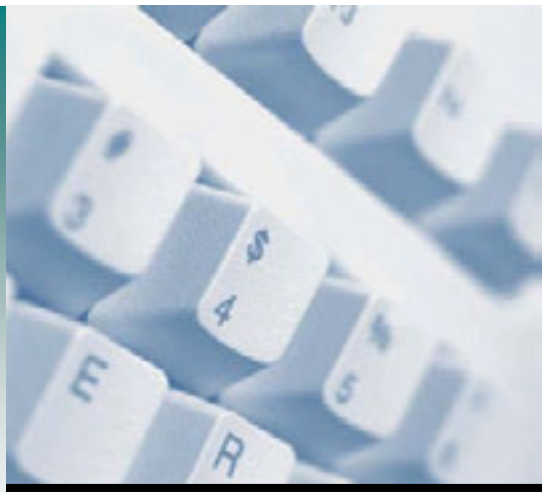

SmartLearn

Computer Basics

Student Edition
Complete

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Table of Contents

Introduction

Welcome to SmartLearn: Computer Basics. SmartLearn courseware allows instructors to create and print manuals that contain the specific lessons that best meet their students' needs. In other words, this book was designed and printed just for you.

Unlike most other computer-training courseware, each SmartLearn manual is uniquely designed to be three books in one:

- Step-by-step instructions make this manual great for use in an instructor-led class or as a self-paced tutorial.
- Detailed descriptions, illustrated diagrams, informative tables, and an index make this manual suitable as a reference guide when you want to learn more about a topic or process.
- The handy Quick Reference box, found on the last page of each lesson, is great for when you need to know how to do something quickly.

SmartLearn manuals are designed both for users who want to learn the basics of the software and those who want to learn more advanced features.

Here's how a SmartLearn manual is organized:

Chapters

Each manual is divided into several chapters. Aren't sure if you're ready for a chapter? Look at the prerequisites that appear at the beginning of each chapter. They will tell you what you should know before you start the chapter.

Lessons

Each chapter contains several lessons on related topics. Each lesson explains a new skill or topic and contains a step-by-step exercise to give you hands-on-experience.

Chapter Reviews

A review is included at the end of each chapter to help you absorb and retain all that you have learned. This review contains a brief recap of everything covered in the chapter's lessons, a quiz to assess how much you've learned (and which lessons you might want to look over again), and a homework assignment where you can put your new skills into practice. If you're having problems with a homework exercise, you can always refer back to the lessons in the chapter to get help.

How to Use the Lessons

Every topic is presented on two facing pages, so that you can concentrate on the lesson without having to worry about turning the page. Since this is a hands-on course, each lesson contains an exercise with step-by-step instructions for you to follow.

To make learning easier, every exercise follows certain conventions:

- Anything you're supposed to click, drag, or press appears **like this**.
- Anything you're supposed to type appears `like this`.
- This book never assumes you know where (or what) something is. The first time you're told to click something, a picture of what you're supposed to click appears either in the margin next to the step or in the illustrations at the beginning of the lesson.

