a modem connection, Outlook Express will automatically dial out and connect to the Internet to establish a connection with your mail server.

our new messages are saved in the Inbox folder. Any new, unread messages appear in **bold** and have a closed envelope icon (✉) next to them. Here's how to open and read a message.

**4. Click the message you want to read.**

The contents of the message appear in the lower-right pane of Outlook Express, and the From and Subject information appear at the top of this pane. You can also open a message its own window—this is especially helpful when you want to read a long message. Simply double-click the message you want to read. The message appears in its own window. You can close the message's window when you're finished reading it by clicking the window's close button.

If a message has one or more files attached to it, a paper clip will also appear in this area. If a message contains an attachment, go to Step 5 to open it. If not, skip ahead to Step 6.

**5. (Optional) To open any files attached to a message, click the paper clip icon and then click the file you want to open from the list that appears from the paper clip.**

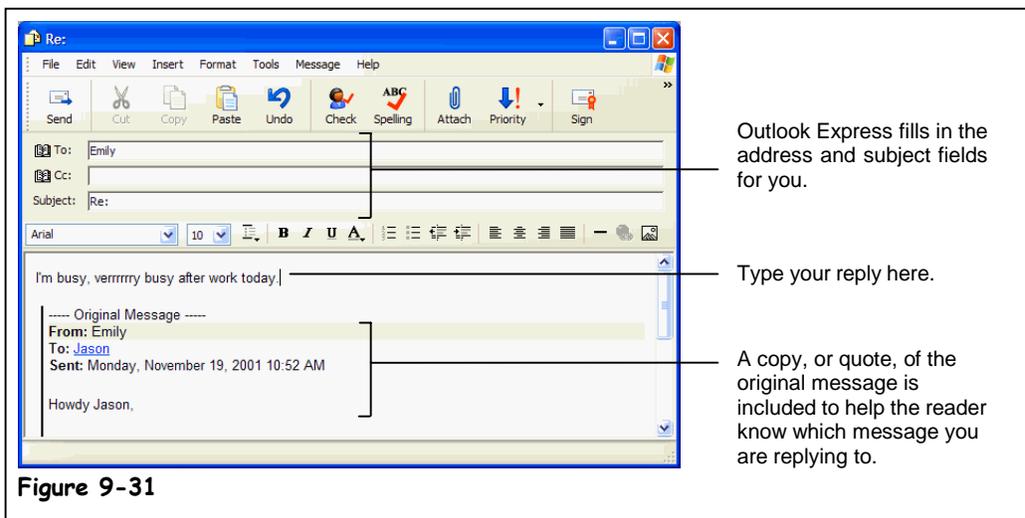
Sometimes you'll want to print a copy of a message. Here's how to do it:

**6. (Optional) To print a message, select File → Print from the menu, or press <Ctrl> + <P>. Click OK to print the message.**

# Replying to a Message

**Figure 9-31**

You can reply to a message.



**Figure 9-31**

Outlook Express fills in the address and subject fields for you.

Type your reply here.

A copy, or quote, of the original message is included to help the reader know which message you are replying to.



**Reply to All button**



**Reply to Author button**

You can reply to a message, just like you would answer a letter. This lesson explains how to do it.

1. **Find and open the message you want to reply to.**  
You learned how to open and read messages in the previous lesson. Next, you need to decide who you want to respond to. You have two choices:
  - **Reply to Author:** Sends the reply only to the author of the message.
  - **Reply to All:** Sends the reply to everyone who received the message.
2. **Click the reply option you want to use: Reply to Author or Reply to All.**  
A window appears where you can type your reply.
3. **Type your reply and click the Send button on the toolbar when you're finished.**

You can use special characters to express emotion in your e-mail messages, in chat rooms, or elsewhere on the Internet. Table 9-5: *Expressing Emotion in Your Messages* has some of the more common ones. Some of them resemble a face if you turn them sideways.

## Quick Reference

### To Reply to a Message:

1. Find and open the message you want to reply to.
2. Click the reply option you want to use: **Reply to Author** or **Reply to All**.
3. Type your reply and click the **Send** button on the toolbar when you're finished.

