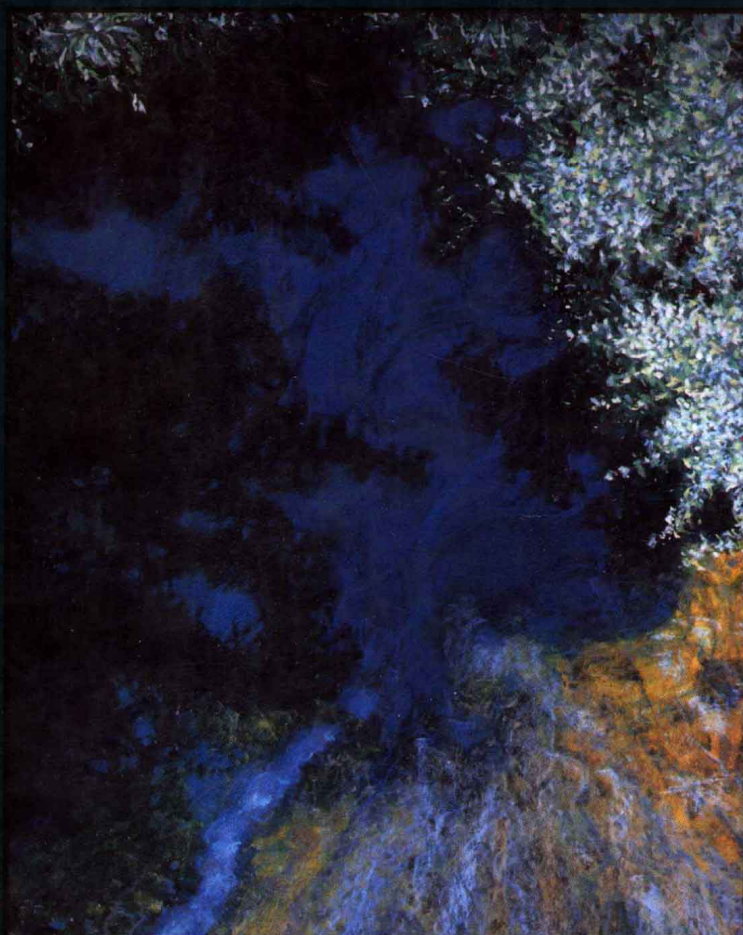


The LEAST you need to know about

# *Lotus 1-2-3*

for DOS



Covers all  
releases  
through  
2.4 & 3.1

Patrick Bultema



The LEAST you need to know about

# ***Lotus 1-2-3***

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# Preface

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During the last 10 years, more than 300 books have been written on *Lotus 1-2-3* for DOS users. But *Lotus* training and reference is still a problem. Even today, the “easy,” “simple,” and “quick” *Lotus* books are so superficial that they don’t teach you what you need to know to be a competent, confident user. And the “fat” *Lotus* books are so impractical that they teach you more than you *want* to know, but less than you *need* to know.

So in developing this book, I’ve kept three goals in mind. The first goal is to teach you *Lotus 1-2-3* as quickly as possible...whether you’ve used other spreadsheet programs before or not.

The second goal is to teach you the skills you need for using *Lotus* as efficiently and as productively as possible...whether you’re an experienced *Lotus* user or whether you’re learning to use *Lotus* for the first time.

The third goal is to provide you with a *Lotus* reference that’s quick and easy to use...whether you’re looking up a function that’s completely new to you or one that you don’t use often enough to have memorized.

## What this book does

If you look at the table of contents, you can see that this book is divided into four sections. Sections 2 and 3 are the critical sections of the book, while sections 1 and 4 provide additional perspective that will be useful to many readers.

Section 1 presents the hardware and software concepts and terms that every *Lotus* user should be familiar with. Otherwise, you won’t understand the interrelationships between *Lotus* and your PC that affect your work each day. So if you’re new to *Lotus* or if you’ve never quite understood these concepts (they’re omitted from many *Lotus* books), be sure to read this section. On the other hand, if you’re already familiar with these essential hardware and software concepts, you can skip this section.

Section 2 presents a complete tutorial in *Lotus* including guided exercises. The first two chapters in this section cover all the basics of creating and using *Lotus* spreadsheets. The remaining chapter teaches you how to use *Lotus* for

business analysis, a necessary skill that I haven't seen handled effectively in any other book.