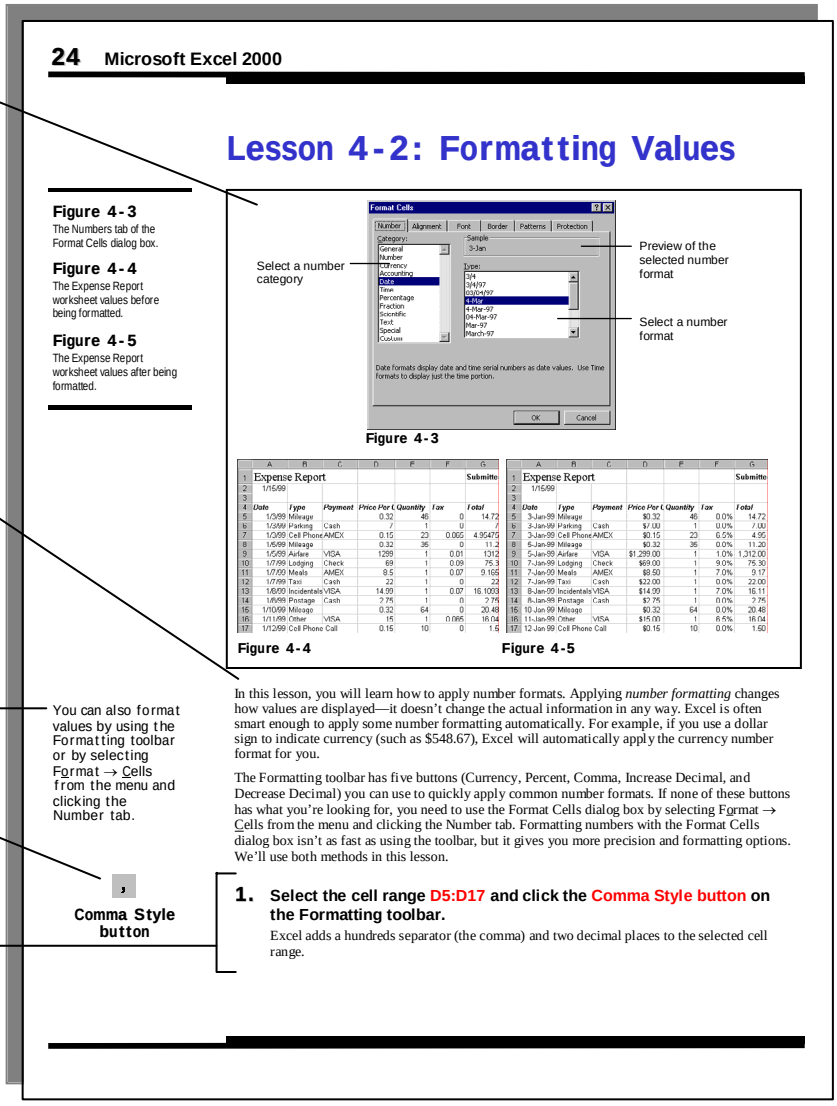
Illustrations show what your screen should look like as you follow the lesson. They also describe controls, dialog boxes, and processes.

An easy-to-understand introduction explains the task or topic covered in the lesson and what you'll be doing in the exercise.

Tips and traps appear in the margin.

Icons and pictures appear in the margin, showing you what to click or look for.

Clear step-by-step instructions guide you through the exercise. Anything you need to click appears **like this**.



24 Microsoft Excel 2000

Lesson 4-2: Formatting Values

Figure 4-3
The Numbers tab of the Format Cells dialog box.

Figure 4-4
The Expense Report worksheet values before being formatted.

Figure 4-5
The Expense Report worksheet values after being formatted.

Figure 4-3

Figure 4-4

Figure 4-5

In this lesson, you will learn how to apply number formats. Applying *number formatting* changes how values are displayed—it doesn't change the actual information in any way. Excel is often smart enough to apply some number formatting automatically. For example, if you use a dollar sign to indicate currency (such as $548.67), Excel will automatically apply the currency number format for you.

The Formatting toolbar has five buttons (Currency, Percent, Comma, Increase Decimal, and Decrease Decimal) you can use to quickly apply common number formats. If none of these buttons has what you're looking for, you need to use the Format Cells dialog box by selecting Format → Cells from the menu and clicking the Number tab. Formatting numbers with the Format Cells dialog box isn't as fast as using the toolbar, but it gives you more precision and formatting options. We'll use both methods in this lesson.

