



Power Macintosh User's Guide

.....
*Includes setup, troubleshooting, and important health-related
information for Power Macintosh 6200 series computers*

 Apple Computer, Inc.

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Contents



Communications regulation information vi

Preface Welcome to Power Macintosh ix

1 Getting Started 1

Plugging in the computer 1

Installing an expansion card 3

Connecting a monitor 3

Connecting the mouse and keyboard 6

Connecting other equipment 7

Turning the computer on 8

Problems turning your computer on? 10

What's next? 11

Learning the basics 12

Reviewing the basics 13

Turning the computer off 14

Where to find answers 15

2	Getting Help	17
	Getting answers to your questions	18
	Identifying objects on the screen	26
	Learning useful shortcuts	27
3	Connecting Additional Equipment	29
	Where to connect additional equipment	30
	Connecting an Apple PlainTalk Microphone	31
	Connecting external stereo speakers	32
	Connecting to an Ethernet network	33
	Expanding memory	34
	Installing internal drives	34
4	Installing and Using Application Programs	35
	Installing application programs	36
	Working with several programs at a time	37
	Backing up your files	38
	Using Power Macintosh application programs	39
	Using older Macintosh programs	40
5	Troubleshooting	41
	When you have questions	41
	When you run into trouble	41
	Solutions to common problems	45
	If your computer's performance decreases	57
	Initializing a hard disk	58
	Repairing a damaged disk	63
	Installing or reinstalling system software	67

Appendix A	Health, Safety, and Maintenance Tips	77
	Health-related information about computer use	77
	Safety instructions	82
	Handling your computer equipment	83
	Cleaning your equipment	87
	Locking and unlocking the mouse	89
Appendix B	Installing an Expansion Card	91
	Opening the computer	93
	Installing an LC-PDS card	95
	Installing a communication card	96
	Closing the computer	98
Appendix C	Special Keys on Your Keyboard	101
	Typing special characters and symbols	103
	Special key combinations	104
	Index	105

Communications regulation information

FCC statement

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. See instructions if interference to radio or television reception is suspected.

Radio and television interference

The equipment described in this manual generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple’s instructions—it may cause interference with radio and television reception.

This equipment has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether your computer system is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)

If necessary, consult an Apple-authorized service provider or Apple. See the service and support information that came with your Apple product. Or, consult an experienced radio/television technician for additional suggestions. You may find the following booklet helpful: *Interference Handbook* (stock number 004-000-00493-1). This booklet, prepared by the Federal Communications Commission, is available from the U.S. Government Printing Office, Washington, DC 20402.

IMPORTANT Changes or modifications to this product not authorized by Apple Computer, Inc., could void the FCC Certification and negate your authority to operate the product.

This product was tested for FCC compliance under conditions that included the use of Apple peripheral devices and Apple shielded cables and connectors between system components. It is important that you use Apple peripheral devices and shielded cables and connectors between system components to reduce the possibility of causing interference to radios, television sets, and other electronic devices. You can obtain Apple peripheral devices and the proper shielded cables and connectors through an Apple-authorized dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance.

DOC statement

DOC Class B Compliance This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled “Digital Apparatus,” ICES-003 of the Department of Communications.

Observation des normes—Classe B Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur : “Appareils Numériques”, NMB-003 édictée par le ministre des Communications.

VCCI statement

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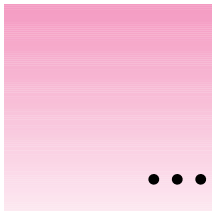
CD-ROM drive

WARNING Making adjustments or performing procedures other than those specified in your equipment’s manual may result in hazardous exposure.

WARNING Do not attempt to disassemble the cabinet containing the laser. The laser beam used in this product is harmful to the eyes. The use of optical instruments, such as magnifying lenses, with this product increases the potential hazard to your eyes. For your safety, have this equipment serviced only by an Apple-authorized service provider.

If you have an internal Apple CD-ROM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located on the computer, indicates that the drive meets minimum safety requirements. A service warning label is on the CD-ROM drive inside the computer.



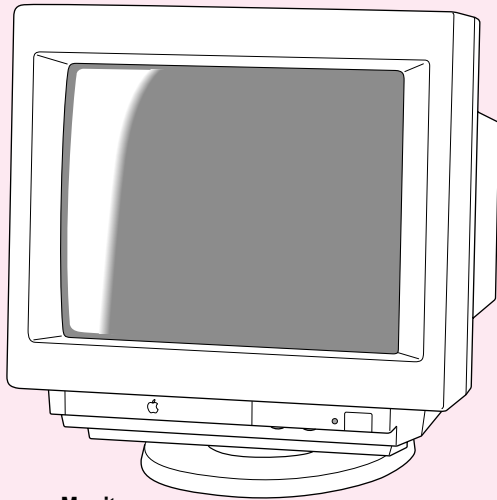


Welcome to Power Macintosh

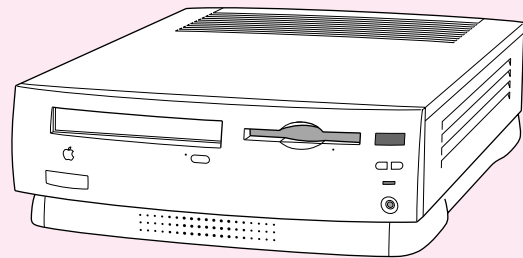
Congratulations on the purchase of your new Macintosh. Your computer is designed to give you the highest performance combined with real ease of use—it's easy to set up, easy to use, and easy to expand. This book will guide you through the setup procedure, tell you how to expand your Macintosh, and provide many tips on using your new system.

Your Macintosh computer is powered by the new **PowerPC** microprocessor (or “chip”). This microprocessor was designed by Apple Computer, Inc., Motorola, Inc., and IBM Corporation. The **PowerPC** microprocessor uses Reduced Instruction Set Computing (RISC) technology to deliver very high performance at the lowest possible cost. The **PowerPC** RISC microprocessor represents the state of the art in microprocessor design.

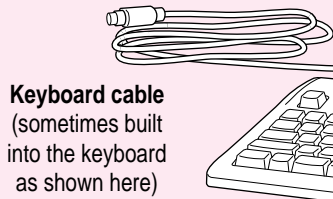
Your new Power Macintosh will run almost all of your existing Macintosh software, but for best performance and greatest speed, look for the new software programs designed especially for computers that contain the **PowerPC** microprocessor. You'll find **PowerPC** microprocessor-compatible programs at any software store that carries products for the Macintosh computer.



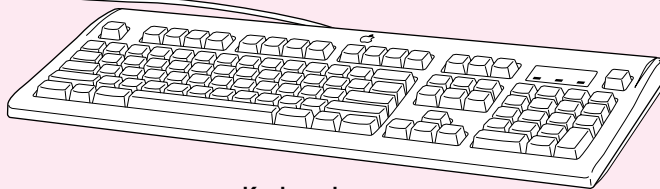
Monitor



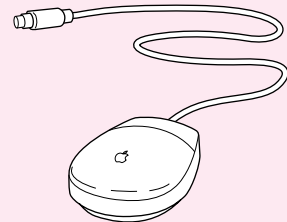
Macintosh computer



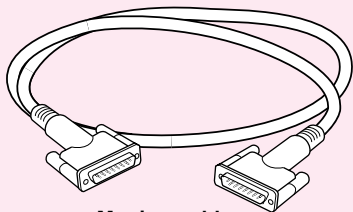
Keyboard cable
(sometimes built into the keyboard as shown here)



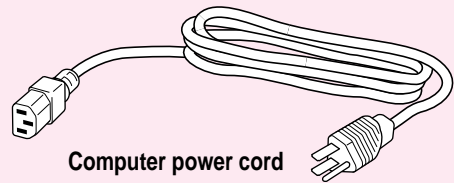
Keyboard



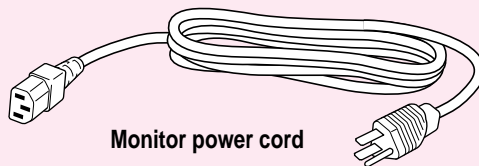
Mouse



Monitor cable
(sometimes built into the monitor)



Computer power cord



Monitor power cord

Follow the instructions in this chapter to set up your computer and learn the basics.



Getting Started



The illustration on the facing page shows all the equipment you will need to set up your computer and begin using it. Place your equipment on a sturdy, flat surface near a grounded wall outlet. Before following the setup instructions in this chapter, you may want to read “Arranging Your Office” in Appendix A (in the section on health-related information) for tips on adjusting your work furniture so that you’re comfortable when using the computer.

Plugging in the computer

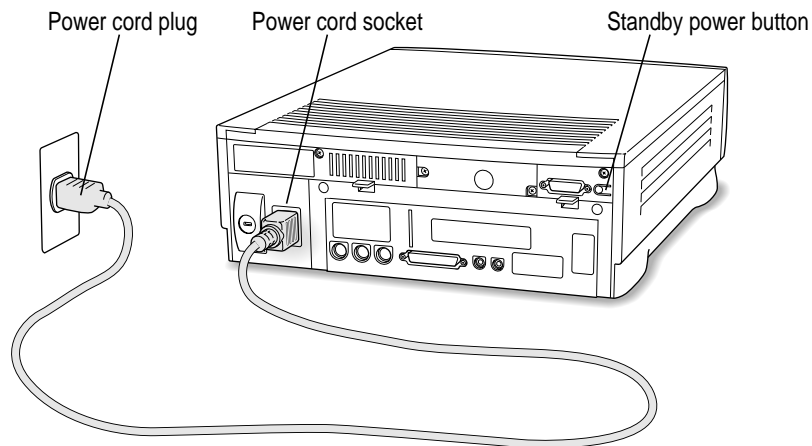
Before you plug your Macintosh into a wall socket, carefully read all the setup instructions in this chapter. Then, before you connect anything to your Macintosh, follow the instructions in this section to plug it in. The plug grounds the computer and protects it from electrical damage while you are setting up.

When you are ready to begin, follow these steps:

- 1 Plug the socket end of the computer's power cord into the recessed power cord socket (marked with the symbol ~) on the back of the computer.**
- 2 Plug the other end of the power cord into a three-hole grounded outlet or power strip.**

Choose a power outlet to which you have easy access.

WARNING This equipment is intended to be electrically grounded. Your Macintosh is equipped with a three-wire grounding plug—a plug that has a third (grounding) pin. This plug will fit only a grounded AC outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug!



IMPORTANT Be sure that at least one end of the power cord is within easy reach so that you can unplug the computer when you need to.

If the computer starts up: If you hear a tone, the computer has started up and you need to turn it off before proceeding. Press the power button (also called the standby power button) located on the back of the computer to turn the computer off.

Installing an expansion card

If you purchased any expansion cards for your Macintosh, install them now. (For instructions, see Appendix B, “Installing an Expansion Card,” as well as the documentation that came with the cards.) If you don’t have an expansion card, go on to the next section, “Connecting a Monitor.”

Connecting a monitor

You can connect many types of monitors to your Macintosh. To connect a monitor from a manufacturer other than Apple, refer to the instructions that came with the monitor.

Connecting the monitor power cord

Monitors have two cords to connect—a power cord and a monitor cable.

To connect the monitor power cord, follow these steps:

1 Place the monitor where you will be using it.

You may place it on top of your computer. Keep these considerations in mind:

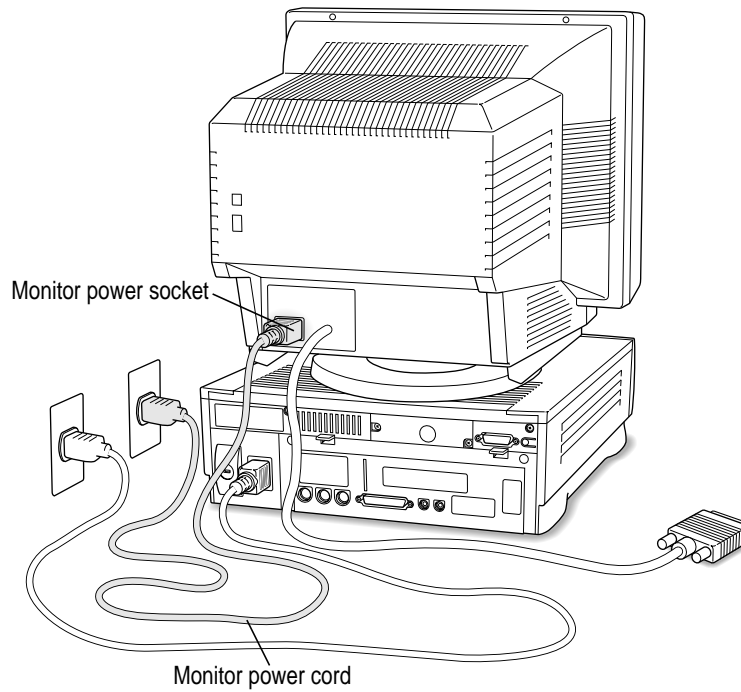
- Allow a few inches for air circulation around the sides of the computer and monitor.
- Make sure that the top of the screen is slightly below eye level when you’re sitting at the keyboard.
- Position the monitor to minimize glare and reflections on the screen from overhead lights and windows.
- Consult “Arranging Your Office” in Appendix A for suggestions on locating your computer equipment.

2 Connect the monitor power cord to the monitor.

On some monitors, the cord is already attached.

3 Plug in the monitor power cord.

Be sure to plug the power cord into a three-hole grounded outlet or power strip.



Connecting the monitor cable


After you plug in the monitor power cord, you connect the monitor cable to the computer's monitor port.

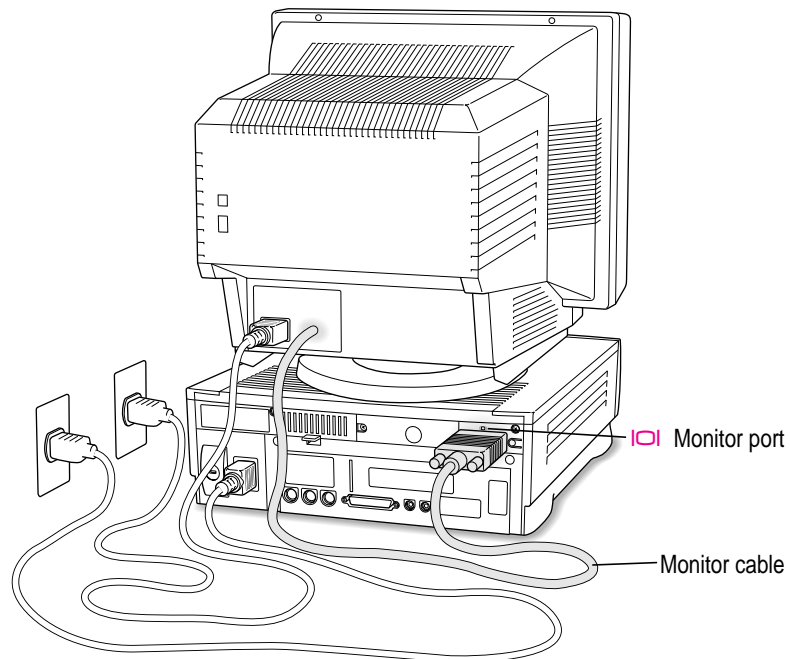
To connect the monitor cable, follow these steps:

- 1 Attach the monitor cable to the monitor.**

On some monitors, the cable is already attached (as shown below).