If you do all of the exercises for each of these chapters, you should be able to complete section 2 in three hours or less. If you already know how to use spreadsheet software but you're new to *Lotus*, you can probably work your way through this section in just an hour or two. And if you already know the *Lotus* basics, you can skip this section entirely, although you may want to go through it quickly as a refresher course (you're likely to pick up some practical skills that you've never been taught before).

At that point, you'll be able to create and use *Lotus* spreadsheets. But the title of this book, *The Least You Need to Know about Lotus 1-2-3*, implies more than just knowing the basics. So section 3 presents the additional *Lotus* skills and shortcuts that will let you work with maximum productivity.

For ease of use, the chapters in section 3 are written as independent modules, so you don't have to read them in sequence. That means you can learn what you want to learn whenever you want to learn it. And it means you can refer back to the chapters whenever you need to quickly refresh your memory about how to use a *Lotus* function or feature.

The one chapter in section 4 introduces you to the *Lotus* features that aren't covered in section 3 of this book. Although most *Lotus* users won't ever need these features, this section lets you decide for yourself whether you can benefit from any of them. If so, you can learn how to use them on your own.

## How to use the summaries and illustrations

To help you learn more easily, this book is packed with summaries and illustrations. In each chapter, you get summaries of the commands and keystrokes for the functions or features that are presented. You get examples of how the *Lotus* commands work, including before-and-after screen images of the spreadsheets that are changed. And you get examples of the techniques that help you work more productively. Summaries and illustrations like these make it easy for you to see how a function or feature works, so you can learn from this book even when you're not at your PC.

But the summaries and illustrations are more than just learning aids. They're also the best reference materials we know of. If, for example, you want to use the /Data Fill command to enter a sequence of values into a cell, figure 6-6 shows you how to use it. If you want to remind yourself of the syntax for the @ROUND function, figure 7-7 tells you what you need to know. And if you want to review all the commands for setting defaults, figure 8-3 gives you the summary you need. Normally, when you use one of the figures for reference, you don't even have to read the related text because the figure tells you all you need to know.

In appendix C, you'll find quick summaries of the rules, keystroke combinations, and commands presented in this book. But no reference appendix is as thorough or as effective as the summaries and illustrations that are used throughout this book. That's why the summaries in appendixes C refer you back to the chapter figures.

## Who this book is for

I wrote this book with two groups of people in mind. First, I wrote it for anyone who doesn't already know how to use *Lotus*. That includes people with no spreadsheet experience as well as people who have experience with other spreadsheet programs but not with *Lotus*.

But I also wrote this book for the many thousands of *Lotus* users who don't work as productively as they ought to because they haven't ever mastered the essential *Lotus* skills...people like our administrative manager. When she tested the manuscript for us, she was surprised to discover several new commands and features that help her work more productively, even though she's been using *Lotus* for the last two years. She also discovered how useful section 3 can be as a reference to those features and functions that you need only occasionally.

If you're in charge of PC training for your company or if you teach *Lotus*, I urge you to try this book in your classes because I'm convinced it will outperform any other instructional materials currently available. Because the book is self-instructional, you can use it for independent study. But you can also use it in a classroom environment. To make it easy for you to develop a course based on our book, we offer an *Instructor's Guide* that provides a full range of instructor's materials (please see the ordering information at the back of this book).

In terms of hardware and software, this book is for anyone who uses *Lotus* on a PC with a hard disk. That includes users of all releases of *Lotus* from 2.0 through 2.4 and from 3.0 through 3.1+. Because subsequent releases of *Lotus* probably won't have any effect on the essential skills you need for maximum productivity, this book should continue to be useful for newer *Lotus* releases too.

## What if you want to know more about *Lotus 1-2-3*

If you decide that you can benefit from one or more of the features presented in section 4 of this book, you can probably figure out how to use them on your own by using the *Lotus* manual and the *Lotus* help feature. Unfortunately, that is likely to be both a frustrating and an inefficient experience.

A better alternative is to get the companion book to this one, which is called *The Practical Guide to Lotus 1-2-3*. This *Guide* presents just the *Lotus* features that are useful in business; it doesn't waste your time on any that are impractical or that aren't designed for business applications. To be specific, it presents all of the commands and features introduced in section 4, although it treats both the macro and database features lightly. For *Lotus* users who intend to use more than a few of the commands and features presented in section 4, *The Practical Guide to Lotus 1-2-3* should quickly pay for itself by reducing research and reference time. If you're interested, you can find complete ordering information at the back of this book.