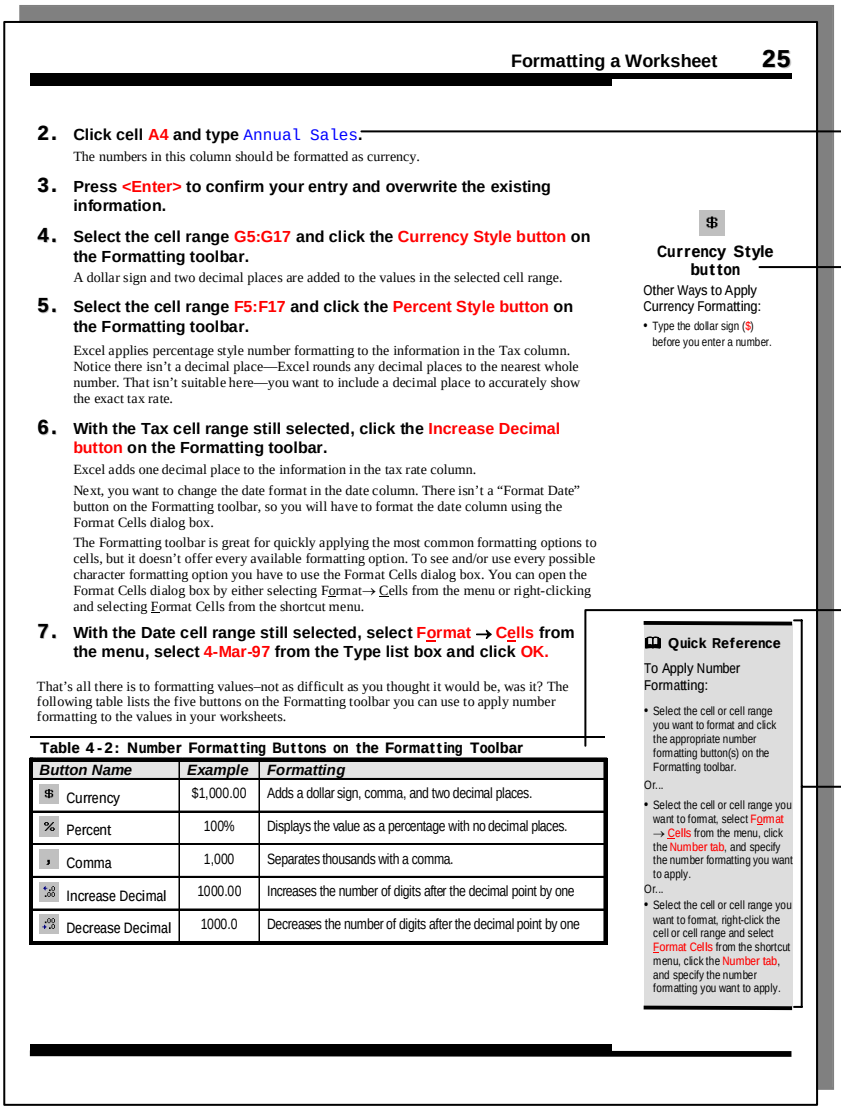
You can also format values by using the Formatting toolbar or by selecting Format → Cells from the menu and clicking the Number tab.

Comma Style button

1. Select the cell range D5:D17 and click the Comma Style button on the Formatting toolbar.

Excel adds a hundreds separator (the comma) and two decimal places to the selected cell range.

- When you see a keyboard instruction like "press **<Ctrl>** + **<B>**," you should press and hold the first key (<Ctrl> in this example) while you press the second key (<B> in this example). Then, after you've pressed both keys, you can release them.
- There is usually more than one way to do something in Word. The exercise explains the most common method of doing something, while the alternate methods appear in the margin. Use whatever approach feels most comfortable for you.
- Important terms appear in *italics* the first time they're presented.
- Whenever something is especially difficult or can easily go wrong, you'll see a:
  NOTE:
  immediately after the step, warning you of pitfalls that you could encounter if you're not careful.
- Our exclusive Quick Reference box appears at the end of every lesson. You can use it to review the skills you've learned in the lesson and as a handy reference—when you need to know how to do something fast and don't need to step through the sample exercises.



Formatting a Worksheet 25

2. **Click cell A4 and type** `Annual Sales`**.**
The numbers in this column should be formatted as currency.

3. **Press <Enter> to confirm your entry and overwrite the existing information.**

4. **Select the cell range G5:G17 and click the Currency Style button on the Formatting toolbar.**
A dollar sign and two decimal places are added to the values in the selected cell range.

5. **Select the cell range F5:F17 and click the Percent Style button on the Formatting toolbar.**
Excel applies percentage style number formatting to the information in the Tax column. Notice there isn't a decimal place—Excel rounds any decimal places to the nearest whole number. That isn't suitable here—you want to include a decimal place to accurately show the exact tax rate.