**Table 9-5: Expressing Emotion in Your Messages**

Abbreviation	Description	Abbreviation	Description
: ) or :-)	Smile	FAQ	Frequently asked questions
: ( or :- (	Frown	IMHO	In my humble opinion
; ) or ;-)	Wink	LOL	Laughing out loud
: )~ or :- )~	Sticking tongue out	ROTFL	Rolling on the floor laughing
: O or :- O	Surprise	FWD	Forwarded message

## **CHAPTER 3**

### **DOS – (Disk Operating System)**

MS-DOS ; acronym for **M**icrosoft **D**isk **O**perating **S**ystem is a discontinued operating system for x86-based personal computers mostly developed by Microsoft. Collectively, MS-DOS, it's rebranding as IBM PC DOS, and some operating systems attempting to be compatible with MS- DOS, are sometimes referred to as "DOS" (which is also the generic acronym for disk operating system). MS-DOS was the main operating system for IBM PC compatible personal computers during the 1980s and the early 1990s, when it was gradually superseded by operating systems offering a graphical user interface (GUI), in various generations of the graphical Microsoft Windows operating system.

#### **3.1 Introduction & Features**

The DOS (Disk Operating System) is the old and single user Operating System in the computer. Though it is not used by many people at present, it is better to study DOS with a view to understand how the files are created, maintained and copied in the computer. *As this operating system is mainly deals with different disks like floppy, hard disk etc., it is called as Disk Operating System (DOS).*

When we start the computer, it makes the system to work in its internal parts like RAM, ROM and other peripherals. Here it will check whether the operating system has been loaded in it or not. If it is loaded, it will start further operations. Disk operating system is thus that part of system which will co-ordinate with all the parts of a computer.

#### **Functions of DOS (Disk Operating System)**

1. It takes commands from the keyboard and interprets them.
2. It shows all the files in the system.
3. It creates new files and allots space for programme.
4. It changes the name of a file in place of old name.
5. It copies information in a floppy drive and hard disk.
6. It helps in locating a file.
7. It searches where the file is located in the disk.
8. If we want the information in the file to be printed, it gives printout of the information.
9. It hides the files and directories so as not to be seen by others.
10. It permanently removes the file.

#### **Features of DOS**

The primitive operating system of DOS has the following features:

1. It is the **primary system** where the user will get an environment about the input and output devices, e.g. Monitor, Keyboard, Printers etc. viz. DOS provides features essential to control hardware devices such as Keyboard, Screen, Disk Devices, Printers, Modems and programs.
  2. It is helpful in **performing file management** e.g., creating, editing, deleting files etc.
  3. It is a **single user operating system**. One user can operate at one time in this operating system.
  4. It is **Character Based** interface system. We can type letters (or characters in this operating system). DOS translate the command issued of the user in the format that is understood by the computer to execute it, also error message in the format for the user to understand.
-

**3.2 Internal Commands – DIR, CLS, VER, VOL, DATE, TIME, COPY, TYPE, REN, DEL, CD, MD, RD** These commands are automatic loaded into the memory when operating system is loaded into the memory. Thus these are also called *memory-resident* commands. The commands available are all combined together and are stored in Command.com file, which is a executable commandfile. These internal commands are further grouped according to their properties.

Command	Used for	Syntax
<b>CLS</b> Clear the screen	This command is used to clear the screen or wipe out everything written on the screen.	C:\> CLS and press Enter
<b>DIR</b> Directory	Used for listing files and directories present in the current disk	C:\> DIR [/switches] Example:- C:\> DIR /D
<b>VER</b> Version	Version numbers indicates that which edition of DOS we are working on	C:\> VER press enter Output:- C:\>VER Windows 98 [Version 4.10.2222]
<b>VOL</b> Volume	Displays the disk volume label and serial number, if it exist	C:\> VOL press enter Output:-C:\>VOL Volume in drive C is JAI Volume Serial Number is 3E42-1907
<b>DATE</b>	Display the current Date	C:\> DATE C:\>DAT E Current date is Fri 02-15-2002 Enter new date (mm-dd-yy):
<b>TIME</b>	Display current time	C:\> TIME C:\>TIM E Current time is 8:38:47.70a Enter new time:
<b>COPY CON</b>	This command gives the facility to create a new text file	C:\> COPY CON <Filename>C:\>COPY CON Rose.txt A clock in a office can never get stolen Too many employees watch it all the time ^Z 1 file(s) copied ^C (CTRL+C) button to abort without saving
<b>TYPE</b>	This command is used to display the contents or text of any file to the display	C:\> TYPE <Filename> A:\>TYPE Rose.TXT
<b>COPY</b>	Copy command is used for copy any file to another location or to copy the files to another directory. This command may also be used for copying any file to another disk with different file name/device	:> COPY <Source filename> <Target file name> C:\>COPY ROSE.TXT ROSE.MSG 1 file(s) copied To copy a file from <i>hard disk</i> to <i>floppy disk</i> C:\>COPY Rose.txt A:1 file(s) copied To copy a file from <i>Floppy Disk</i> to <i>Hard disk</i> A:\>COPY LOTUS.TXT C:\ 1 file(s) copied