## Conclusion

If you glance at the bookstore shelves, you may wonder why anyone would bother to write another *Lotus 1-2-3* book. But as I said at the beginning, I wrote this book because there's still a lot of room for improvement when it comes to *Lotus* training. I wrote it because the average *Lotus* user still hasn't mastered the essential skills needed for maximum productivity. And I wrote it because I have yet to see an efficient reference book for *Lotus* users. My hope, of course, is that this book will provide help in all three areas.

If you have any questions, comments, or criticisms, I would enjoy hearing from you. That's why there's a postage-paid comment form at the back of this book. I thank you for reading this book. And I sure hope it will help you become a *Lotus* user who is both competent and efficient.

Pat Bultema  
Clovis, California  
June, 1992

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## Section 1

# PC concepts and terms for every *Lotus 1-2-3* user

Before you can use *Lotus* effectively, you need to understand some of the concepts and terms that apply to the PC you're using. That's why the two chapters in this section present those concepts and terms. In chapter 1, you'll learn the *hardware* concepts and terms that every *Lotus* user should know. In chapter 2, you'll learn the *software* concepts and terms that every *Lotus* user should know. In particular, this chapter tells you what you need to know about DOS in order to use *Lotus*.

If you're already familiar with PC hardware, you can probably skip chapter 1. But you ought to at least skim the chapter to make sure you know how *Lotus* uses internal memory and disk storage. Similarly, if you're already familiar with PC software and DOS, you can probably skip chapter 2. But you ought to at least skim the chapter to see how *Lotus* has evolved from release 2.0 through releases 2.4 and 3.1.





## Chapter 1

# Hardware concepts and terms for every *Lotus 1-2-3* user

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Do you know what kind of processor your PC has? Do you know the difference between internal memory and disk storage? And do you know how *Lotus 1-2-3* uses internal memory and disk storage for spreadsheets?

If you've answered "yes" to all those questions, you can probably skip this chapter and go on to chapter 2. But if you've answered "no" to any of them, you should read this chapter. To use *Lotus 1-2-3* effectively, you need to have a basic understanding of the equipment, or *hardware*, you're using. That's why this chapter presents the hardware concepts and terms that every *Lotus 1-2-3* user should know.