6. **With the Tax cell range still selected, click the Increase Decimal button on the Formatting toolbar.**
Excel adds one decimal place to the information in the tax rate column.
Next, you want to change the date format in the date column. There isn't a "Format Date" button on the Formatting toolbar, so you will have to format the date column using the Format Cells dialog box.
The Formatting toolbar is great for quickly applying the most common formatting options to cells, but it doesn't offer every available formatting option. To see and/or use every possible character formatting option you have to use the Format Cells dialog box. You can open the Format Cells dialog box by either selecting Format→ Cells from the menu or right-clicking and selecting Format Cells from the shortcut menu.

7. **With the Date cell range still selected, select Format → Cells from the menu, select 4-Mar-97 from the Type list box and click OK.**

That's all there is to formatting values–not as difficult as you thought it would be, was it? The following table lists the five buttons on the Formatting toolbar you can use to apply number formatting to the values in your worksheets.

Table 4-2: Number Formatting Buttons on the Formatting Toolbar

Button Name	*Example*	*Formatting*
Currency	$1,000.00	Adds a dollar sign, comma, and two decimal places.
Percent	100%	Displays the value as a percentage with no decimal places.
Comma	1,000	Separates thousands with a comma.
Increase Decimal	1000.00	Increases the number of digits after the decimal point by one
Decrease Decimal	1000.0	Decreases the number of digits after the decimal point by one

Currency Style button

Other Ways to Apply Currency Formatting:
- Type the dollar sign ($) before you enter a number.

Quick Reference

To Apply Number Formatting:
- Select the cell or cell range you want to format and click the appropriate number formatting button(s) on the Formatting toolbar.

Or...
- Select the cell or cell range you want to format, select Format → Cells from the menu, click the Number tab, and specify the number formatting you want to apply.

Or...
- Select the cell or cell range you want to format, right-click the cell or cell range and select Format Cells from the shortcut menu, click the Number tab, and specify the number formatting you want to apply.

Anything you need to type appears `like this`.

Whenever there is more than one way to do something, the most common method is presented in the exercise and the alternate methods are presented in the margin.

Tables provide summaries of the terms, toolbar buttons, or shortcuts covered in the lesson.

SmartLearn's exclusive Quick Reference is great for when you need to know how to do something fast. It also lets you review what you've learned in the lesson.

Chapter One: The Essentials

Chapter Objectives:

- **Learn the difference between hardware and software**
- **Discover the various types of computers and their roles**
- **See what's on the front, back, and inside of a computer**
- **Learn about the various ports on a computer**
- **Understand what determines a computer's performance**
- **See what you should look for when buying a computer**

☑ Prerequisites

- A desire to learn about computers.

Computers are useful: they help us write letters, find information on the Internet, and even create our own music CDs. Some people *love* computers—they speak a different language that includes nonsensical words like *IP address* and *gigabytes*. But most of us are somewhat clueless when it comes to computers. We know how to turn our computer on, how to surf the Internet (maybe), and how to write a quick letter on a word processor. But that's about it—we have to ask our kids or friends for help when something goes wrong, which is all the time.

This guide takes some of the mystery out of computers. In this chapter we'll take a good hard look at a computer from the front, back, and yes, even inside. You'll understand what all those confusing ports on the back of the computer are for and why it's important for your computer to have a fast *CPU*. Best of all, we'll explain all of this in simple terms, so you won't need an engineering degree to understand everything.

Ready to tackle your computer? Great—turn the page and let's get started…

Lesson 1-1: 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.