- 2 Attach the monitor cable to the monitor port on the back panel of the computer.**

The monitor port is marked with the  icon (symbol).




Connecting the mouse and keyboard


You have a choice of several keyboards for your Macintosh. The way you connect the mouse and keyboard depends on whether the keyboard has a separate cable or a built-in cable.

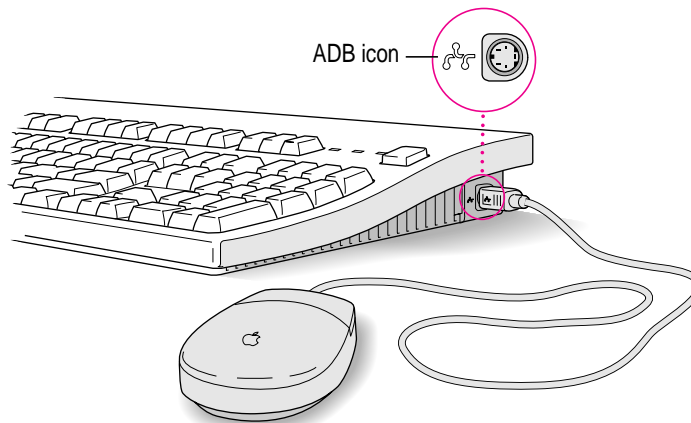
Connecting a keyboard with a separate cable

- 1 Plug the mouse cable into the port on either side of the keyboard.**

Most right-handed people prefer to use the mouse with their right hand; most left-handed people prefer to use their left hand. Plug the mouse into the port on the side you prefer.


The plug and the port are marked with the  icon (symbol). Align the symbols before you insert the plug. (The positions of the port and icon on your keyboard may be different from those pictured here.)

By the way: A port marked with the  icon is called an Apple Desktop Bus (ADB) port.



- 2 Plug the keyboard cable (both ends are the same) into the other port on the keyboard.**

If you plugged the mouse cable in on the right, for example, plug the keyboard cable in on the left.

- 3 Plug the keyboard cable into the port marked with the  icon on the back of the computer.**

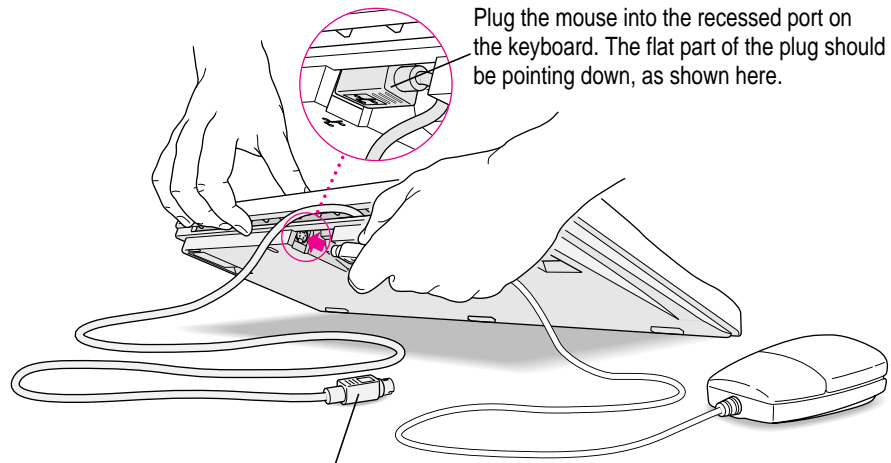
Some monitors have a port to which you can connect the keyboard or mouse. See the information that came with your monitor.

Connecting a keyboard with a built-in cable

- 1 Plug the mouse cable into the recessed port on the back of the keyboard.

The plug and the port are marked with the ⌘ icon (symbol). The positions of the port and icon on your keyboard may be different from those pictured.

By the way: A port marked with the ⌘ icon is called an Apple Desktop Bus (ADB) port.



This cable plugs into the Apple Desktop Bus (ADB) port, marked with the ⌘ icon, on the back of the computer.

- 2 Plug the keyboard cable into the port marked with the ⌘ icon on the back of the computer.

Some monitors have a port to which you can connect the keyboard or mouse. See the information that came with your monitor.

Connecting other equipment

If you are new to the Macintosh, it's a good idea to get some experience using your computer before you connect other equipment, such as a printer or scanner. To learn basic Macintosh skills, continue with the instructions in this chapter.

When you're ready to connect other equipment to your Macintosh, see the instructions in Chapter 3.

Turning the computer on

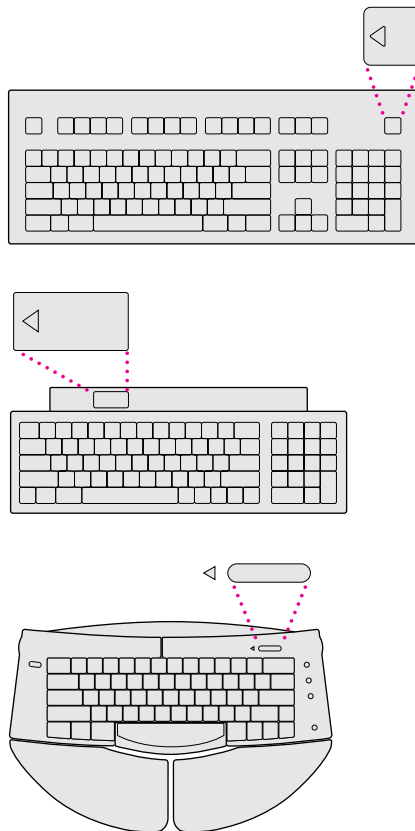
Follow these steps to turn the computer on:

1 Turn on the monitor.

See the information that came with your monitor for the location of the power button.

2 Turn on your computer by pressing the Power key.

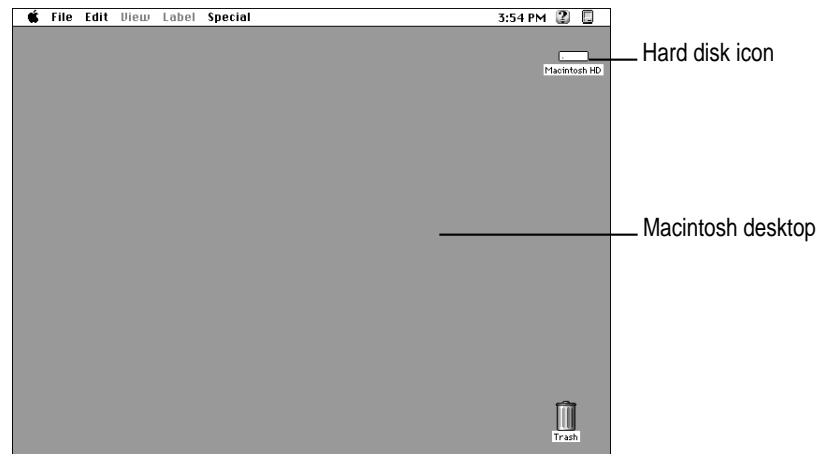
The Power key is at the top of the keyboard. You can recognize this key by the triangle outline on it (◁).



You hear a tone from the computer as it starts up.

3 Check to see what's on your screen.



- If you see the Macintosh desktop, as in the illustration below, your system software has already been installed, and your computer is ready to use. Skip now to the section “What's Next?” later in this chapter.



- If you see a blinking question mark, you probably need to install system software on your computer's hard disk. (System software is the set of programs your computer uses to start itself up.) See “Solutions to Common Problems” in Chapter 5.
- If you see anything else on your screen, or nothing at all, see the next section, “Problems Turning Your Computer On?”

Problems turning your computer on?

If you don't see anything on the screen, check these items to see if you can identify the problem:

- Is the computer plugged into a power source? If it is plugged into a power strip, is the power strip plugged in and turned on?
- Is the computer turned on? The power-on light on the front panel should be on. If it isn't on, press the standby power button on the computer's back panel (marked with the symbol .
- Are the keyboard and mouse cables connected correctly? (Don't disconnect the keyboard or mouse cable while the computer is on. You could damage your equipment.)
- Is the monitor power cord plugged in?
- Is the monitor turned on? (Check the power-on light on the front of the monitor.)
- Is the monitor cable attached firmly to both the monitor and computer?
- Is the brightness control on the monitor adjusted correctly? (On Apple monitors, the brightness control is marked with the symbol .)

What's next?

Congratulations! You've finished setting up your computer. Now continue with one of the following steps:

- If you are new to the Macintosh, turn to the next section, “Learning the Basics.”
- If you are an experienced Macintosh user, turn to Chapter 2, “Getting Help,” to learn about Macintosh Guide, your main source of information when you're working with the Macintosh.
- If you want to connect other equipment, such as a printer, to your computer, see Chapter 3, “Connecting Additional Equipment.”
- If you want to install application software on your computer, see Chapter 4 of this book for information on setting up your programs. You'll need this information to properly set up any software programs designed specifically for Power Macintosh computers.

Before you begin working with your computer, be sure to read the important health and safety information in Appendix A.

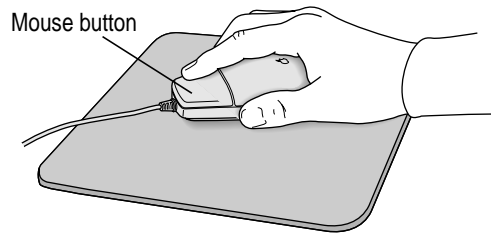
IMPORTANT If you need to turn off your computer at any point, please see “Turning the Computer Off” later in this chapter. It is very important to use the correct procedure for shutting down your Macintosh before turning it off.

Learning the basics

If you are new to the Macintosh, you should begin by looking at the easy-to-use program called the Macintosh Tutorial. The tutorial teaches you the basic skills you'll need to use your computer. To start the tutorial, follow these steps:

1 Slide your mouse along your mouse pad or desk.

Hold the mouse as shown, with the cable pointing away from you. Don't press the mouse button (under your index finger). Notice that the arrow (↔) on the screen moves in the same direction that you move the mouse.



If the arrow doesn't move, make sure that the cables connecting the mouse and keyboard are secure and that your mouse is positioned as shown in the illustration.

2 Move the tip of the arrow (↔) to the question mark (?) in the upper-right portion of the screen.

If you run out of room on your mouse pad or desk while moving the mouse, pick up the mouse and place it where there's more room. (The arrow on the screen moves only when the mouse is in contact with the mouse pad or desk.)

3 With the tip of the arrow on the question mark, press and hold down the mouse button.

A list of choices (called a *menu*) appears. This is the Guide (?) menu, which is the place to go when you have a question about how to use your computer.



- 4 While holding down the mouse button, move the arrow until the words “Macintosh Tutorial” are highlighted, then release the mouse button.

A window appears welcoming you to the tutorial. You can set this book aside for now and follow the instructions on the screen. When you have completed the tutorial, return to this book.

Reviewing the basics

The following illustration summarizes many of the basic skills and terms you learned from the tutorial.

The strip across the top of the screen is called the **menu bar**. The symbols and words in it represent menus of commands.

Icons are small pictures that represent disks, folders, programs, and documents. To open an icon, click the icon twice quickly.

Windows are boxes that display text, graphics, or icons. To bring a partially covered window to the front, click anywhere in the window.

To move a window, drag it by the **title bar**.

To find an answer to a question, look in the **Guide (?) menu**.

You can have several application programs open at once. To see which program is active or to switch from one program to another, use this menu (called the **Application menu**).

This icon represents your computer's internal **hard disk**.

To change the size or shape of a window, drag the **size box**.

To throw away an item you no longer want, drag it to the **Trash** and choose Empty Trash from the Special menu.

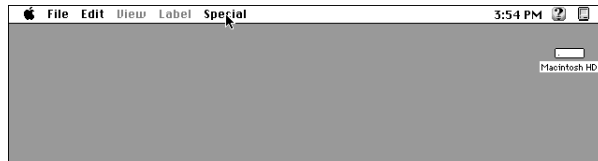
To close a window, click the **close box**.

To bring hidden portions of a window's contents into view, click the **scroll arrows**.

Turning the computer off

To turn the computer off, you choose Shut Down from the Special menu. Detailed instructions follow. (*Note:* The Shut Down command is also available in the Apple [] menu.)

- 1 Move the tip of the arrow to the word “Special” at the top center of the screen.



If the word “Special” does not appear at the top of the screen, you’re working in the wrong program. Pull down the Application menu (to the right of the Guide [?] menu) and choose Finder. Then try step 1 again.

- 2 With the tip of the arrow on the word “Special,” press and hold down the mouse button.
- 3 While holding down the mouse button, move the arrow down the list of choices until the words “Shut Down” are highlighted, then release the mouse button.



You can also shut down your computer from the keyboard.

- 1 Press the Power key (marked with a triangle) on the keyboard.

You will see a message asking whether you want to shut down or continue working.

- 2 Click Shut Down.

To turn the computer on, simply press the Power key again.

WARNING Do not turn the computer off by pressing the standby power button on the back panel. If you do so, you may lose any work you haven't previously saved to a disk. You also risk losing any open documents.

Where to find answers

When you have questions about using your Macintosh, there are several places you can look for answers.




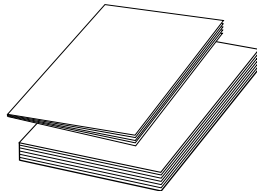
In this book

Use this book to help you set up your computer and learn about it, or to find solutions to problems.



In the Guide menu

The Guide menu (marked with the  icon) is your main source of information about the Macintosh. To learn how to get different kinds of help from the Guide menu, see Chapter 2 in this book.



In other manuals

For answers to questions about other equipment or about application programs you have purchased, see the manuals that came with the equipment or programs.



From Apple's customer support hotline

If you can't find an answer in any of the materials provided, call the customer support hotline. (The phone number for the hotline is in the service and support information that came with your computer.)

Use the instructions in this chapter to learn about the help available to you in the Guide menu.

2 Getting Help

The Guide menu is your main source of information when you're working with your computer. The menu is identified by a question mark (🔍) in the upper-right corner of the screen.



Getting answers to your questions

When you have a question while working with your computer, you can get the answer by choosing Macintosh Guide from the Guide menu.

- 1 Pull down the Application menu (in the upper-right corner of the screen) and choose Finder to make it the active application program.

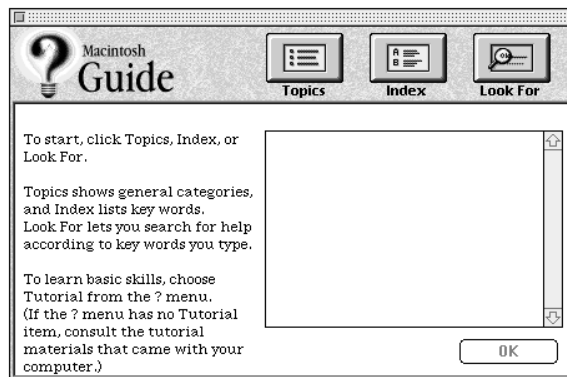


A checkmark in the menu indicates that the Finder is the active program.