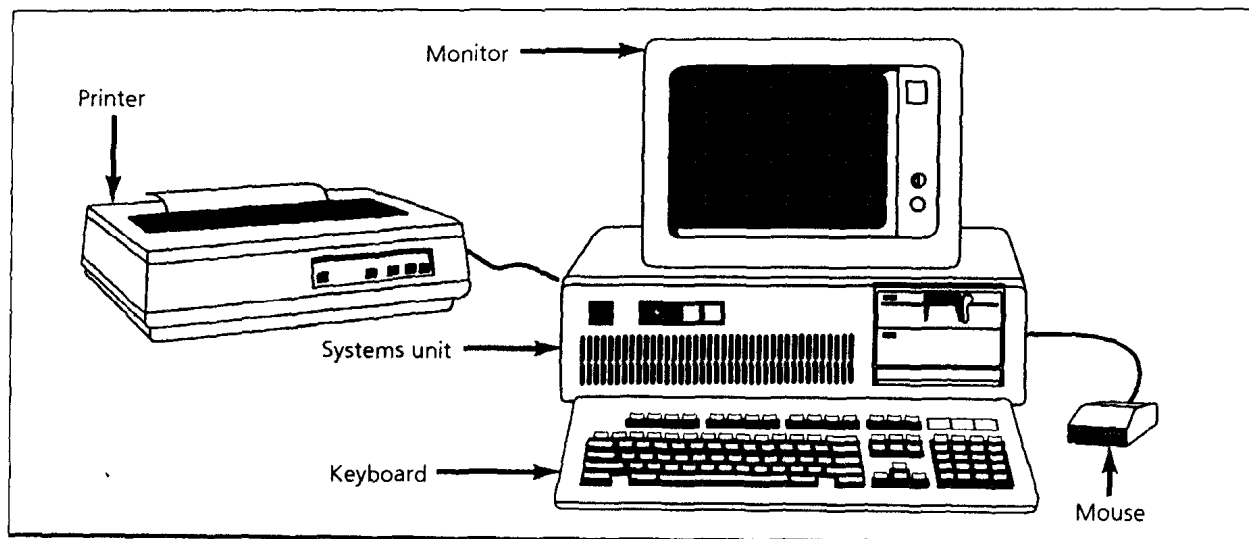
### An introduction to PCs

As you probably know, *Lotus 1-2-3* is used on *personal computers*, or *PCs*. Today, the term *PC* can be used to refer to the original IBM PC, the IBM PC/XT (or just *XT*), the IBM PC/AT (or just *AT*), and the IBM PS/2. The term can also be used to refer to PCs that aren't made by IBM like those made by Compaq, Tandy, and Dell. The PCs that aren't made by IBM are often called *clones* or *compatibles*, which means that they work just like the PCs made by IBM.

As I explained in the preface, this book is for people who use *Lotus 1-2-3* on PCs. But it doesn't matter whether you have an XT, an AT, a PS/2, or an IBM compatible. Although the type of PC that you have will affect how fast it runs, *Lotus 1-2-3* works the same on all PCs.

### The physical components of a PC

Figure 1-1 shows a typical PC. As you can see, it consists of five physical components: a printer, a monitor, a keyboard, a mouse, and a systems unit. In a laptop PC, the monitor, keyboard, and systems unit are combined into a



**Figure 1-1** The physical components of a PC

single carrying case. But on most other systems, these units are separate and can be purchased separately. Because you're probably familiar with these five components already, I'll just describe them briefly.

**The systems unit** The *systems unit* is the unit that the other physical components are connected to. This unit can also be referred to as the *electronics unit* or the *systems chassis*. As you will soon learn, this unit contains the processor that controls the operations of the PC. In contrast, the four other physical units are input and output devices.

**The monitor** The *monitor* is an output device that can also be referred to as a *display*, a *screen*, or a *CRT* (which stands for *Cathode Ray Tube*). *Monochrome monitors* can display only one color, which is usually green or amber on a dark background, but *color monitors* can display a variety of colors. Today, most PCs are sold with a color monitor.

Like a television set, a monitor uses dot patterns to display characters and images. The more dots a monitor can display, the higher its *resolution* and the sharper its image. Not surprisingly, high-resolution monitors cost more than low-resolution monitors, just as color monitors cost more than monochrome monitors.

When a monitor is in operation, its images are controlled by an electronic circuit card within the systems unit. This circuit card is called a *display adapter*. Today, monitors for PCs are available in four standard forms that are related to their display adapters as summarized in figure 1-2.

Acronym	Adapter name	Standard resolution	Standard number of colors on screen
MDA	Monochrome Display Adapter	720x348	N/A
CGA	Color Graphics Adapter	640x200	4 of 16 available
EGA	Enhanced Graphics Adapter	640x350	16 of 64 available
VGA	Video Graphics Array	640x480	16 of 256 available

**Figure 1-2** A summary of monitor characteristics

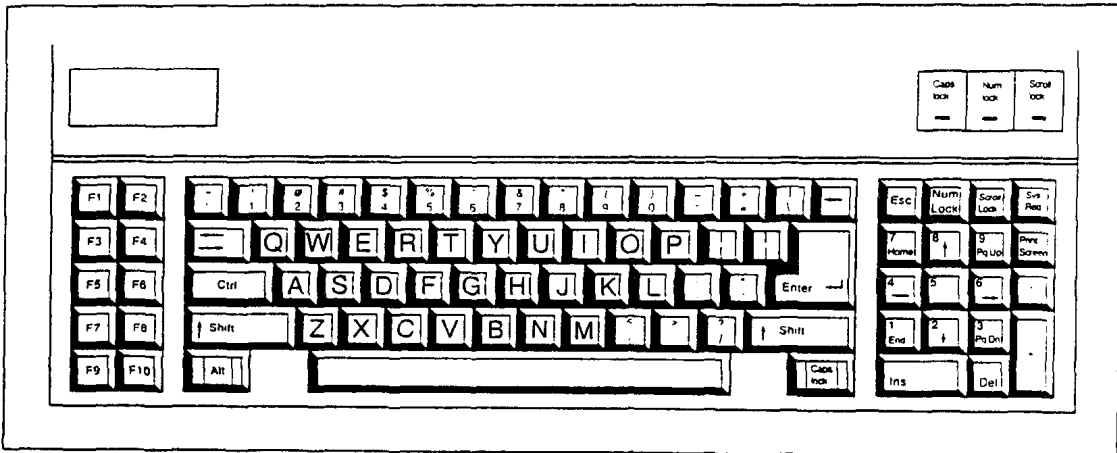
The *Monochrome Display Adapter*, or *MDA*, is for the basic monochrome monitor. Because the original IBM version of the MDA could display only text, an MDA monitor couldn't display a *Lotus 1-2-3* graph. However, a monochrome graphics display adapter called *Hercules* soon became so popular that almost all monochrome monitors and display adapters now support it. The other three display adapters in figure 1-2 are for progressively better color graphics monitors: *CGA* stands for *Color Graphics Adapter*, *EGA* stands for *Enhanced Graphics Adapter*, and *VGA* stands for *Video Graphics Array*.