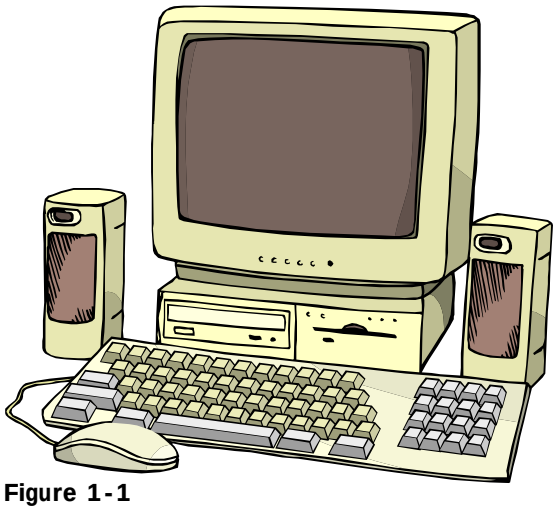


Figure 1-1

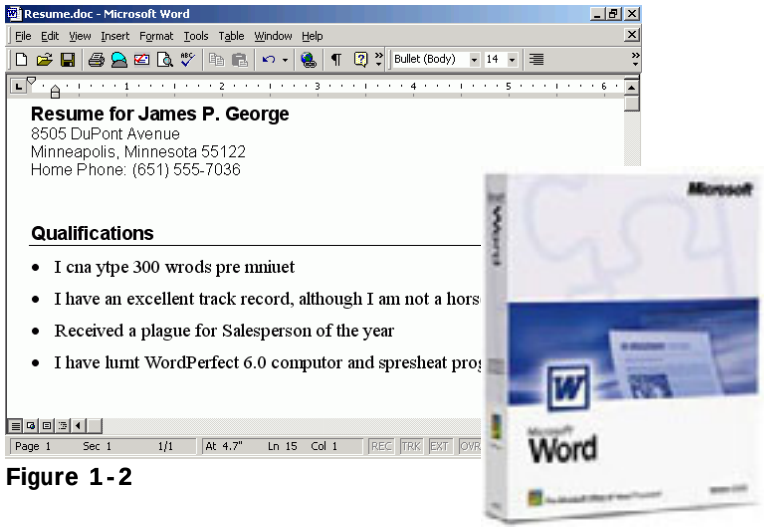


Figure 1-2

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

Component	*Description*
Case or System Unit	The main computer box, technically known as the *system unit*, 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 *ports* where you plug in the rest of the computer system.
Monitor	The monitor resembles a television set, and is where the computer displays information.
Keyboard	The keyboard is the thing you type on to tell your computer what to do.
Mouse	Like the keyboard, the mouse is another *input device* that you use to communicate with your computer.
Speakers	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.
Printer	A printer is where a computer writes down information or *output*, onto paper, or a *hardcopy*.

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.

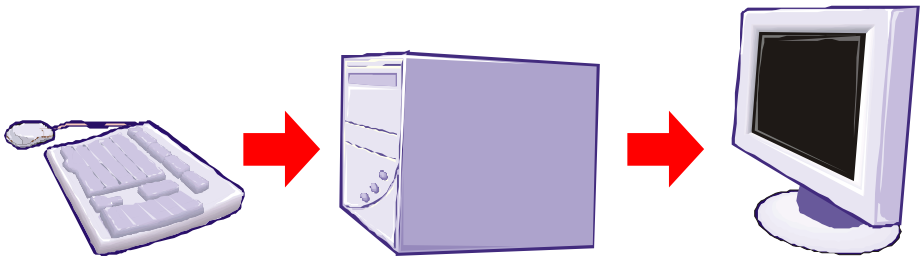
Lesson 1-2: Computer Overview

Figure 1-3

How a computer works.

Figure 1-4

Comparing a TV to a PC.



Input
You communicate with the computer via an input device such as a mouse, a keyboard, or a joystick.

Process/Storage
The computer processes data, makes calculations, directs the work of the hardware, and stores your files.

Output
The computer communicates its results to you via an output device such as a monitor, a printer, or speakers.

Figure 1-3

Input
The remote control talks to the TV; the mouse and the keyboard talk to the computer.

Process/Storage
The cable box deciphers which channel you want to watch; the CPU translates your instructions (via software) to the hardware.

Output
The television displays the channel; the monitor displays the results.

Figure 1-4

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).

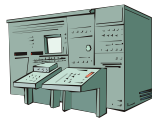
If you're having trouble understanding this input/output stuff, think of your home television (TV) set. Televisions and computers are similar in several ways:

- 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

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

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

Lesson 1-3: The Front of a Computer and Peripheral Devices

Figure 1-5

The front of a computer case.