<b>REN</b> Rename	This command is used to change the name of any file or directory	C:\> REN <Source filename> <Target filename> C:\>REN ROSE.TXT GULBAL.TXT To changing the filename present in floppy disk C:\>REN A:\ROSE.TXT GULAB.TXT
<b>DEL</b> Delete	This command is used for erasing any file from the disk	C:\> DEL <Filename> C:\>DEL LOTUS.TXT
<b>MD</b> Make Director y	This command allows to create a new directory	C:\> MD <Dirname>C:\> MD REPORT
<b>CD</b> Change Directory	We can enter or exit from any directory using this command	To access any directory C:\> CD <Directory name> C:\> CD REPORT C:\REPORT> To exit from directory C:\> CD.. C:\REPORT> CD..C:\>
<b>RD</b> Remove directory	This command is used when we want to remove any unusable directory form our disk	C:\> RD <Directory name> C:\> RD REPORT
<b>PATH</b>	This command is used for display or sets directories for executable files. This command display current path settings	C:\> PATH C:\> PATH=C:\WINDOWS\COMMAND;C:\WINDO WS \;C:\TC

### 3.3 External Commands - , ATTRIB, SCANDISK, TREE, MORE, EDIT

External commands are known as *Disk residence* commands, since they can be stored with DOS directory or any disk which is used for getting these commands. Theses commands help to perform some specific task. These are stored in a secondary storage device. Some important external commands are given below:-

Command	Used for	Syntax
<b>MORE</b>	Using TYPE command we can see the content of any file. But if length of file is greater than 25 lines then remaining lines will scroll up. To overcome through this problem we uses MORE command. Using this command we can pause the display after each 25 lines	C:\> TYPE <File name>   MOREC:\> TYPE ROSE.TXT   MORE or C:\> DIR   MORE
<b>MEM</b>	This command displays free and used amount of memory in the computer	C:\> MEM the computer will display the amount of memory

<b>SYS</b>	This command is used for copy system files to any disk. The disk having system files are known as Bootable Disk, which are used for booting the computer	C:\> SYS [Drive name] C:\> SYS A: System files transferred This command will transfer the three main system files COMMAND.COM, IO.SYS, MSDOS.SYS to the floppy disk.
<b>ATTRIB</b>	Sets the various type of attribute to a file. Like Read only, Archive, Hidden and System attribute.	C:\> ATTRIB [ $\pm$ r] [ $\pm$ a] [ $\pm$ h] [ $\pm$ s] <File name>here r - for read only, a- for archive, h - for hidden, s - for hidden attribute. C:\> ATTRIB +r Gulab.txt This command will change the attribute of
		file gulab.txt to read only mode. To remove the read only attribute we will follow this command. C:\> ATTRIB -r Gulab.txt