- 2 Pull down the Guide menu (marked with the ? icon) and choose Macintosh Guide.



The Macintosh Guide window appears.



Whenever you use Macintosh Guide, its window remains in front of other windows. If the window gets in your way, you can move it by dragging its title bar (the gray bar across the top of the window).

- 3 Notice the three buttons at the top of the window: Topics, Index, and Look For.



Macintosh Guide gives you three ways of finding information:

- **Topics** lets you choose from a list of general subjects; it is like the table of contents in a book.
- **Index** lets you choose from an alphabetical list of more specific subjects; it is like the index in a book.
- **Look For** lets you search for information related to a specific word or phrase that you type.

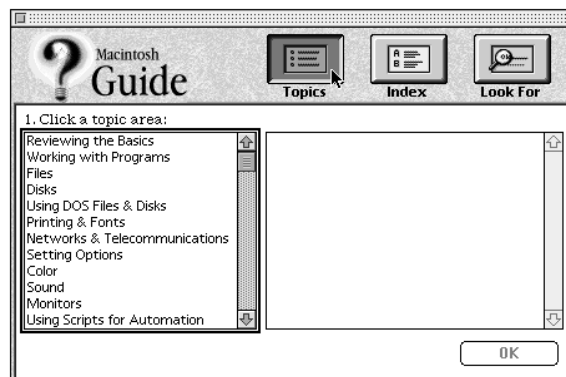
In the following sections you will practice using each method.

If you have problems while using Macintosh Guide, see “Tips for Using Macintosh Guide” later in this chapter.

Getting answers with the Topics button

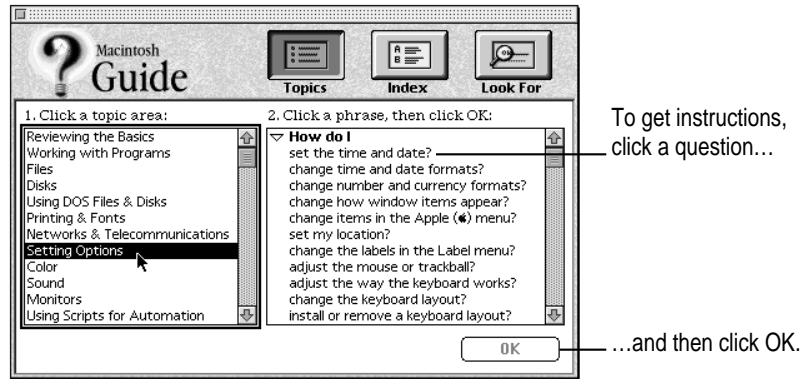
- 1 In the Macintosh Guide window, click the Topics button.

A list of general topics appears on the left side of the Macintosh Guide window. (Depending on the hardware and software you have, the list of topics may look different.)



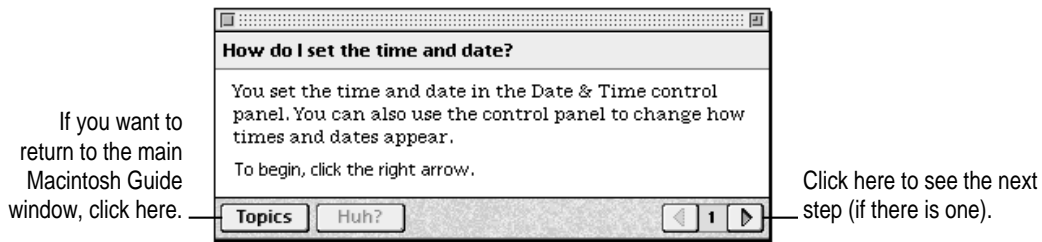
2 Click “Setting Options” in the list of topics.

When you click any topic area, a list of related questions appears on the right side of the Macintosh Guide window.



3 Click the question “How do I set the time and date?” and then click OK. Or double-click the question.

A small window appears with instructions for you to follow.



4 Read and follow the instructions in this window.

Macintosh Guide provides step-by-step instructions to answer the question you selected. When you have completed each step, click the right arrow in the lower-right corner to see the next step.

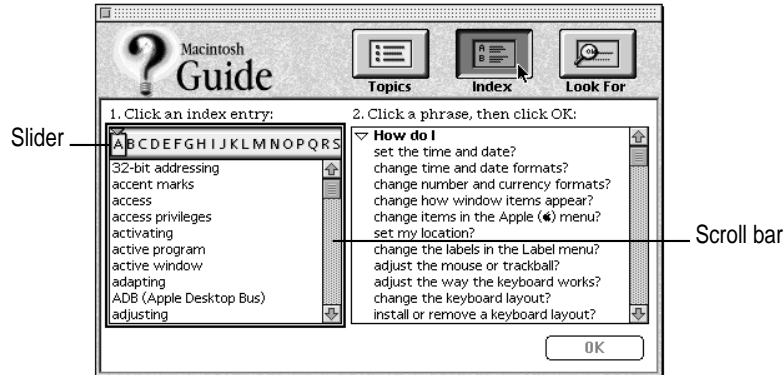
5 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Index button

- 1 In the Macintosh Guide window, click the Index button.

An alphabetical list of subjects appears on the left side of the window.

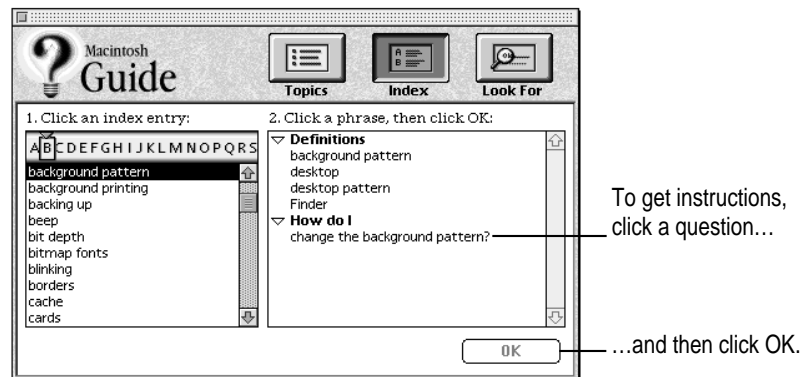


- 2 Scroll through the alphabetical list until the phrase “background pattern” is visible.

You can scroll through the list either by dragging the slider to the letter *B* or by using the scroll bar at the right of the list.

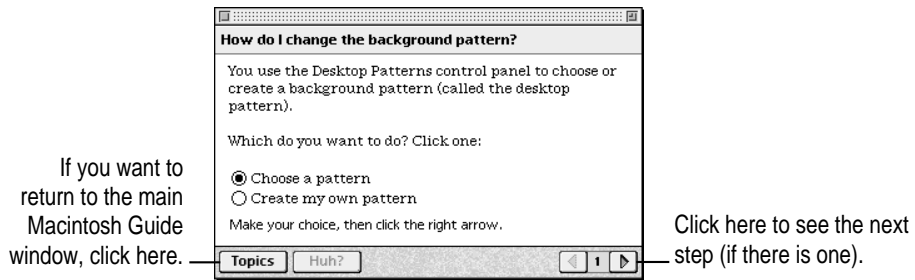
- 3 Click the phrase “background pattern” in the alphabetical list.

When you click any index entry, a list of related questions appears on the right side of the Macintosh Guide window.



- 4 Click the question “How do I change the background pattern?” and then click OK. Or double-click the question.

A small window appears with instructions for you to follow.



- 5 Read and follow the instructions in the window.

Macintosh Guide provides step-by-step instructions to answer the question you selected. When you have completed each step, click the right arrow in the lower-right corner to see the next step.

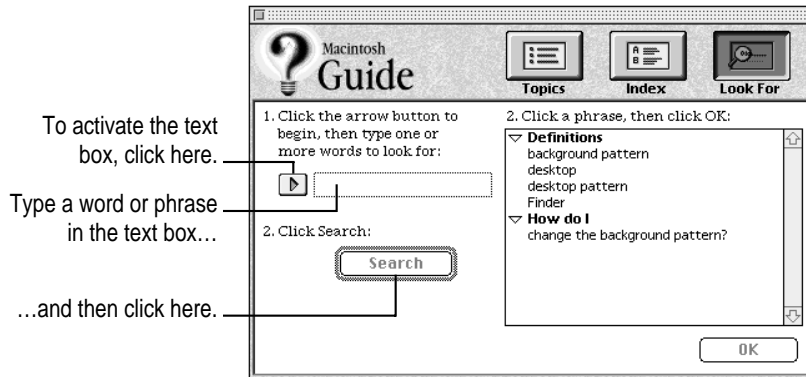
- 6 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Look For button

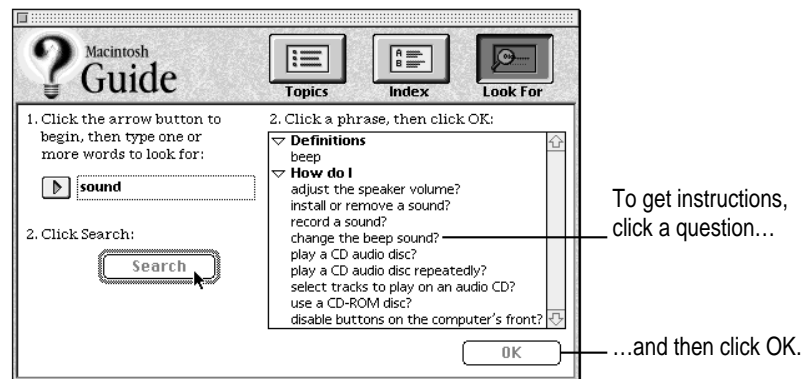
- 1 In the Macintosh Guide window, click the Look For button.

A small box appears on the left side of the window, where you can type text.



- 2 Click the arrow button to activate the text box.
- 3 Type "sound" in the text box and then click Search.

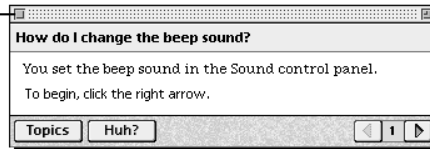
When you click Search, a list of questions related to the word or phrase you typed appears on the right side of the Macintosh Guide window.



- 4 Click the question “How do I change the beep sound?” and then click OK. Or double-click the question.

A small window appears with instructions for you to follow.

If you want to close
Macintosh Guide,
click here.



Click here to see the next
step (if there is one).

- 5 Read and follow the instructions in the window.

Macintosh Guide provides step-by-step instructions to answer the question you selected. When you have completed each step, click the right arrow in the lower-right corner to display the next step.

- 6 When you have completed all the steps, click the close box in the upper-left corner to close Macintosh Guide.

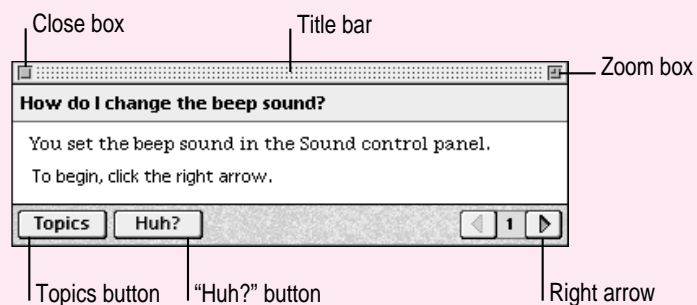
Tips for using Macintosh Guide

Here are a few tips for using Macintosh Guide effectively:

- Macintosh Guide is available only when you are in the Finder—the desktop area where you can see the icons of disks, folders, and files. (Other programs may also have help available in the Guide menu, however.) If you don't see Macintosh Guide in the Guide menu, pull down the Application menu (to the right of the Guide menu) and choose Finder.
- Follow the steps when you're instructed to; don't skip ahead or read ahead. That way the computer can check to make sure you've done a step correctly.
- Unlike most windows, the Macintosh Guide window stays in front of other windows on the screen so that your instructions are never covered. If you need to move the Guide window out of the way, drag it by the title bar at the top of the window.

You can also move the window out of the way by clicking the zoom box. Click the box once to shrink the window; click it a second time to expand the window to its original size.

- If you need more information about an instruction or a term, click the button labeled “Huh?” to get further explanation. (The “Huh?” button is dimmed when no additional information is available.)
- If you want to return to the main Macintosh Guide window, click the Topics button in the lower-left corner of the Guide window.
- When you're finished using Macintosh Guide, click the close box in the upper-left corner of the window.



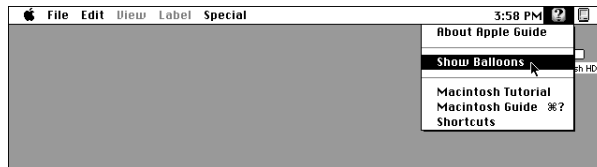
Identifying objects on the screen

Sometimes you'll see an unfamiliar item on the screen and ask yourself, "What's that?" You can get an answer by using a Macintosh feature known as Balloon Help.

Balloon Help explains the function of icons, menus, commands, and other items on the Macintosh screen in balloons like those you see in comic strips.

Follow these steps to use Balloon Help:

- 1 Pull down the Guide menu (marked with the  icon) and choose Show Balloons.**



- 2 Point to any object on the screen that you want to identify.**

A balloon appears next to the object. In the following illustration, for example, pointing to the Trash displays a balloon that explains how to use the Trash to throw items away.




Although balloons appear next to items when you point to them, the way you work does not change; you can still select icons, choose commands, and so on.

- 3 When you're finished using Balloon Help, choose Hide Balloons from the Guide menu.**

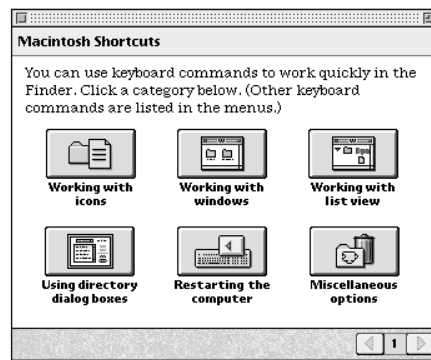
Learning useful shortcuts

You can perform many tasks in the Finder more quickly if you use keyboard or mouse shortcuts. For example, instead of clicking an icon and choosing Open from the File menu, you can simply double-click the icon to open it.