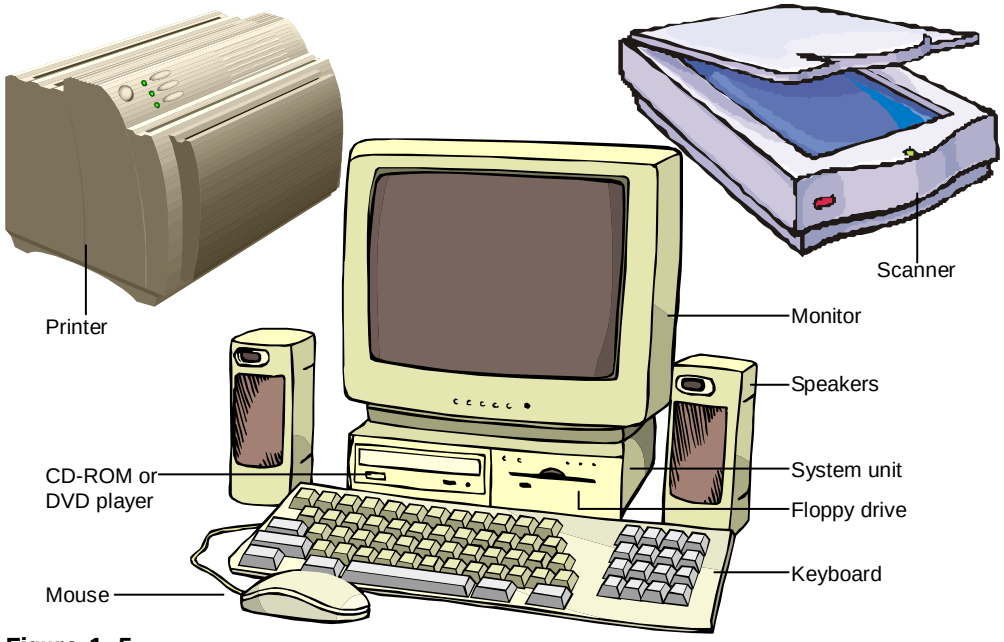


Figure 1-5

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?

Item	*Description*
System Unit or Computer Case	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.
Floppy Drive	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.

Item		*Description*
Hard Drive (Not shown)		The computer's main, long-term storing device. Unlike floppy disks and CD-ROMs, you typically cannot remove a hard disk.
CD-ROM or DVD Drive		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. 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. Most CD-ROMs and DVD are *read-only*, meaning you can't write information to them. You can buy special CD-ROM and DVD drives that *can* write or burn information to special CD-R, CD-RW, DVD-R, and DVD-RW discs.
Zip Drive (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).
Tape Backup (Not shown)		A device that you can use to store backups, or copies, of the information on a computer's hard drive.
Input Devices	Keyboard	The keyboard is the thing you type on to tell your computer what to do.
	Mouse	Like the keyboard, the mouse is another *input device* that you use to communicate with your computer.
	Scanner	Scanners work like photocopiers, except the image is translated into a digital image in your computer rather than copied onto paper.
Output Devices	Monitor	The monitor resembles a television set, and is where the computer displays information.
	Speakers	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.
	Printer	A printer is where a computer writes down information or *output*, onto paper, or a *hardcopy*.

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

Lesson 1-4: The Inside of a Computer

Figure 1-6

The side view of the guts of a tower case.

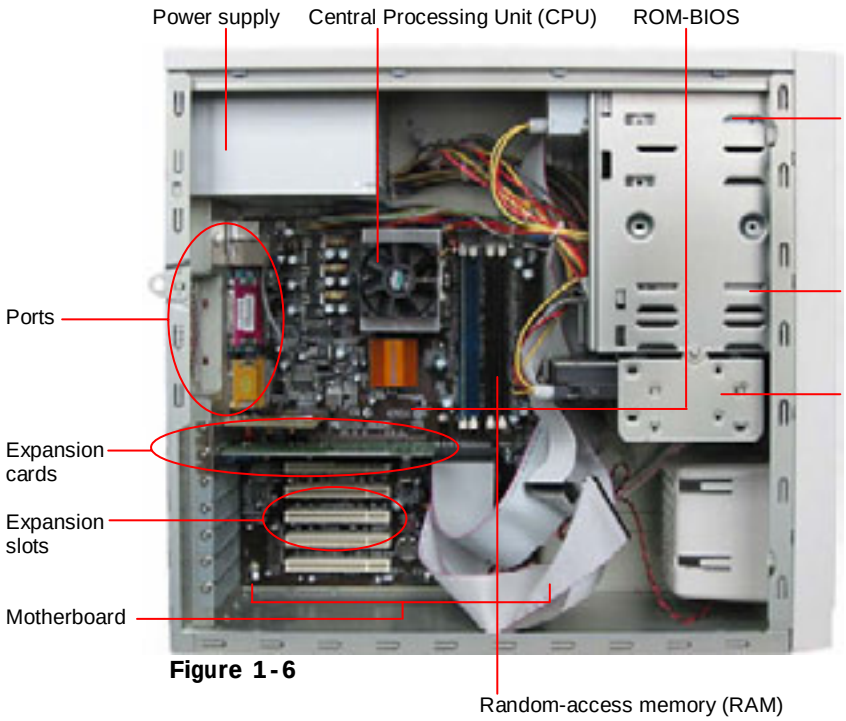
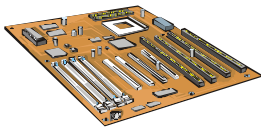