<b>SCANDISK</b>	<p>This command is used to check the status of a disk and show the report of result status.</p> <ul style="list-style-type: none"> <li>• <b>Drive</b></li> <li>• <b>volume_name</b></li> <li>• <b>/all</b></li> <li>• <b>/checkonly</b></li> <li>• <b>/autofix</b></li> <li>• <b>/custom</b></li> <li>• <b>/surface</b></li> <li>• <b>/fragment</b></li> <li>• <b>/mono</b></li> <li>• <b>/nosave</b></li> <li>• <b>/nosummary</b></li> </ul>	<p>SCANDISK [d: [d: . . .] /all] [/checkonly] [/autofix [/nosave]] [/custom] [/surface] [/mono] [/nosummary]</p> <p>SCANDISK volume-name [/checkonly] [/autofix [/nosave]] [/custom] [/mono] [/nosummary]</p> <p>SCANDISK /fragment [d:][path]filename SCANDISK /undo [undo-d:][/mono]</p> <ul style="list-style-type: none"> <li>• The drive letter you want to scan</li> <li>• The name of the un-mounted compressed volume</li> <li>• Checks and repairs all local drives at once</li> <li>• Checks drive for errors but will not make repairs</li> <li>• Fixes errors without asking you first. Saves lost clusters by default as files in the drive's root directory. Cannot be used with /checkonly or /custom</li> <li>• Runs ScanDisk using the settings in [custom] section of the scandisk.ini file. Cannot be used with /autofix or /checkonly</li> <li>• Automatically checks surface after other areas are tested without prompting you first. When used with /custom, will override any /surface setting in [Custom] section of scandisk.ini</li> <li>• Checks individual files for fragmentation. Must specify a drive, path, and file name; cannot use any other switches</li> <li>• Uses a monochrome display instead of color</li> <li>• Deletes all lost clusters found by ScanDisk. Can be used with /autofix</li> <li>• Prevents display of full-screen summary after each drive. Use with /autofix to prevent prompts for undo diskette</li> </ul>
<b>TREE</b>	<p>Displays directory paths and (optionally) files in each subdirectory</p>	<p>TREE [Drive:][[Path] [/F] [/A] /F Displays file names in each directory /A ext characters used for linking lines, instead of graphic characters. /a is used with code pages that do not support graphic</p>
		<p>characters and to send output to printers that do not properly interpret graphic characters</p>

<b>EDIT</b>	Starts the MS-DOS editor which is a text editor used to create and edit ASCII text files /B /H  /R /S /<nnn>  /? [file ]	EDIT [/B] [/H] [/R] [/S] [/<nnn>] [/?] [file(s)]  Forces monochrome mode Displays the maximum number of lines possible for your hardware Load file(s) in read-only mode Forces the use of short filenames Load binary file(s), wrapping lines to <nnn>characters wide Displays this help screen Specifies initial files(s) to load. Wildcards and multiple file specs can be given.
<b>XCOPY</b>	When we need to copy a directory instant of a file from one location to another then we use xcopy command	C:\> XCOPY < Source dirname > <Target dirname> C:\> XCOPY TC TURBOC
<b>MOVE</b>	Move command is used for moving one file or multiple files from one location to another location or from one disk to another disk	C:\> MOVE <file name> <path name> C:\SONGS> MOVE *.MP3 C:\SONGS\OLDSONGS\
<b>FC</b> File Compare	This command is capable for comparing two sets of files and displaying the difference between two files	C:\> FC <First set of file> <Second set of file> C:\> FC ROSE.TXT GULAB.TXT
<b>SORT</b>	This command is useful when we want to sort a file. When we run this command the result can be got to display device or file.	C:\> SORT /R < Input file name> <output filename> Suppose we have a file Player.txt which having the list of a cricket player team and we want to sort the list of players, then we use this command C:\> SORT Player.txt /R- switch is used for sorting the file in descending order like from Z to A or from 9 to 0
<b>FIND</b>	The FIND command is used to search a file for a text string.	C:\> FIND "String to search" <File name> C:\TEST>find "office" gulab.txt ----- gulab.txt
<b>DISKCOPY</b>	DISKCOPY copies the contents of a floppy disk to another.	C:\> DISKCOPY <Drive1> <Drive2> C:\> DISKCOPY A: B: This command will copy all contents of A drive to B drive
<b>LABEL</b>	If you are not happy with the volume label of hard disk, you can change it.	C:\> LABEL C:\>LAB EL Volume in drive C is JAI Volume Serial Number is 3E42-1907 Volume label (11 characters, ENTER for none)? INFOWAY

<b>FORMAT</b>	This command creates new Track &	C:\> FORMAT [drive name] [/S] C:\> FORMAT A:
	Sectors in a disk. Every	this command will create new track & sectors. C:\> FORMAT A: /S This command will transfer system files after formatting the disk.