Follow these steps to learn keyboard and mouse shortcuts:

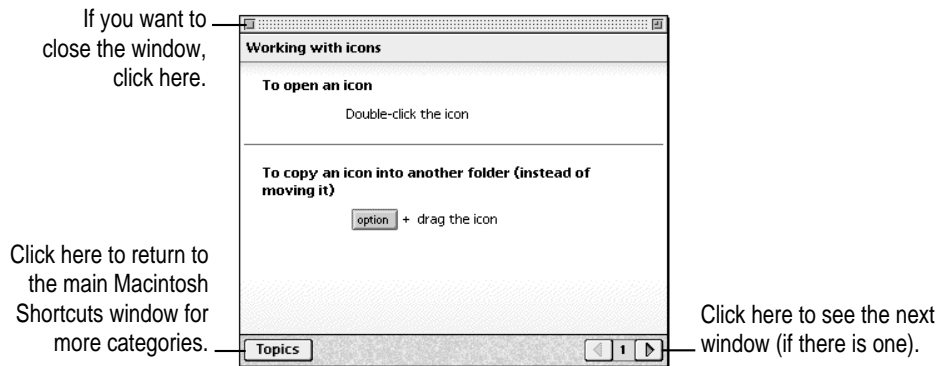
- 1 Pull down the Guide menu (marked with the  icon) and choose Shortcuts.

The main Macintosh Shortcuts window appears.



- 2 Click one of the category buttons.

Another window appears, describing shortcuts for that category.



3 Read about the shortcuts available for the category you selected.

Click the right arrow in the lower-right corner of the window to display the next window (if there is one).

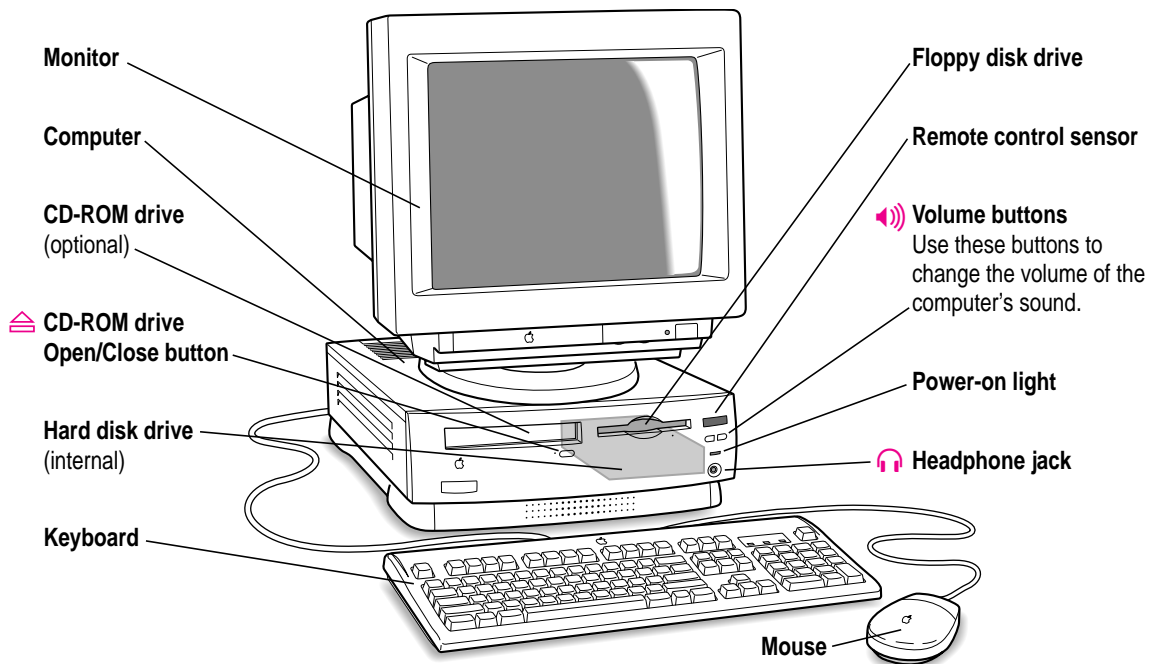
4 When you finish reading about the shortcuts for your category, click the Topics button in the lower-left corner to return to the main Macintosh Shortcuts window. Or click the close box in the upper-left corner to close the window.

Read this chapter for information on expanding your computer system with additional hardware.

3

Connecting Additional Equipment

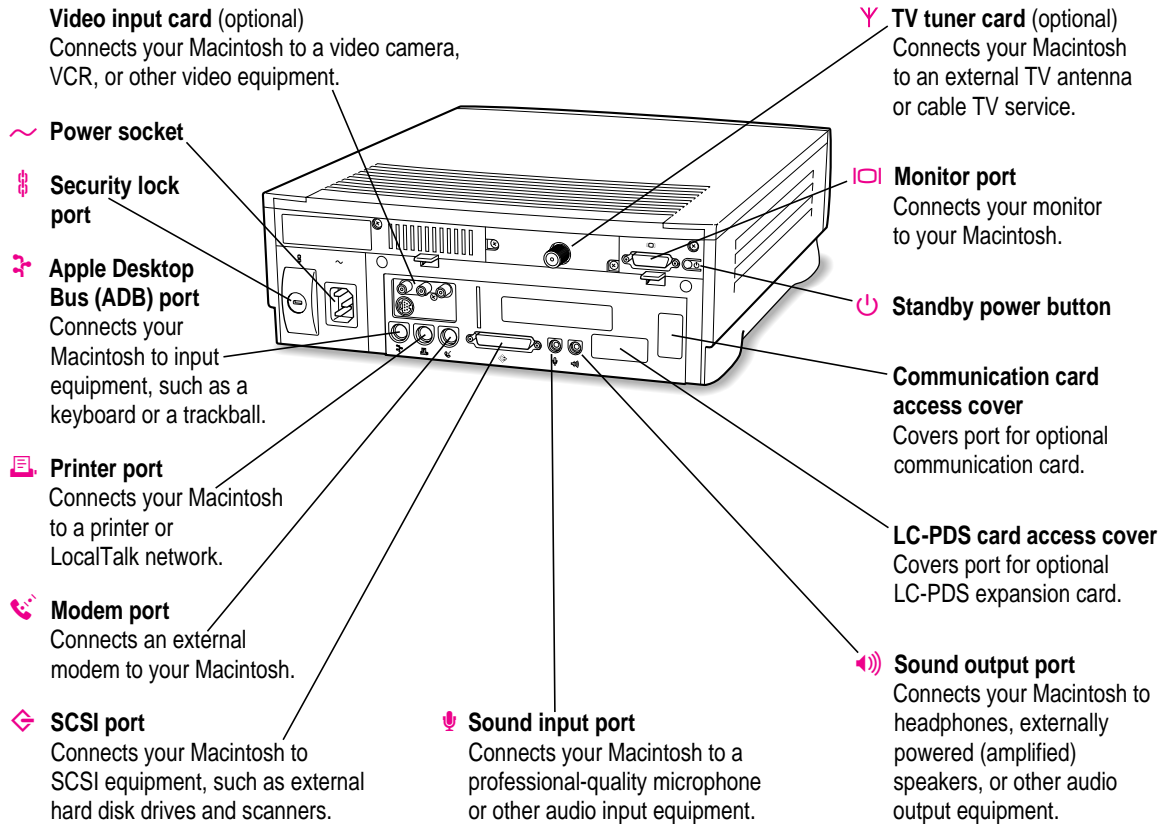
The illustration below shows a basic Power Macintosh 6200 series system. You can expand your computer system by connecting additional hardware (such as a printer, modem, or external stereo speakers).



Where to connect additional equipment

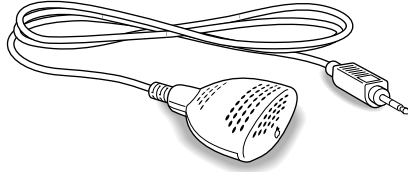
The illustration on this page shows where equipment should be connected to your computer.

For instructions on connecting additional equipment such as a printer or scanner, see the manual that came with the equipment.




Connecting an Apple PlainTalk Microphone

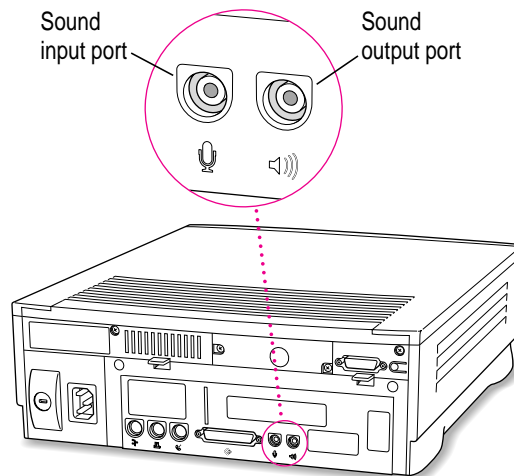
Your computer has a sound input port, which you can use to connect an Apple PlainTalk Microphone.



Use PlainTalk only: You should connect only the Apple PlainTalk Microphone. Other models of microphone will not work with your Macintosh.

To connect the microphone, do this:

- Plug the microphone's connector into the sound input port (marked with the icon ) on the back of the computer.



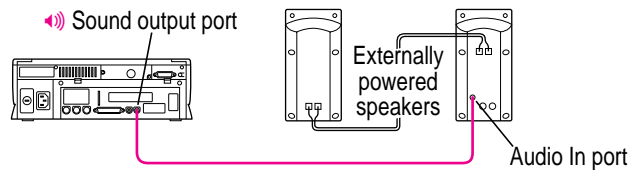
Connecting external stereo speakers

You can take advantage of your computer's stereo sound output by attaching external powered (amplified) speakers.

1 Assemble the speakers and the cable you need.

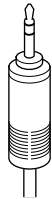
You need a cable with stereo miniplugs at each end to connect one or both speakers to the computer. (Some speakers require a dual-plug adapter. Others, like those shown here, accept a single stereo miniplug and are joined by standard speaker wires.)

The following illustration shows the equipment configuration and the connections for a computer sound system.



2 Turn off the Macintosh.

3 Plug a stereo miniplug into the sound output port on the Macintosh.



Stereo miniplug

4 Plug a stereo miniplug into the Audio In port on one of the speakers.

If the speakers take a dual-plug cable, connect both plugs to the speakers' Audio In ports.

- 5 **Connect the speakers together with speaker wires, if necessary.**
- 6 **Turn on the computer.**

You hear the computer's sound through the external speakers.

Note: To control the volume of your external speakers, use the volume button on the front of the computer. If you are playing an audio compact disc (CD), you may also need to adjust the volume control in the program you're using to play CDs. For more information on sound and playing audio CDs, see the "Sound" topic of Macintosh Guide, available in the Guide (🔍) menu.

Connecting to an Ethernet network

If your computer has an optional Ethernet card, you can connect your Macintosh to any standard high-speed Ethernet network. You can connect your Macintosh to an existing Ethernet network that uses thin coaxial cables, 10BASE-T twisted pair cables, thick coaxial cables, or other standard cables.

You may need to purchase an appropriate Apple Ethernet media adapter or other compatible media adapter to connect your Macintosh to a network. (Consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for more information on Apple Ethernet media adapters.)

To use Ethernet, you need to change the network connection in the Network control panel. (For instructions on how to select a network connection and other information about using your Macintosh on a network, see the "Networks & Telecommunications" topic of Macintosh Guide, available in the Guide (🔍) menu.)

IMPORTANT Your Macintosh supports EtherTalk Phase 2 (AppleTalk Phase 2 Protocols for Ethernet networks) and TCP/IP (via MacTCP software). Non-Apple products that you can use to communicate over Ethernet using protocols are also available. Your Macintosh does not support EtherTalk Phase 1 (AppleTalk Phase 1 protocols for Ethernet networks).

CAUTION The use of an Ethernet card will make your Macintosh a Class A computing device, according to FCC regulations.

Expanding memory

The random-access memory (RAM) in your computer can be expanded. Installing additional RAM adds more memory chips to your computer and expands its capabilities. The *Technical Information* booklet that came with your computer describes how much additional memory can be installed in your Macintosh.

WARNING To avoid damage to your computer, Apple recommends that only an Apple-certified technician install additional RAM. Consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for service. If you attempt to install additional RAM yourself, any damage you may cause to your equipment will not be covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for information about this or any other warranty question.

Installing internal drives

Your Macintosh can hold up to three internal storage devices, including a floppy disk drive, a CD-ROM (compact disc read-only memory) drive, and a hard disk drive (several capacities are available). These drives may already be installed. If you want to add or replace an internal drive, see your Apple-authorized dealer.



Read this chapter for information on installing and using application programs with your computer.

4

Installing and Using Application Programs



Your computer has several application programs already installed, as well as some programs that you must install before you can use them. The programs that come with your computer include

- *AppleScript*, which allows you to automate any actions you perform repeatedly on your Macintosh
- *PowerTalk*, which provides built-in mail and collaboration services
- *QuickDraw GX*, which gives your computer more powerful printing capabilities
- *Apple Video Player*, which you use to watch video or TV on your computer

You'll find these programs in the Apple Extras folder on your hard disk. To find out if a program needs to be installed, look inside the program's folder for an icon labeled Installer. If you find an Installer icon and want to use that program, double-click the Installer and follow the instructions on the screen.

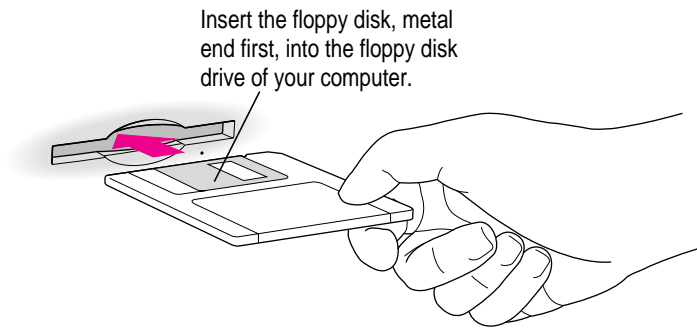
You may want to experiment with AppleScript, one of the programs on your hard disk. With AppleScript you can automate tasks in the Finder and other scriptable programs (programs that support AppleScript). Instructions for using AppleScript are also included in the AppleScript folder.

With Apple Video Player and a video input card, you can watch video on your computer. With Apple Video Player, a video input card, and a TV tuner, you can watch video and TV. For instructions on using Apple Video Player, open Apple Video Player and then choose Apple Video Player Guide from the Guide (⌘) menu.

Installing application programs

You'll probably want to buy and install additional application programs. See the manuals you receive with your programs for instructions on installing and using them.

In most cases, you'll install an application program on your internal hard disk from floppy disks that contain the program. The following illustration shows how to insert a floppy disk in your computer's disk drive.



To use your programs most effectively, follow these guidelines:

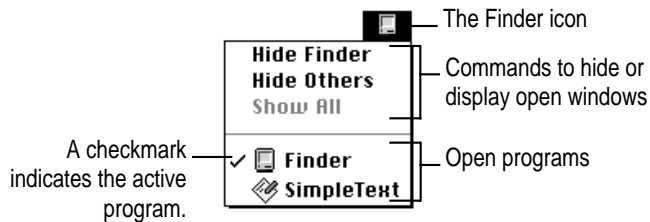
- Put only one copy of each program on your hard disk. Having more than one copy can cause errors.
- Whenever you copy a program disk to your hard disk, be careful not to copy a System Folder. Always check to see what you've copied, and drag any extra System Folders to the Trash.
- If a program malfunctions consistently, try installing a fresh copy. If that doesn't help, find out from the software manufacturer whether your version of the program is compatible with the system software you're using.