Figure 1-6



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?

Item	*Description*
Motherboard	The main piece of circuitry in a computer. Everything connects to or is wired to the motherboard.
Central Processing Unit (CPU)	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.
Random Access Memory (RAM)	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.
ROM-BIOS	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.
Expansion Slot	An expansion slot lets you add more features and capabilities to a computer by plugging in expansion cards.

Item	*Description*
Expansion Card	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.
PCMCIA Cards	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.

Quick Reference

Components Inside the System Unit May Include:

- Motherboard
- CPU (Central Processing Unit)
- RAM (Random Access Memory)
- ROM-BIOS
- Expansion slots and cards
- PCMCIA cards (laptops only)

Lesson 1-5: The Back of a Computer (Ports)

Figure 1-7

The back of a computer case.

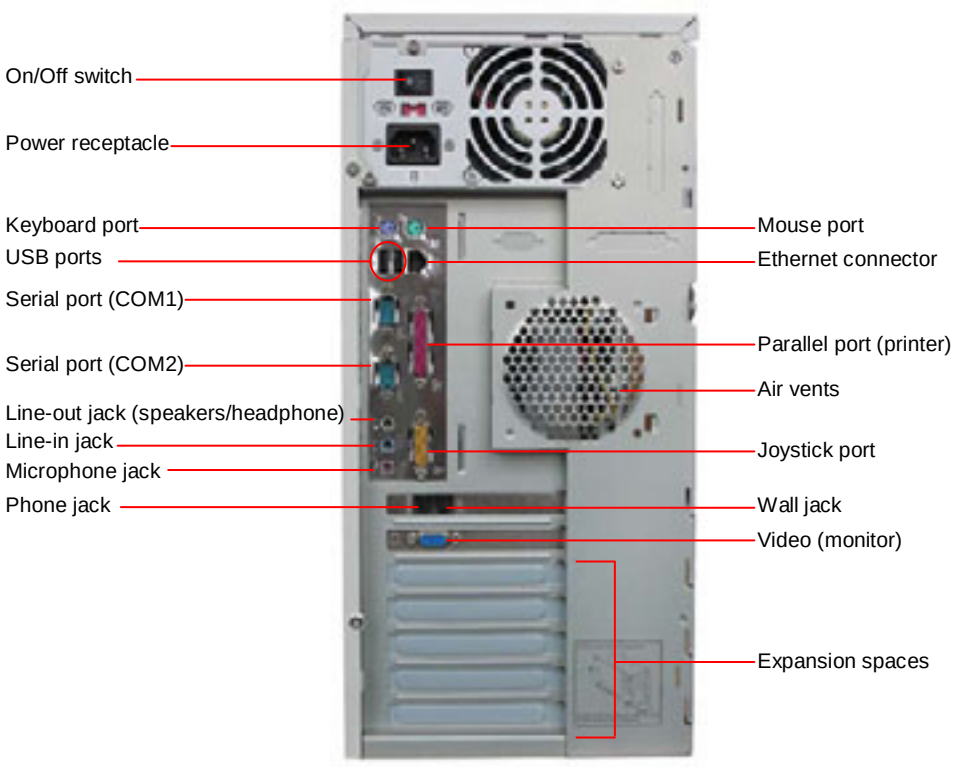
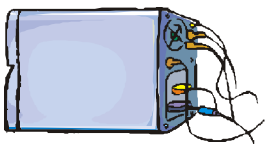


Figure 1-7



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.