As monitors and other hardware have improved over the years, releases of *Lotus 1-2-3* were developed to take advantage of the new technology. For example, releases 3.0 and 3.1 of *Lotus 1-2-3* were developed to take advantage of the advanced graphic capabilities of a VGA monitor. If you don't have a VGA monitor, you can still run these releases without any problems. But you may be disappointed by the quality of the characters and numbers on the screen display.

**The keyboard** The *keyboard* is the main input device of a PC. Although it resembles the keyboard of a typewriter, a PC keyboard has more keys. Figure 1-3, for instance, shows the two most common types of PC keyboards: the 84-key and the 101-key keyboards. Although the 84-key keyboard was the original keyboard for the AT, the 101-key keyboard is now a standard component of all PS/2s and most other PCs.

If you study the keyboards in figure 1-3, you can see that they have several types of keys. First, the keyboards include a full set of typewriter keys. Second, they have a numeric pad on the right side of the keyboard in the same arrangement as the ten keys on a calculator. They also have either ten or twelve function keys depending on the type of keyboard, numbered F1, F2, F3, and so on. And they have some special control keys such as the Escape key (Esc), the Control key (Ctrl), the Alternate key (Alt), the Page-up and the Page-down keys, and so on.

The 84-key IBM-AT keyboard



The enhanced 101-key keyboard

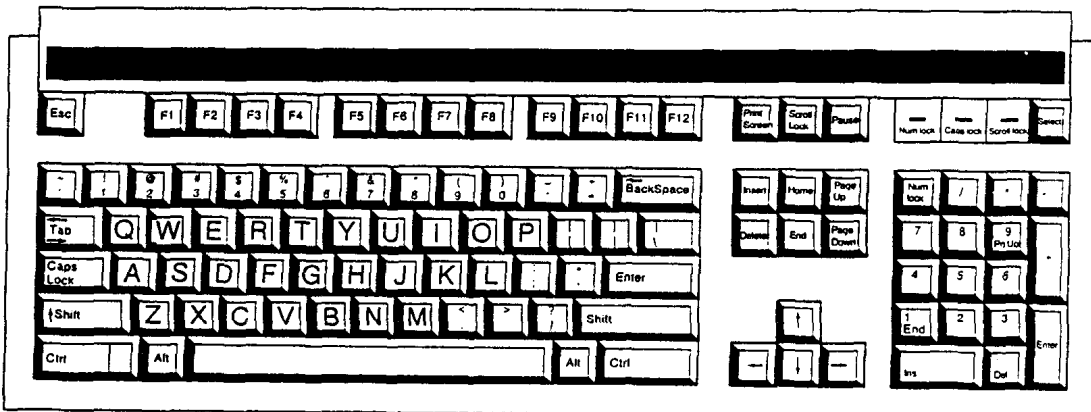


Figure 1-3 The two most common types of PC keyboards

In chapter 3, you'll learn how to use some of the function and control keys with *Lotus 1-2-3*. You'll also learn why it's easier to use the 101-key keyboard with *Lotus 1-2-3* than it is to use the 84-key keyboard. That's why we recommend the 101-key keyboard for all *Lotus 1-2-3* users.

**The mouse** A *mouse* is a small hand-held input device that has two or three buttons on it. If you've ever used a mouse or seen one used, you know that it's just a pointing device. When you move the mouse across a table top (or a *mouse pad* on the table top), a pointer on the monitor moves in the same direction. This pointer on the monitor is called the *mouse cursor*.

With a little practice, you can easily and quickly move the mouse cursor anywhere on the screen. Then, you can *click* or *double-click* the buttons on top of the mouse to perform various actions. If you *click-and-drag* a mouse, you can highlight portions of the screen with the mouse.