For instructions on how to eject floppy disks, see the “Disks” topic of Macintosh Guide, available in the Guide (🔍) menu.

Working with several programs at a time

You can open as many application programs and desk accessories as your computer's memory allows.

All open programs are listed in the Application menu at the right end of the menu bar. The name of the active program (the one you're using right now) has a checkmark next to it, and its icon appears in the menu bar.



Finding out which programs are open

If you have several programs and windows open, you can find out which program is active and which other programs are open by pulling down the Application menu.

Switching programs

You can switch to another open program or desk accessory by choosing its name from the Application menu.

If a program's icon is dimmed in the menu, that means its windows are hidden. Choosing the program from the Application menu displays its windows.

You can also switch to another program by clicking in a window that belongs to an open program, or by double-clicking a program icon (or the icon of a document that was created with the program).

Hiding and showing windows on the desktop

You can hide all windows except those of the active program by choosing Hide Others from the Application menu.

The other programs remain open even though their windows are hidden. When you switch to another program, its windows become visible again.

If you want to see all the open windows, choose Show All from the Application menu.

Backing up your files

Making backup copies of important files is good protection against possible damage to the originals.

- You can back up files stored on your hard disk by copying them to floppy disks.
- You can back up an entire floppy disk by copying it to another floppy disk, or to a hard disk.
- You can use a commercial backup program to copy new and changed files from a hard disk to another hard disk, to a tape drive, or to a series of floppy disks.
- If your computer is on a network, you can back up files by copying them to a shared disk on the network.

Using Power Macintosh application programs

Your Macintosh is compatible with most application programs intended for use with Macintosh computers. But certain programs are designed especially for Power Macintosh computers. (These are sometimes called “native” applications.) You’ll find that these programs take best advantage of your computer’s speed.

Special memory requirements

Some Power Macintosh programs may be slightly larger than other programs and may take up more memory. If you find that you are running out of memory when you use your Power Macintosh programs, you can use space on your computer’s hard disk as additional memory. For instructions on how to use hard disk space as memory, see the “Memory” topic of Macintosh Guide, available in the Guide (Ⓜ) menu.

You can also add more memory to your computer, as described in “Expanding Memory” in Chapter 3.

Shared libraries

Power Macintosh programs use special files called *shared libraries*. These files help Power Macintosh programs to run more efficiently, and can be used by more than one Power Macintosh program simultaneously. Any necessary shared libraries are installed automatically in the System Folder when you install Power Macintosh programs.

If a Power Macintosh program requires a shared library and there is not enough memory available for the shared library, you’ll see a message that the program could not be opened because of insufficient system memory. If this happens, see the “Memory” topic of Macintosh Guide, available in the Guide (Ⓜ) menu, for instructions on turning on virtual memory.

If a required shared library is missing, you’ll see a message that the program could not be opened because the shared library could not be found. If this happens, follow the directions that came with your program to reinstall the program. If the shared library is still missing, contact the program’s manufacturer for assistance.

Using older Macintosh programs

If you experience problems using an older Macintosh program, it may be incompatible with your Power Macintosh. You may be able to use your older program if you change the Modern Memory Manager setting in your Memory control panel. For detailed instructions on using older programs with your Macintosh, see the “Working with Programs” topic of Macintosh Guide, available in the Guide (Ⓜ) menu.



Consult this chapter if you experience problems using your computer.

5

Troubleshooting



When you have questions

If you want to know how to do a particular task with your computer, refer to Macintosh Guide in the Guide (🔗) menu. For instructions on using Macintosh Guide, see Chapter 2 of this manual.

When you run into trouble

While you're using your computer, you may occasionally see a bomb icon or an error message, or you may have a problem such as the pointer (⏏) “freezing” on the screen. If you have trouble with your computer, take a few minutes to read the information in this chapter. If your problem is related to a particular procedure, you should also look for information on that procedure in Macintosh Guide, available in the Guide (🔗) menu. For additional troubleshooting information and a list of common questions relating to your system software, see the “Troubleshooting” topic of Macintosh Guide.

If you are unable to access Macintosh Guide (for example, if your screen is “frozen”), refer to this chapter to see if you can resolve the problem.

Take your time

When you see an error message, you don't have to take action immediately. The message stays on the screen until you click the OK button or turn off the Macintosh.

To help diagnose and correct the problem, gather as much information on the situation as you can before starting over.

- Make a note of exactly what you were doing when the problem occurred. Write down the message on the screen and its ID number (if any). Also list the programs you were using and the names of any items you know have been added to the System Folder since the system software was installed. This information will help a service person diagnose the problem. (It is helpful to keep a printed copy of the items in your System Folder. For instructions on printing the contents of a folder, see the "Printing & Fonts" topic of Macintosh Guide, available in the Guide [?] menu.)
- Check the screen for any clues. Is a menu selected? What programs and document icons are open? Note anything else that seems relevant.
- If you were typing text and were not able to save it before the problem occurred, you can write down the parts of the text still visible on the screen so that some of your work will be easy to replace.
- Ask other Macintosh users about the problem you're having; they may have a solution for it.

If you need repair service, consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for assistance.

Start over

Often you can eliminate a problem simply by clearing the computer's memory and starting over.

If you can, save any open documents before restarting the Macintosh. If your system is frozen and does not respond to anything you do, or if you have a “bomb” message on the screen, saving may not be possible. You can try pressing ⌘-Option-Esc to quit the program in use when the problem occurred; if this works, you can then save the documents open in other programs before restarting.

To restart your Macintosh, try the following steps:

- 1 If you can, choose Restart from the Special menu or from the dialog box that's on screen.**

Dialog boxes contain messages from the computer. If something goes wrong, a message may appear on the screen, asking you to restart the computer.

- 2 If you can't choose Restart, hold down the ⌘ and Control keys while you press the Power key (marked with a triangle).**

This key combination restarts the computer. (Use this key combination only when you can't choose Restart from the Special menu.)

- 3 If nothing happens, turn off your computer with the standby power button, wait at least 10 seconds, and then turn it on again.**

- 4 If the standby power button doesn't turn off the computer, unplug your Macintosh.**

If you suspect that the problem is with other equipment, such as a printer or an external hard disk that's attached to your computer, turn that equipment off for 10 seconds or longer, then turn it on again and restart the Macintosh.

Rebuild your desktop regularly

A process known as “rebuilding the desktop” helps your Macintosh keep track of data on your startup disks. Although you usually use the hard disk in your computer as a startup disk, you can also start up from any other disk that has system software installed. It’s a good idea to rebuild the desktop of your startup disks once a month or so.

To rebuild the desktop of a startup disk, follow these steps:

- 1 Hold down the Option and ⌘ keys while you start up your computer.**

Do not release the keys until you see a message asking whether you want to rebuild the desktop.

- 2 Click OK.**

Solutions to common problems

The computer is turned on but the screen is dark.

One of the following is probably the cause:

- You have a screen saver program that darkens the screen when the computer has not been used for a certain period.

Press a key or move the mouse to turn off the screen saver.

- The monitor's brightness control (☼) is not adjusted properly.

Check the monitor's brightness control and turn it up if necessary.

- The Macintosh or the monitor is not getting power.

Check that the monitor is plugged in and turned on, and that the monitor cable is firmly connected to both the computer and the monitor.

Check that the computer's power cord is firmly connected to the computer and plugged into a grounded electrical outlet, and that the outlet has power.

If you have more than one monitor and only one is dark, check that it is set up correctly in the Monitors control panel. For information on using more than one monitor, see the "Monitors" topic of Macintosh Guide, available in the Guide (📖) menu.

The computer's clock keeps time inaccurately.

Your computer has a clock that runs continuously. When the computer is turned off, a battery keeps the clock running. If your clock begins to keep time inaccurately, have your Apple-authorized service provider replace the battery.

When you start up, a disk icon with a blinking question mark appears in the middle of the screen.



This icon indicates that your Macintosh cannot find the system software it needs to start up. One of the following is probably the cause:

- Your computer may be having a problem recognizing external equipment that uses the Small Computer System Interface (SCSI).

Turn off all external SCSI equipment and disconnect the first SCSI device in the chain from your computer's SCSI port. Then restart the computer. If the computer starts up after you disconnect your SCSI equipment, refer to the manuals that came with the equipment for information on the proper way to connect SCSI equipment and assign SCSI ID numbers.

If you have a printer connected to your computer's SCSI port, make sure your printer is not supposed to be connected to the printer port instead. Check the manuals that came with your printer for information on how to connect it properly.

- System software is not installed on the startup hard disk, the system software is damaged, or the hard disk is not working properly.

Start up your computer using the *Disk Tools* floppy disk or (if you have a built-in CD-ROM drive) with the CD-ROM disc that contains system software. (For instructions on how to start up your computer from the CD-ROM disc, see "Starting Up From a CD-ROM Disc" in the section "Initializing a Hard Disk" later in this chapter.) Then follow the instructions in "Repairing a Damaged Disk" later in this chapter to test your startup hard disk and repair any damage.

If repairing the disk doesn't help, follow the instructions in "Installing or Reinstalling System Software" later in this chapter to reinstall system software on your startup hard disk.

When you try to start up from a floppy disk, a disk icon with an X appears in the middle of the screen and the floppy disk is ejected.



This icon indicates that the floppy disk you tried to start up from is not a startup disk.

Wait a few seconds. The computer should start up from its internal hard disk. Make sure you insert floppy disks only after the computer has begun starting up.

A “sad Macintosh” icon appears and the computer won’t start up.



This icon indicates that your Macintosh cannot start up because of a problem with the system software or the computer hardware.

Eject any floppy disks by turning off the computer and then holding down the mouse button while you turn the computer on again. Try starting up with the *Disk Tools* floppy disk or (if you have a built-in CD-ROM drive) with the CD-ROM disc that contains system software. (For instructions on how to start up your computer from the CD-ROM disc, see “Starting Up From a CD-ROM Disc” in the section “Initializing a Hard Disk” later in this chapter.) If the “sad Macintosh” icon appears again, consult the service and support information that came with your computer for information on contacting an Apple-authorized service provider or Apple for assistance.

The hard disk icon does not appear on the desktop.

If you don't see a hard disk icon on the desktop, try the following:

- If the hard disk is internal, shut down your computer, wait at least 10 seconds, and then turn it on again.
- If the hard disk is external, make sure that it is turned on and that its cable is connected firmly; then restart the Macintosh.
- Check the ID numbers of all SCSI equipment connected to your computer. See the manuals that came with your SCSI equipment for information on setting SCSI ID numbers.
- If the hard disk is your startup disk, start your computer using the *Disk Tools* floppy disk or (if you have a built-in CD-ROM drive) with the CD-ROM disc that contains system software. (For instructions on how to start up your computer from the CD-ROM disc, see “Starting Up From a CD-ROM Disc” in the section “Initializing a Hard Disk” later in this chapter.) Then follow the instructions in “Repairing a Damaged Disk” later in this chapter to test your startup hard disk and repair any damage. If repairing the disk doesn't help, follow the instructions in “Installing or Reinstalling System Software” later in this chapter to reinstall system software on your startup hard disk.

Icons do not appear correctly on your screen.

You need to rebuild the desktop—a process that helps your Macintosh keep track of files and folders on your hard disks. For instructions, see “Rebuild Your Desktop Regularly” in the section “When You Run Into Trouble” earlier in this chapter.

If icons do not appear correctly after you rebuild the desktop, restart your computer while pressing the Shift key to temporarily turn off system extensions. When you see the “Welcome to Macintosh—extensions off” message, release the Shift key and press the Option and ⌘ keys until you see a message asking if you want to rebuild the desktop.



The pointer (␣) freezes on the screen.

Your system has a software problem.

- Press ⌘-Option-Esc to quit the application program in use when the problem occurred. If this works, you can save the documents open in other programs before restarting.
- Restart your Macintosh. (For instructions, see “Start Over” in the section “When You Run Into Trouble” earlier in this chapter.) Most software problems are temporary, and restarting usually corrects the problem.
- Check the startup disk and program you were using when the problem occurred. Make sure that all programs, desk accessories, and system extensions you’re using are compatible with the system software.
- Sometimes incompatible system extensions or control panels can cause system software problems. Restart while holding down the Shift key; this temporarily turns off all system extensions. If your computer works normally after you do this, remove all extensions from the Extensions folder (inside the System Folder) and put them back into the Extensions folder one at a time. Restart after you add each extension. This procedure should identify any incompatible extensions.

You can also use the Extensions Manager control panel to turn off individual extensions. For information on using this control panel to manage system extensions, see the “Setting Options” topic of Macintosh Guide, available in the Guide (⌘) menu.

- If the problem recurs, you may need to reinstall system software. See “Installing or Reinstalling System Software” later in this chapter for instructions.

A dialog box with a bomb appears.

Your system has a software problem.

- Write down what you were doing when the message appeared, the text of the message, and the message number, if there is one.
- Restart your Macintosh. (See “Start Over” in the section “When You Run Into Trouble” earlier in this chapter for instructions.) Most software problems are temporary, and restarting usually corrects the problem.
- Check the startup disk and application program you were using when the dialog box appeared. Make sure that all programs, desk accessories, and system extensions you’re using are compatible with the system software. Reinstalling the system software may correct the problem.
- Sometimes incompatible system extensions or control panels can cause system software problems. Restart while holding down the Shift key; this temporarily turns off all system extensions. If your computer works normally after you do this, use the Extensions Manager control panel to turn on extensions and control panels one at a time. Restart after you turn on each extension. This procedure should identify any incompatible extensions.

For information on using the Extensions Manager control panel to manage system extensions, see the “Setting Options” topic of Macintosh Guide, available in the Guide (📖) menu.

- If the problem recurs, you may need to reinstall system software. See “Installing or Reinstalling System Software” later in this chapter for instructions.

The pointer (␣) doesn't move when you move the mouse.

One of the following situations is probably the cause:

- Your system has a software problem. Try one or more of the following:
Press ⌘-Option-Esc to quit the application program in use when the problem occurred. If this works, you can save the documents open in other programs before restarting.

Restart your Macintosh. See “Start Over” in the section “When You Run Into Trouble” earlier in this chapter for instructions.

Check the startup disk and program you were using when the problem occurred. Make sure that all programs, desk accessories, and system extensions you're using are compatible with the system software. Try starting up the computer from the *Disk Tools* disk or the CD-ROM disc that contains system software. (For instructions on how to start up your computer from the CD-ROM disc, see “Starting Up From a CD-ROM Disc” in the section “Initializing a Hard Disk” later in this chapter.) If your computer starts up normally, there may be an extension conflict.

If the problem recurs, you may need to reinstall system software. See “Installing or Reinstalling System Software” later in this chapter for instructions.

- The mouse is not connected properly.
Turn the computer off using the standby power button, check that the mouse and keyboard cables are connected properly, and then restart the computer.

IMPORTANT Do not connect or disconnect the mouse while the computer is turned on. You may damage your computer.