Exactly how you use a mouse, or if you can use a mouse at all, depends on the software you're using. For instance, the first releases of *Lotus 1-2-3* didn't provide for the use of a mouse. However, releases 2.3, 3.1, and all later releases of *Lotus 1-2-3* do provide for the use of a mouse.

Even though the more recent releases of *Lotus 1-2-3* do support a mouse, using one doesn't make *Lotus 1-2-3* any easier to use. In fact, you can use *Lotus 1-2-3* more efficiently using keystrokes than you can using a mouse. That's why this book doesn't show you how to use a mouse with *Lotus 1-2-3*.

**The printer** The *printer* of a PC is an output device. Although many different kinds of printers have been developed, the most widely used printers today are dot-matrix printers and laser printers. A *dot-matrix printer* works by striking small pins against an inked ribbon. The resulting dots form characters or graphic images on the paper.

Today, most dot-matrix printers are either 9-pin or 24-pin printers. As you might expect, 24-pin printers print with better quality than 9-pin printers. But both can print text in two different modes: *draft mode* and *letter quality mode*. Not surprisingly, the draft mode is faster, but the letter quality mode is easier to read. For instance, my 24-pin printer prints at 216 cps (characters per second) in draft mode and 72 cps in letter quality mode. As a result, you can use the faster draft mode to print a preliminary version of a spreadsheet that you're working on. Then, you can use the letter quality mode to print the final version of the spreadsheet.

In contrast to dot-matrix printers, *laser printers* work on the same principle as photocopiers. These printers are not only faster than dot-matrix printers, but they also print with better quality. Today, most laser printers print with 300 dpi (dots per inch), but 1200-dpi printers are also available. Naturally, the print quality (or resolution) of a laser printer depends on the number of dots per inch, and high-resolution printers are more expensive than low-resolution printers.

## The primary components of the systems unit

If you've ever opened up the systems unit of a PC, you know that it is full of electronic components. These components are attached to electronic cards that are inserted into the unit. Although you don't have to understand how any of these components work, you should have a conceptual idea of what the primary components of the systems unit are and how they affect the way you use *Lotus 1-2-3*.

Figure 1-4 is a conceptual drawing of the components of a typical PC. Within the systems unit, you can see four primary components: the diskette drive or drives, the hard disk, internal memory, and the processor.

**The diskette drive or drives** A *diskette* is the actual recording medium on which data is stored, and the *diskette drive* is the device that writes data on the diskette and reads data from the diskette. Diskettes are also called *floppy disks*, but I'll refer to them as diskettes throughout this book.

To read data from a diskette or write data on a diskette, you insert the diskette into the slot on the diskette drive and close the drive's latch (if it has a latch). If a PC has two diskette drives, they can be in a left and right arrangement, or they can be in a top and bottom arrangement.