- Signals from the mouse are not reaching the computer, either because the mouse needs cleaning or because there is something wrong with the mouse.
Clean the mouse according to the instructions in Appendix A of this book.
If you have another mouse or pointing device, try connecting and using it. (Turn the computer off before connecting it.) If the new device works, there is probably something wrong with the mouse you replaced.

If none of these procedures solves the problem, consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for assistance.

Typing on the keyboard produces nothing on the screen.

One of the following is probably the cause:

- Your system has a software problem.

Restart your Macintosh. For instructions, see “Start Over” in the section “When You Run Into Trouble” earlier in this chapter.

Check the startup disk and application program you were using when the problem occurred. Make sure that all programs, desk accessories, and system extensions you’re using are compatible with the system software.

If the problem recurs, you may need to reinstall system software. See “Installing or Reinstalling System Software” later in this chapter for instructions.

- You haven’t selected any text or set the insertion point (I).

Make sure the program you want to type in is the active program. Then place the pointer (⏏) in the active window and click to set an insertion point (I) or drag to select text (if you want to replace the text with your typing).

- The keyboard is not connected properly.

Turn off the computer using the standby power button, then check that the keyboard cable is connected properly at both ends.

If you have a keyboard with an ADB port (marked with the ⏏ icon) on each end, turn off the Macintosh using the standby power button and plug the keyboard cable into the other ADB port on the keyboard. (You may have to unplug the mouse to do this.) Then restart the computer.

Many Macintosh computers have two ADB ports on the back panel. Also, some monitors have one or two ADB ports. Turn off the Macintosh using the standby power button and connect your keyboard cable to a different ADB port on the computer or monitor. Then restart the computer.

- The keyboard is damaged.

If you have access to another keyboard, try using it instead. (Turn the computer off before connecting it.) If the new keyboard works, there is probably something wrong with the one you replaced.

If none of these procedures solves the problem, consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for assistance.

You can't start an application program or it quits unexpectedly. Or, when you try to open a program, you see a message that not enough memory is available.

One of the following is probably the cause:

- The Macintosh ran out of memory.
Quit the programs that you have open and then open the program you want to use, or restart your Macintosh.
Make sure virtual memory is turned on in the Memory control panel. For more information on virtual memory, see the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu.
- The program needs more memory.
Use the program's Info window to give it more memory. For more information on increasing a program's memory, see the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu.
- The program requires special hardware, and your computer doesn't have the hardware installed.
Check the documentation that came with the program to find out if the program requires a Macintosh with special hardware. Then check the *Technical Information* booklet that came with your Macintosh to find out if your computer is equipped with such special hardware, or if the hardware can be installed. Consult your Apple-authorized service provider for information on installing special hardware in your computer.



You can't open a document, or you see a message that an application program can't be found.

- Some documents can be opened by more than one application program. Try starting a program that you think might be able to open the document, then choose Open from the program's File menu to try to open the document.
- Purchase and install the correct software to use the document, or find out if the creator of the document can convert it to a form that one of your programs can use.
- Don't try to open the files in your System Folder. Most of the files in your System Folder are used by your computer for internal purposes and are not intended to be opened.
- Rebuild your desktop by holding down the Option and ⌘ keys while starting up your computer. Keep holding down the keys until you see a message asking whether you want to rebuild the desktop. Click OK.
- If the document is from a DOS computer, use the PC Exchange control panel to specify which Macintosh program will open the document. For information about working with DOS documents on your Macintosh, see the "Using DOS Files & Disks" topic of Macintosh Guide, available in the Guide (📖) menu.

You experience problems using a document from a DOS computer.

If you can't open a DOS document using a Macintosh program, try the following:

- Open the document from within the program by choosing Open in the program's File menu.
- Use the PC Exchange control panel to change the document's type to one that can be opened by the program.

If a DOS document is displayed incorrectly, or you see strange codes or characters in the document, try one of the following:

- Your application program may have special procedures for opening and saving documents with different file formats. See the information that came with your program, or call the program's manufacturer.
- Try opening the document in another program.

Note: Some characters that can be displayed on the Macintosh are not accurately displayed on DOS computers.

For more information about working with DOS documents on your Macintosh, see the "Using DOS Files & Disks" topic of Macintosh Guide, available in the Guide (🔍) menu.

You see a message that your application program can't be opened because a file can't be found.

Power Macintosh programs use special files called *shared libraries*. Any necessary shared libraries should be installed automatically when you install Power Macintosh programs.

Follow the directions that came with your program to reinstall the program. If the shared library is still missing, contact the software program's manufacturer for assistance.

You experience problems using an older Macintosh program.

Some older Macintosh programs are not completely compatible with Power Macintosh computers.

Open the Memory control panel and turn off Modern Memory Manager. For more detailed instructions, see the "Working with Programs" topic of Macintosh Guide, available in the Guide (🔍) menu.

If your computer's performance decreases

If you notice a decrease in your computer's speed and general performance after you add special software (a control panel, system extension, or custom utility), it may be because your special software does not work well with Power Macintosh computers.

- To find out if your special software is the problem, hold down the Shift key while you restart the computer. This temporarily turns off certain kinds of software. If the computer performs better without this software, the software is likely to be the problem.
- Use the Extensions Manager control panel to turn off a system extension or set of extensions. For detailed instructions, see the "Setting Options" topic of Macintosh Guide, available in the Guide (🔍) menu. If the computer performs better when an extension is turned off, contact the extension's manufacturer for information or an upgrade.
- Drag special software items out of the System Folder or remove them permanently. (The special software may be in the Control Panels or Extensions folder inside the System Folder.) If the computer performs better when the software is removed, contact the software's manufacturer for information or an upgrade.

Hint: If you have more than one special software item, restart while holding down the Shift key; this temporarily turns off all system extensions. If your computer works normally after you do this, use the Extensions Manager control panel to turn on extensions and control panels one at a time. Restart after you turn on each extension. This procedure should identify any incompatible extensions.

If you still do not notice an improvement, follow the instructions in "Installing or Reinstalling System Software" later in this chapter to reinstall system software on your startup hard disk.

Initializing a hard disk

The hard disk inside your computer was initialized (formatted for use) at the factory, so you shouldn't need to initialize it. You need to initialize a hard disk only if

- you purchase a hard disk that has not been initialized at the factory
- your hard disk is damaged

If a hard disk needs to be initialized, the disk's icon does not appear on the desktop when you start up the computer using another disk.

WARNING Initializing a disk erases any information that may be on it. Before you initialize a damaged disk, try to repair it as described in “Repairing a Damaged Disk” later in this chapter.

Starting up from a CD-ROM disc

To initialize, test, or repair a hard disk, or to install system software on a hard disk, you need to start up your computer from another disk. If your computer has a CD-ROM drive, you can start up your computer using the CD-ROM disc containing system software that came with the computer.

To start up the computer using the CD-ROM disc, follow these steps:

- 1 Turn your computer on.**
- 2 Press the Open/Close button on your CD-ROM drive, and quickly insert the CD-ROM disc containing system software into the drive.**
- 3 Immediately press and hold down the Shift, Option, ⌘, and Delete keys on your keyboard at the same time.**

Continue to hold down the keys until you see the “Welcome to Macintosh” message.

If a blinking question mark appears, or if the computer starts up from your hard disk: You did not insert the CD-ROM disc quickly enough for the computer to recognize it as a startup disk. Follow these steps:

1 Shut down your computer.

The CD-ROM disc will remain in the CD-ROM drive.

2 Turn the computer on.

3 Immediately press and hold down the Shift, Option, ⌘, and Delete keys on your keyboard at the same time.

Continue to hold down the keys until you see the “Welcome to Macintosh” message.

Starting up from a floppy disk

To initialize, test, or repair a hard disk, or to install system software on a hard disk, you need to start up your computer from another disk. If you don't have a built-in CD-ROM drive, you can start up the computer using either the *Disk Tools* or *Install Me First* floppy disk that came with your computer.

To start up your computer using a floppy disk, follow these steps:

1 Shut down your computer.

2 Insert the floppy disk into the disk drive.

If you want to initialize, test, or repair your hard disk, use the *Disk Tools* disk to start up your computer. If you want to install system software, use the *Install Me First* disk.

3 Turn on the computer.

Reinitializing your computer's internal hard disk

You initialize your internal hard disk using a program called Internal HD Format, which is on the floppy disk labeled *Disk Tools* that came with your computer. If your computer came with a CD-ROM drive and you didn't receive floppy disks, you can find Internal HD Format on the CD-ROM disc that contains system software.

- 1 Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.**

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” earlier in this section.

- 2 Double-click the Internal HD Format icon to open it.**

You may need to look in a folder called Utilities to find Internal HD Format.

- 3 Type a name for your hard disk in the Name box.**

- 4 If you want to make sure that none of the hard disk's original information is recognizable after reinitialization, choose Zero Out Data from the Options menu.**

If you choose Zero Out Data, initialization may take a few minutes. (If you don't choose Zero Out Data, initialization will take less than 30 seconds.)

- 5 Click Initialize.**

A message informs you that initializing the disk erases all information on it.

- 6 Click OK.**

During initialization, a status bar shows you the progress of the initialization.

- 7 When initialization is complete, click Done.**

If a message reports that initialization failed, try again. If initialization fails a second time, take the disk to your Apple-authorized service provider for repair.

Initializing an external SCSI hard disk

You initialize an Apple external SCSI hard disk by using a program called Apple HD SC Setup, which is on the floppy disk labeled *Disk Tools* that came with your computer. If your computer came with a CD-ROM drive and you didn't receive floppy disks, you can find Apple HD SC Setup on the CD-ROM disc that contains system software.

- 1 **Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.**

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” earlier in this section.

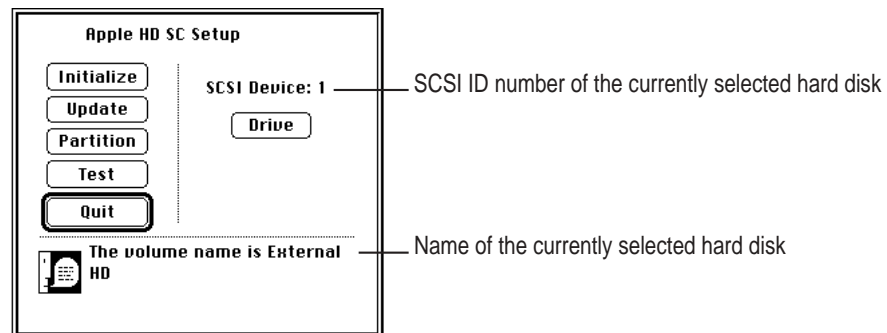
- 2 **Open the Apple HD SC Setup icon.**

You may need to look in a folder called Utilities to find Apple HD SC Setup.



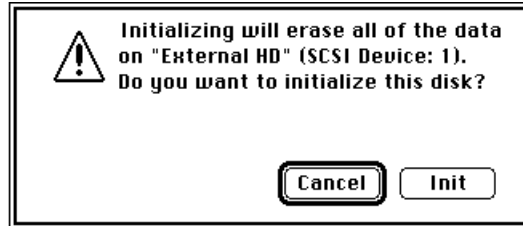
- 3 **Click Drive until the disk you want to initialize appears.**

You cannot initialize the disk that you used to start up your computer or the disk that contains the Apple HD SC Setup program.



- 4 **Click Initialize.**

- 5 Click Init to initialize the hard disk.



- 6 If a message appears asking you to name the disk, type a name and then click OK.
- 7 Click Quit when you see a message reporting that initialization was successful.

If a message reports that initialization failed, try again. If initialization fails a second time, take the disk to your Apple-authorized service provider for repair.

Repairing a damaged disk

Disks can become damaged by repeated use and handling.

When do you need to repair a disk?

If you see a message reporting that a disk is damaged or unreadable, you may need to repair the disk.

Try these suggestions first

If you can't start up from a hard disk or you don't see the hard disk icon on the desktop, try the following:

- If the hard disk is internal, shut down your Macintosh, wait at least 10 seconds, and then turn it on again.
- If the hard disk is external, make sure that it is turned on and that its cable is connected firmly; then restart the Macintosh.
- If the hard disk is your startup disk, start up with a different startup disk. If the hard disk's icon appears on your desktop, reinstall system software on the hard disk (see "Installing or Reinstalling System Software" later in this chapter).
- Check the ID numbers of all SCSI equipment connected to your computer. Each device must have a unique ID number less than 7. (The computer itself has the ID number 7, and the internal CD-ROM drive has the ID number 3. The ID numbers 0, 1, 2, 4, 5, and 6 are available for additional SCSI devices.) Also check that the chain of devices is terminated properly. For information on setting SCSI ID numbers and terminating a SCSI chain, see the manuals that came with your SCSI equipment.
- If none of these suggestions solves the problem, test the disk by following the instructions that come next.

Checking for damage on your internal hard disk

You can check for damage on your internal hard disk with the Internal HD Format program, which is on the floppy disk labeled *Disk Tools* that came with your computer. If your computer came with a CD-ROM drive and you didn't receive floppy disks, you can find Internal HD Format on the CD-ROM disc that contains system software. You can use Internal HD Format at any time to check for damaged blocks (segments of the hard disk that cannot reliably be used to store information).

- 1 Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.**

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

- 2 Open the Internal HD Format icon.**

You may need to look in a folder called Utilities to find Internal HD Format.

- 3 Choose Scan For Defects from the Functions menu.**

If the program finds damaged blocks, it marks them so that the computer will not store information in them. This process does not harm any information on the hard disk.

Testing an external SCSI hard disk

You can test an external Apple SCSI hard disk with the Apple HD SC Setup program, which is on the floppy disk labeled *Disk Tools* that came with your computer. If your computer has a built-in CD-ROM drive, and you didn't receive floppy disks, you can find the Apple HD SC Setup program on the CD-ROM disc that contains system software.

- 1 Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.**

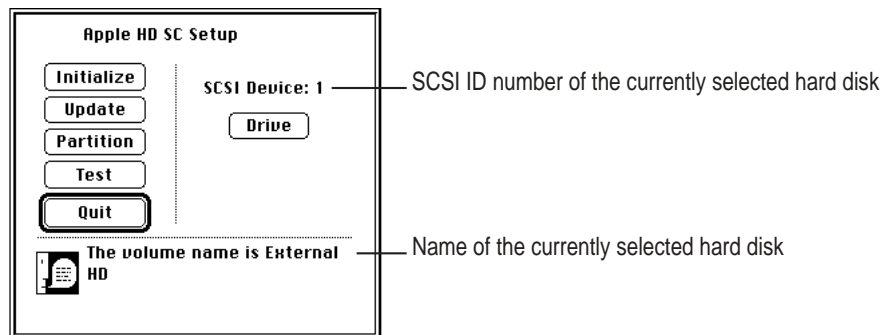
See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

2 Open the Apple HD SC Setup icon.

You may need to look in a folder called Utilities to find Apple HD SC Setup.