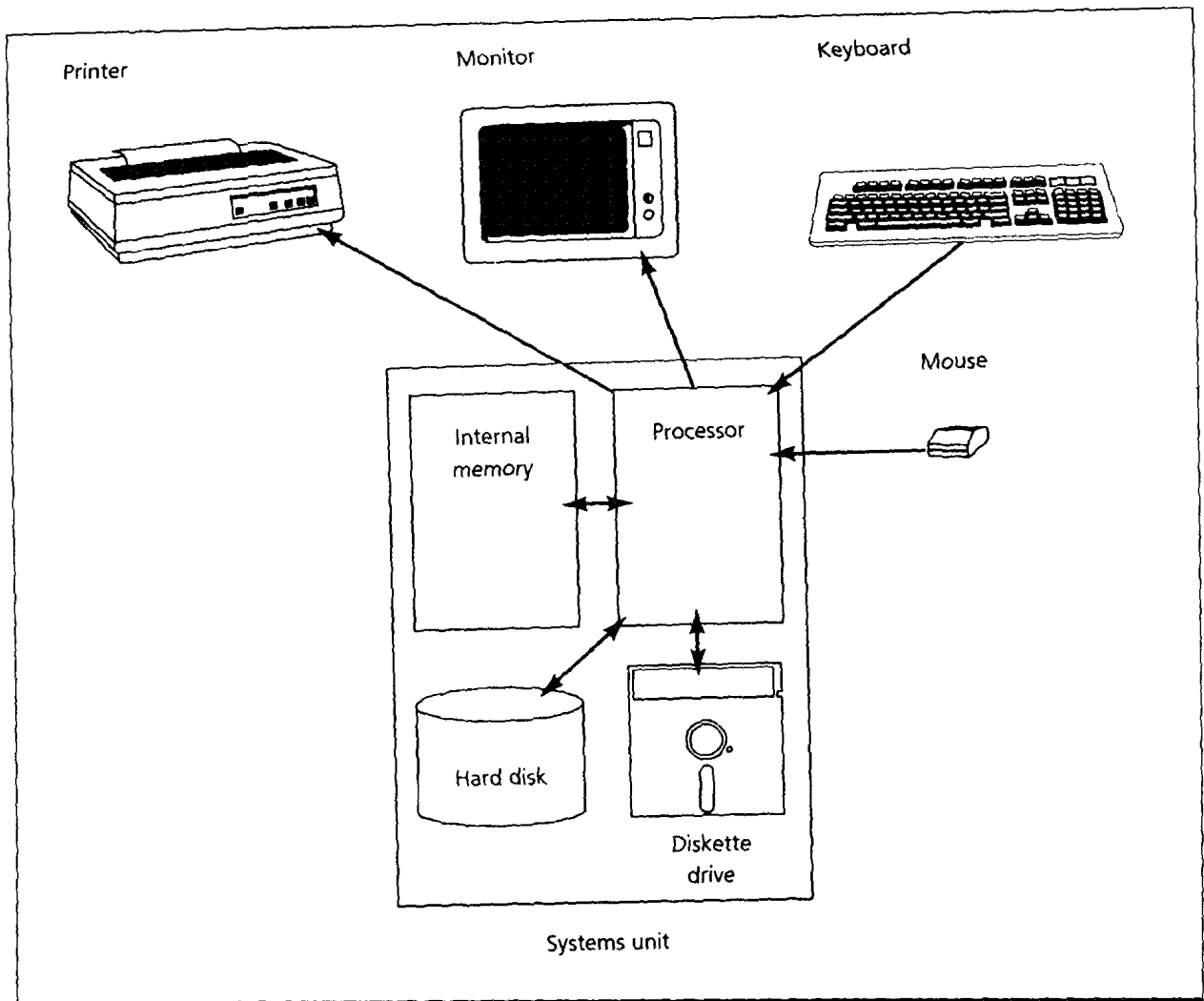
Figure 1-5 illustrates the sizes of the diskettes that can be used with PCs. Originally, all PCs, XTs, and ATs used 5-1/4 inch diskettes, and all PS/2s used the newer 3-1/2 inch diskettes. Today, however, you can install a disk drive for either type of diskette on an XT, an AT, or a PS/2.

To complicate matters, both types of diskettes come in two storage capacities: *standard capacity* and *high capacity*. These capacities are measured in *bytes* of data. For practical purposes, you can think of one byte of data as one character of data, and you can think of a character as a letter, a digit (0-9), or a special character such as #, %, or &. Thus, ten bytes of diskette storage are required to store the word *impossible*; four bytes are required to store the number 4188; and two bytes are required to store \$9.

For 5-1/4 inch diskettes, the standard capacity is 360,000 bytes, or 360KB (where K stands for 1,000, B stands for bytes, and KB stands for *kilobyte*, which is approximately 1,000 bytes). In contrast, the high capacity is 1,200KB, or 1.2MB (where M stands for 1,000,000; B stands for byte, and MB stands for *megabyte*, which is approximately one million bytes). For 3-1/2 inch diskettes, the standard capacity is 720KB, and the high capacity is 1.44MB.

Figure 1-6 summarizes the diskette sizes and capacities. Because the labelling for diskettes is often confusing, this figure also lists the common labelling designations for each type of diskette. Notice, for example, that the standard capacity diskettes are called *double density* diskettes, and the high capacity diskettes are called *high density* diskettes.

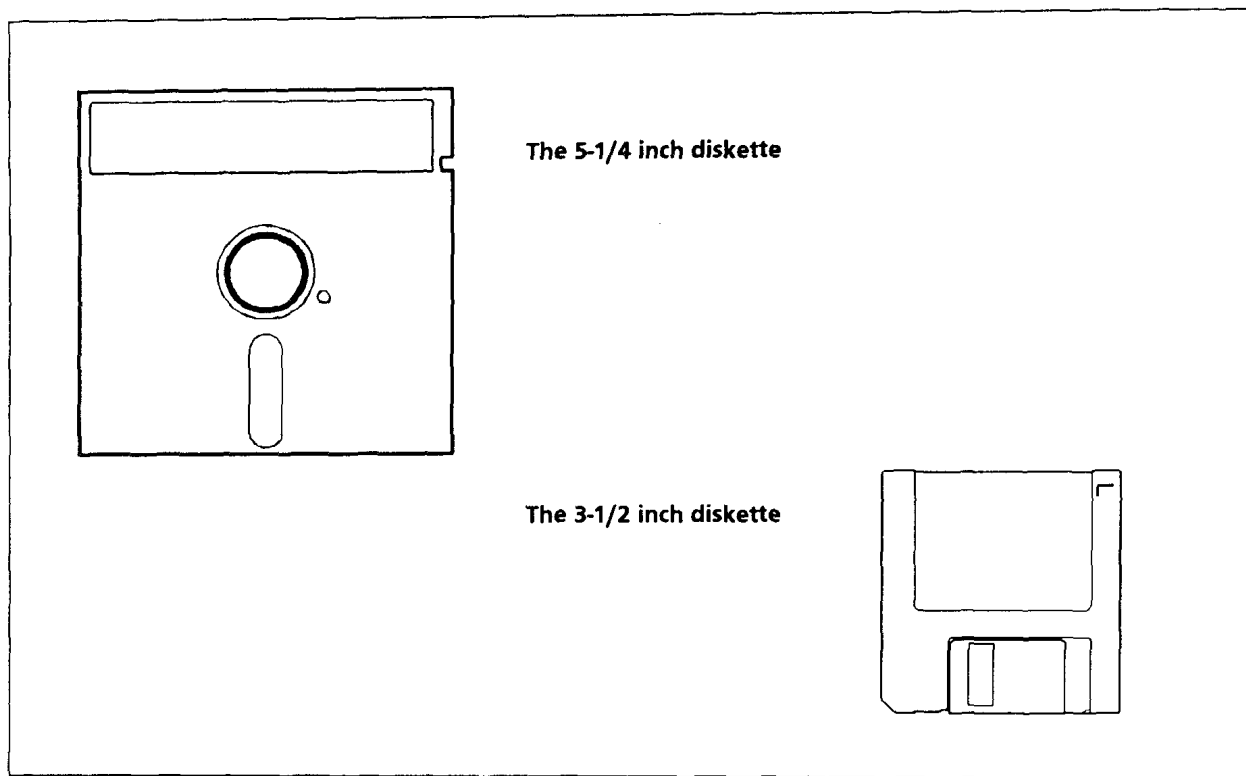
When you use a diskette to transfer data like a *Lotus 1-2-3* spreadsheet from one PC to another, you must make sure that you're using a diskette that



**Figure 1-4** The internal components of the systems unit

is the right size and capacity for the system you're transferring the data to. In general, a 5-1/4 inch diskette drive on an XT can only read and write standard capacity diskettes. However, a 5-1/4 inch drive on an AT can read and write diskettes in either standard or high capacity. As a result, you must use standard capacity diskettes to transfer a spreadsheet between an XT and an AT. Similarly, a standard capacity 3-1/2 inch drive can only read and write standard capacity diskettes, but a high capacity drive can read and write diskettes in either standard or high capacity. So you must use a standard





**Figure 1-5** The two diskette sizes

capacity 3-1/2 inch diskette to transfer a spreadsheet between a standard and a high capacity drive.

**The hard disk** In contrast to diskettes, a *hard disk* is installed inside the systems unit. In this case, the recording medium and the drive are sealed together in a single unit. As a result, a hard disk can't be removed from the PC the way a diskette can. That's why hard disks are sometimes called *fixed disks*. In this book, though, I'll only use the term *hard disk*.

Today, most hard disks have capacities of 20MB or more, and you can buy hard disks with capacities of 320MB or more. To put that into perspective, consider that one megabyte of disk storage can hold about 500 pages of word processing text. So a 30MB hard disk can hold 15,000 pages of text, while a 360KB diskette can hold only about 175 pages. To look at it another way, a 40MB disk can store the equivalent of about 110 diskettes that have a capacity of 360KB.

If your PC has a hard disk, you probably won't use diskettes much because all of your programs will be stored on the hard disk. However, you