3 Click Drive until the disk you want appears.



4 Click Test.

5 When a message tells you that testing is complete, click Quit.

If the test reveals a problem, you may be able to correct it by using Disk First Aid or another disk repair program (see the instructions in the next section), or you may need to reinitialize the disk (see “Initializing a Hard Disk” earlier in this chapter). Consult an Apple-authorized service provider for assistance if necessary.

How to repair a hard disk or floppy disk

You can repair some types of disk damage by using the Disk First Aid program, which is included either on the *Disk Tools* floppy disk or on the CD-ROM disc containing system software that came with your computer.

1 Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

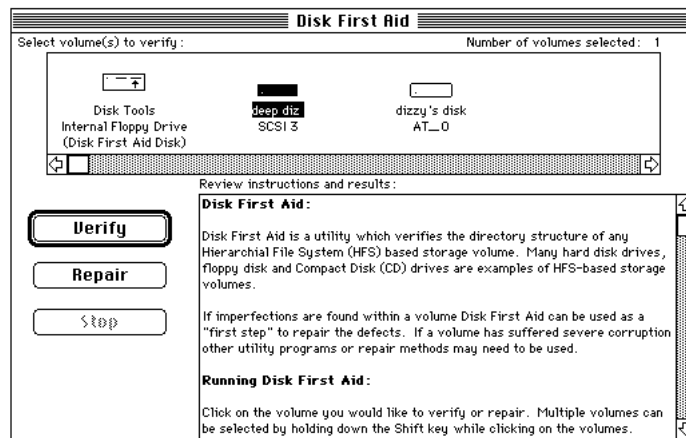
2 Open the Disk First Aid icon.

You may need to look in a folder called Utilities to find Disk First Aid.



3 Click the icon of the disk you want to test.

Disk icons appear in a box at the top of the Disk First Aid window.



4 Click Repair to begin testing and repairing the disk.

You can't repair the startup disk or the disk that contains the Disk First Aid program, but you can test these disks by clicking Verify. If the program reveals a problem with either of these disks, start up the computer from another disk so that you can repair the damaged disk.

If you want to test and repair another disk, click its icon and then click Repair.

5 When testing and repair are finished, choose Quit from the File menu.

If Disk First Aid cannot correct the problem

- Try repairing the disk again. Sometimes repeating the process corrects the problem.
- Use another disk repair or recovery program. Some disk repair programs let you recover information from a damaged disk.
- Consult a computer repair specialist for help.
- Once you have recovered all the information you can, erase (reinitialize) the disk. If initialization doesn't work, discard the damaged disk (if it's a floppy disk), or take it to your Apple-authorized service provider for repair (if it's a hard disk).

Installing or reinstalling system software

System software is the set of programs and other files that your computer uses to start itself up, keep track of your files, and run the application programs you use. System software is kept in the folder called the System Folder. When you turn on your computer, it looks for a startup disk, which is a disk that contains the system software. The startup disk is usually the hard disk that's inside your computer, though another hard disk or a floppy disk can also be a startup disk.

The accessory kit that came with your Macintosh provides system software on either a set of floppy disks or a CD-ROM disc. You can use the floppy disks or the CD-ROM disc to install the system software on your Macintosh if you need to do so.

When should you install system software?

Your Macintosh came with all the necessary system software installed on its internal hard disk, so you don't need to install system software on that disk unless you encounter software problems.

If you have a new hard disk or a newly initialized hard disk that doesn't contain system software, or if you want to upgrade to a more recent version of system software on a hard disk, follow the instructions in "Installing System Software" later in this chapter.

When should you reinstall system software?

If you have a problem with your system software, you may see this icon in the middle of the screen:



If this icon appears, follow the instructions in “Repairing a Damaged Disk” earlier in this chapter to test your startup hard disk and repair any damage.

If repairing the disk doesn’t help, follow the instructions in the next section, “Installing System Software,” to reinstall system software on your startup hard disk.

Installing system software

Follow the steps in this section to do what is commonly called a “normal” installation of system software.

If you’re installing system software on a hard disk for the first time, make sure that your hard disk has been initialized, a process that prepares the disk to store information. If you see the hard disk’s icon on the desktop when you start up the computer, the disk has been initialized. If no disk icon appears when you start up, see “Initializing a Hard Disk” earlier in this chapter for instructions.

To do a normal installation, follow these steps:

- 1 Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.**

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

2 Find and open the Disk First Aid icon.

You may need to look in a folder called Utilities to find Disk First Aid.



Disk First Aid

After Disk First Aid starts, follow the instructions on the screen. Disk First Aid checks your hard disk for any problems.

3 When Disk First Aid has finished checking your hard disk, choose Quit from the File menu.

If you are using the computer's internal hard disk as the startup disk, go to step 7. If you are using an Apple external SCSI hard disk as the startup disk, continue with step 4.

4 Open the Apple HD SC Setup program.

You use the Apple HD SC Setup program to update your hard disk.

5 Make sure the disk indicated on the screen is your startup disk, then click Update.

6 When the update process is finished, quit Apple HD SC Setup.

7 Shut down your computer.

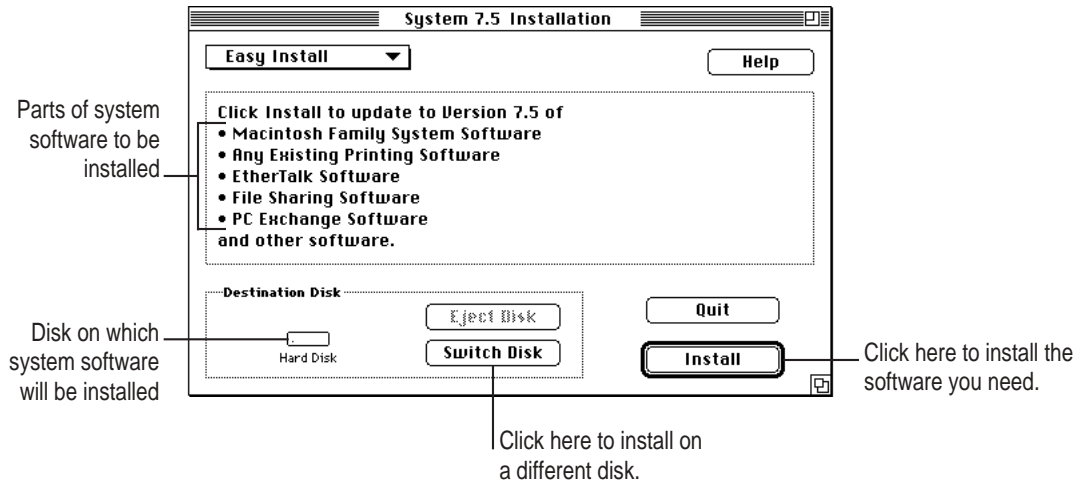
8 Start up your computer from the *Install Me First* disk or the CD-ROM disc that contains system software.

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

The Installer's Welcome screen appears. You may have to double-click the System Software Installer icon to open the Installer program.

9 Click Continue.

The Easy Install dialog box appears.



10 Make sure that the hard disk named in the box is the one on which you want to install system software.

If it isn't, click Switch Disk until the correct disk name appears.

11 Click Install.

12 Follow the instructions that appear on the screen.

If you're installing system software from floppy disks, you see messages asking you to insert different disks.

13 When you see a message reporting that the installation was successful, click **Restart**.

If a message reports that installation was not successful, try installing again. (Follow the instructions on the screen.)

If, after reinstalling system software by doing a normal installation, you still experience problems with your computer, follow the steps in the next section for doing a “clean” installation of system software.

IMPORTANT Certain system extensions or application programs that were originally on your hard disk may not be installed with the Installer program. If you notice that a certain extension or program was not installed, you may need to install it separately. You can find these additional extensions and programs on the CD-ROM disc that contains system software. If you don't have a CD-ROM drive, see the service and support information that came with your computer for information on how to contact Apple directly for assistance.

Doing a clean installation of system software

The steps in this section outline what is commonly called a “clean” installation of system software. Do a clean installation if you can't determine what is damaged in your System Folder (especially if you think any special software, such as control panels, system extensions, or custom utilities, may be causing the problems you're experiencing). You should also do a clean installation if you're still having problems with your computer after you've reinstalled system software by doing a normal installation.

To do a clean installation, follow these steps:

- 1 Start up your computer from the *Disk Tools* disk or the CD-ROM disc that contains system software.**

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

- 2 Find and open the Disk First Aid icon.**

You may need to look in a folder called Utilities to find Disk First Aid.



Disk First Aid

After Disk First Aid starts, follow the instructions on the screen. Disk First Aid checks your hard disk for any problems.

- 3 When Disk First Aid has finished checking your hard disk, choose Quit from the File menu.**

If you are using the computer’s internal hard disk as the startup disk, go to step 8. If you are using an Apple external SCSI hard disk as the startup disk, continue with step 4.

- 4 Find and open the Apple HD SC Setup icon.**

You may need to look in a folder called Utilities to find Apple HD SC Setup.



Apple HD SC Setup

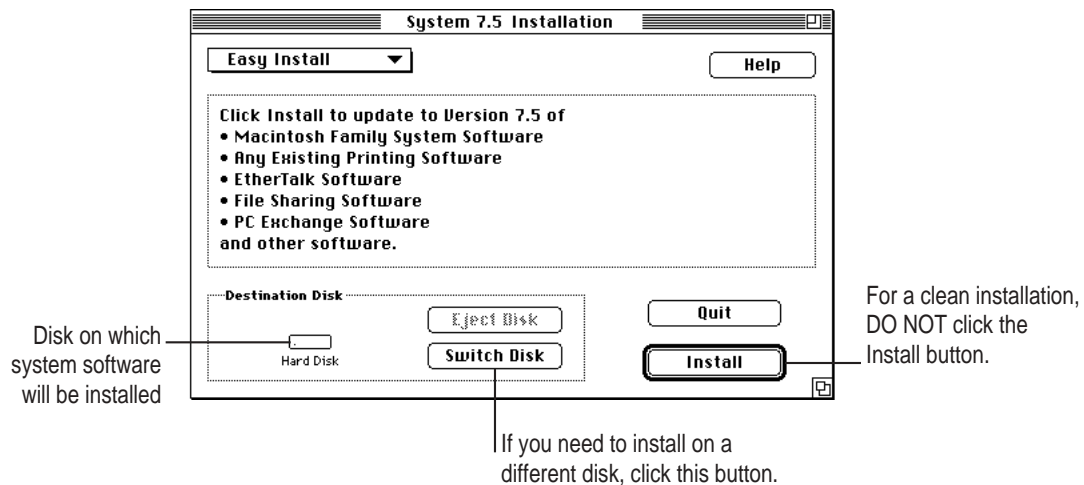
- 5 Click Drive until the disk on which you want to reinstall system software appears.**
- 6 Click Update and follow the instructions on the screen.**
- 7 When you see a message that the update was successful, click Quit.**
- 8 Shut down your computer.**

- 9 Start up your computer from the *Install Me First* disk or the CD-ROM disc that contains system software.

The Installer's Welcome screen appears. You may have to double-click the System Software Installer icon to open the Installer program.

- 10 Click Continue.

The Easy Install dialog box appears.



- 11 Make sure that the hard disk named in the Destination Disk box is the one on which you want to install system software.

If it isn't, click Switch Disk until the correct disk name appears.

- 12 Hold down Shift-⌘-K to start the clean installation.

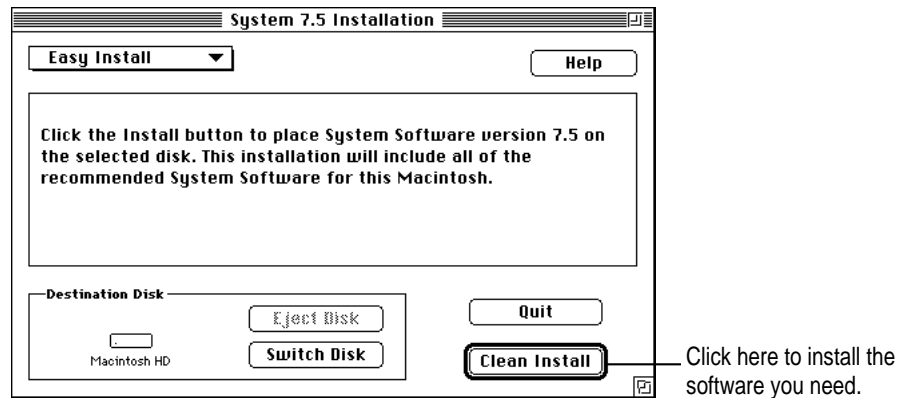
The following dialog box appears.



- 13 Click the Install New System Folder button and click OK.

The Easy Install dialog box appears. The Install button has changed to Clean Install, and the contents of your old System Folder have been moved to a new folder named Previous System Folder.

- 14 Click Clean Install.



- 15 Follow the instructions that appear on the screen.

It takes a few minutes to complete the installation.

- 16 When you see a message reporting that the installation was successful, you may need to click Restart.

You need to click Restart only if you installed software onto the startup disk.

If a message reports that installation was not successful, try repeating the clean installation procedure.

Replacing special software

- 1 Copy any special software items from the Previous System Folder back to your System Folder one item at a time, restarting the computer after copying each item.

Special software consists of items such as control panels, system extensions, or custom utilities that you may have added to your System Folder.

IMPORTANT Be very careful not to *replace* (copy over) any of the files in the System Folder with files from the Previous System Folder.

- 2 Check after each restart to make sure your computer is not having any software problems.

If any of your special software items cause software problems, contact the software manufacturer for assistance or an upgrade.

Doing a custom installation

For most Macintosh users, the Easy Install procedure described in the previous sections is appropriate, because it automatically installs all the items you need. However, if you'd like to select a combination of system software files for your specific needs, you can customize your system software installation. You use custom installation to install or update one or more specific files, or to save space on your hard disk by installing only the files you want.

To install customized system software, follow these steps:

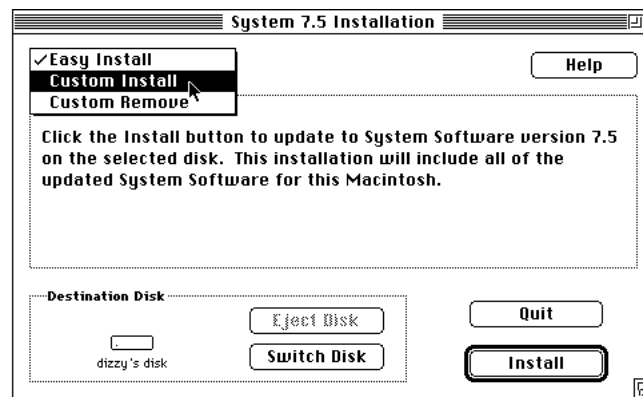
- 1 **Start up your computer from the *Install Me First* disk or the CD-ROM disc that contains system software.**

See “Starting Up From a CD-ROM Disc” or “Starting Up From a Floppy Disk” in the section “Initializing a Hard Disk” earlier in this chapter.

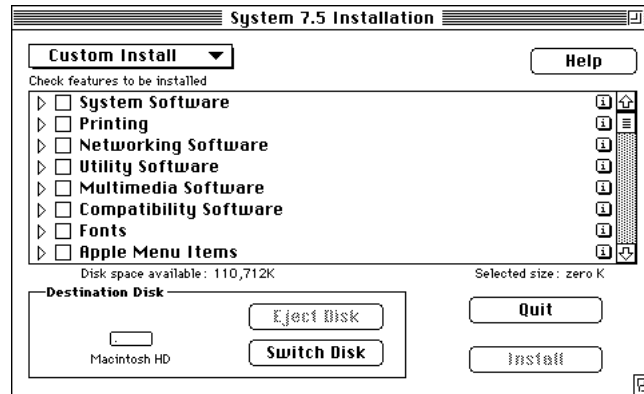
- 2 **Click OK.**

The Easy Install dialog box appears.

- 3 **Choose Custom Install from the pop-up menu.**



The Custom Install dialog box appears, listing all available system software components.



- 4 Scroll through the list of components, clicking the checkbox next to each component you want to install.

To get additional information about each component listed, click the box with the letter *i* in it to the right of the component.

- 5 Click Install.
- 6 Follow the instructions that appear on the screen.
- 7 When you see a message reporting that the installation was successful, click Quit.

If a message reports that installation was not successful, try installing again. (Follow the instructions on the screen.)

- 8 Restart your Macintosh.

The system software is installed and your computer is ready to use.

Read this appendix for important health and safety instructions, as well as tips on keeping your computer in good working order.



Appendix A Health, Safety, and Maintenance Tips



For your own safety and that of your equipment, follow all the instructions in this chapter. Keep these instructions available for reference by you and others.

Health-related information about computer use

Muscle soreness, eye fatigue, and other discomforts and injuries sometimes associated with using computers can occur from performing any number of activities. In fact, misuse of the same muscles during multiple activities can create a problem that might not otherwise exist. For example, if you engage in nonwork activities that involve repetitive stress on the wrist—such as bicycling—and also use your computer’s keyboard improperly, you may increase your likelihood of developing wrist problems. Some individuals are at greater risk of developing these problems because of their health, physiology, lifestyle, and general exposure to stress. Work organization and conditions, such as workstation setup and lighting, also play a part in your overall health and comfort. Preventing health problems is a multifaceted task that requires careful attention to the way you use your body every hour of every day.

The most common health effects associated with using a computer are musculoskeletal discomfort and eye fatigue. We’ll discuss each area of concern below.

Musculoskeletal discomfort

As with any activity that involves sitting for long periods of time, using a computer can make your muscles sore and stiff. To minimize these effects, set up your work environment carefully, using the guidelines that follow, and take frequent breaks to rest tired muscles. To make working with your computer more comfortable, allow enough space in your work area so that you can change position frequently and maintain a relaxed posture.

Another type of musculoskeletal concern is repetitive stress injuries (RSIs), also known as cumulative trauma disorders (CTDs). These problems can occur when a certain muscle or tendon is repeatedly overused and forced into an unnatural position. The exact causes of RSIs are not totally understood, but in addition to awkward posture, such factors as the amount of repetition, the force used in the activity, the individual's physiology, workplace stress level, and lifestyle may affect the likelihood of experiencing an RSI.

RSIs did not suddenly arise when computers were invented; tennis elbow and writer's cramp, for example, are two RSIs that have been with us for a long time. Although less common than other RSIs, one serious RSI discussed more often today is a wrist problem called carpal tunnel syndrome, which may be aggravated by improper use of computer keyboards. This nerve disorder results from excessive pressure on the median nerve as it passes through the wrist to the hand.

This section offers advice on setting up your work area to enhance your comfort while you use your computer. Since the effects of repetitive movements associated with using a computer can be compounded by those of other work and leisure activities to produce or aggravate physical problems, proper use of your computer system must be considered as just one element of a healthy lifestyle.

No one, of course, can guarantee that you won't have problems even when you follow the most expert advice on using computer equipment. You should always check with a qualified health specialist if muscle, joint, or eye problems occur.

Eye fatigue

Eye fatigue can occur whenever the eyes are focused on a nearby object for a long time. This problem occurs because the eye muscles must work harder to view an object that's closer than about 20 feet (6 meters). Improper lighting can hasten the development of eye fatigue. Although eye fatigue is annoying, there's no evidence that it leads to permanent damage.

Whenever you're engaged in an activity that involves close-up work—such as reading a magazine, doing craft work, or using a computer—be sure to have sufficient glare-free lighting and give your eyes frequent rest breaks by looking up and focusing on distant objects. Remember to have your eyes examined regularly.

To prevent discomfort and eye fatigue:

- Arrange your workspace so that the furniture is properly adjusted for you and doesn't contribute to an awkward working posture.
- Take frequent short breaks to give your muscles and eyes a chance to rest.

Arranging your office

Here are some guidelines for adjusting the furniture in your office to accommodate your physical size and shape.

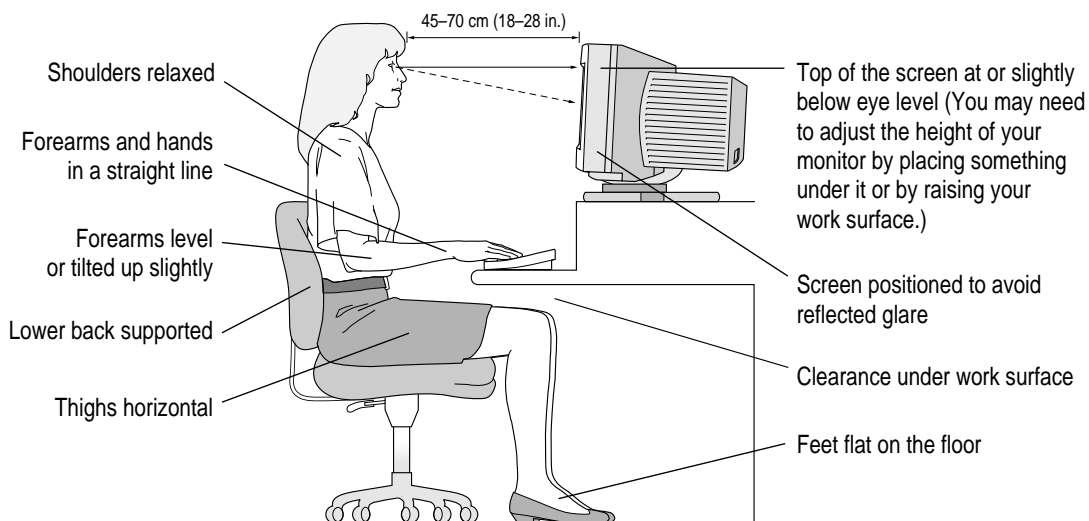
- An adjustable chair that provides firm, comfortable support is best. Adjust the height of the chair so your thighs are horizontal and your feet flat on the floor.

The back of the chair should support your lower back (lumbar region). Follow the manufacturer's instructions for adjusting the backrest to fit your body properly.

- When you use the computer keyboard, your shoulders should be relaxed. Your upper arm and forearm should form an approximate right angle, with your wrist and hand in roughly a straight line.

You may have to raise your chair so your forearms and hands are at the proper angle to the keyboard. If this makes it impossible to rest your feet flat on the floor, you can use a footrest with adjustable height and tilt to make up for any gap between the floor and your feet. Or you may lower the desktop to eliminate the need for a footrest. Another option is to use a desk with a keyboard tray that's lower than the regular work surface.

- Position the mouse at the same height as your keyboard. Allow adequate space to use the mouse comfortably.
- Arrange the monitor so the top of the screen is slightly below your eye level when you're sitting at the keyboard. The best distance from your eyes to the screen is up to you, although most people seem to prefer 18 to 28 inches (45 to 70 cm).
- Position the monitor to minimize glare and reflections on the screen from overhead lights and windows. You may want to use a tiltable monitor stand. The stand lets you set the monitor at the best angle for viewing, helping to reduce or eliminate glare from lighting sources you can't move.



Avoiding fatigue

- Change your seated position, stand up, or stretch whenever you start to feel tired. Frequent short breaks are helpful in reducing fatigue.
- Use a light touch when typing or using a mouse and keep your hands and fingers relaxed.
- Some computer users may develop discomfort in their hands, wrists, or arms after intensive work without breaks. If you begin to develop chronic pain or discomfort in your hands, wrists, or arms, consult a qualified health specialist.
- Allow adequate work space so that you can use your keyboard and mouse comfortably. Place papers or other items so you can view them easily while using your computer. A document stand may make reading papers more comfortable.
- Eye muscles must work harder to focus on nearby objects. Occasionally focus your eyes on a distant object, and blink often while you work.
- Clean your screen regularly. Keeping the screen clean helps reduce unwanted reflections.

What about electromagnetic emissions?

There has been recent public discussion of the possible health effects of prolonged exposure to extremely low frequency (ELF) and very low frequency (VLF) electromagnetic fields. Such fields are associated with electromagnetic sources such as television sets, electrical wiring, and some household appliances—as well as computer monitors.

Apple has reviewed scientific reports and sought the counsel of government regulatory agencies and respected health organizations. Based on the prevailing evidence and opinions, Apple believes that the electric and magnetic fields produced by computer monitors do not pose a health risk.

In response to those customers who wish to reduce their exposure to electromagnetic fields, Apple has lowered the emission levels of our products. We are also actively encouraging further scientific research so we can continue to promote the health and safety of our customers and employees.

Safety instructions

For your own safety and that of your equipment, always take the following precautions.

Turn off the computer completely and disconnect the power plug (by pulling the plug, not the cord) if any of the following conditions exists:

- the power cord or plug becomes frayed or otherwise damaged
- you spill something into the case
- your Macintosh is exposed to rain or any other excess moisture
- your Macintosh has been dropped or the case has been otherwise damaged
- you suspect that your Macintosh needs service or repair
- you want to clean the case (use only the recommended procedure described later in this chapter)

Be sure that you always do the following:

- Keep your Macintosh away from sources of liquids, such as wash basins, bathtubs, shower stalls, and so on.
- Protect your Macintosh from dampness or wet weather, such as rain, snow, and so on.
- Read all the installation instructions carefully before you plug your Macintosh into a wall socket.
- Keep these instructions handy for reference by you and others.
- Follow all instructions and warnings dealing with your system.

WARNING Electrical equipment may be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.

Handling your computer equipment

Follow these guidelines for handling your computer and its components:

- When setting up your computer, place components on a sturdy, flat surface, and carefully follow all setup instructions.
- When connecting or disconnecting a cable, always hold the cable by its connector (the plug, not the cord).
- Turn off your computer and all its components before connecting or disconnecting any cables to add or remove any component. Failure to do so could seriously damage your equipment.
- Never force a connector into a port. If the connector and port do not join with reasonable ease, they probably don't match. Make sure that the connector matches the port and that you have positioned the connector correctly in relation to the port.
- Take care not to spill any food or liquid on the computer, keyboard, mouse, or other components. If you do, turn your computer off immediately and unplug it before cleaning up the spill. Depending on what you spilled and how much of it got into your equipment, you may have to bring your equipment to an Apple-authorized service provider.
- Protect the computer and its components from direct sunlight and rain or other moisture.
- Keep all ventilation openings clear and unobstructed. Without proper air circulation, components can overheat, causing damage or unreliable operation.

WARNING This equipment is intended to be electrically grounded. Your Macintosh is equipped with a three-wire grounding plug—a plug that has a third (grounding) pin. This plug will fit only a grounded AC outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact a licensed electrician to replace the outlet with a properly grounded outlet. Do not defeat the purpose of the grounding plug!

Handling the monitor

Follow these procedures for handling a monitor:

- Turn down the screen brightness control if you leave the computer turned on for extended periods. If the brightness is not turned down, the image on the screen could “burn in” and damage the screen.

You can also use a “screen saver” program, which dims or varies the image on the screen when the computer has been idle for a specified period of time. These programs are available from independent suppliers and user groups.

- Make sure that the ventilation openings on the computer and the monitor are clear and unobstructed.
- Some large monitors cannot safely be placed on top of the computer. Check the instructions that came with the monitor for setup information.
- If there is interference on the monitor’s screen or on a television or radio near your computer, move the affected equipment farther away.

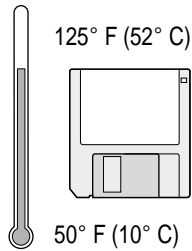
Handling the keyboard

Take care not to spill any liquid on the keyboard. If you do, turn off your computer immediately.

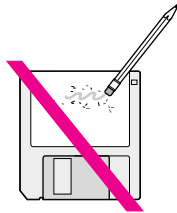
- If you spill liquid that is thin and clear, unplug the keyboard, turn it upside down to let the liquid drain out, and let it dry for 24 hours at room temperature. If, after you take these steps, the keyboard doesn’t work, take it to an Apple-authorized service provider for repair.
- If you spill liquid that is greasy, sweet, or sticky, unplug the keyboard and take it to an Apple-authorized service provider for repair.

Handling floppy disks

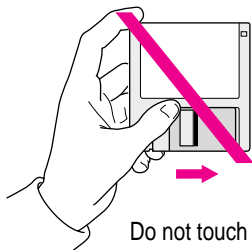
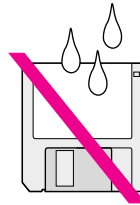
Store disks at temperatures between 50° F and 125° F.



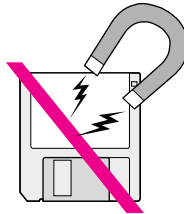
Do not use a pencil or an eraser on a disk or disk label.



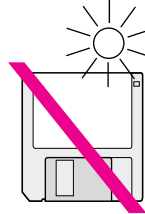
Keep disks dry.



Do not touch the exposed part of the disk behind the metal shutter.



Keep disks away from magnets.



Avoid exposing disks to extremely hot temperatures.

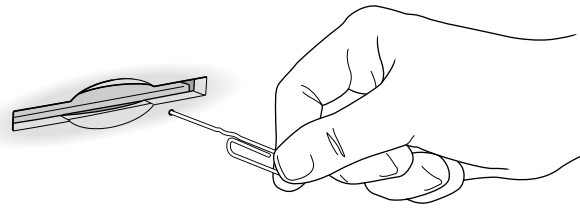
Ejecting a disk

For instructions on ejecting a floppy disk, a CD-ROM disc, or a removable media disk, see the “Disks” topic of Macintosh Guide, available in the Guide (📖) menu.

If you can't eject a floppy disk

If you can't eject a floppy disk in the usual way, try the following in order:

- Hold down the ⌘ and Shift keys and press the number 1 key on your keyboard to eject a disk in the internal disk drive.
- Turn off the computer. If the disk isn't ejected, then hold down the button on your mouse or other pointing device while you turn the computer on again.
- Locate the small hole near the disk drive's opening, and carefully insert the end of a large, straightened paper clip into it. Push gently until the disk is ejected. Do not use excessive force.



If nothing works, take the computer or disk drive to your Apple-authorized service provider to have the disk removed.

Power supply

The power supply in your computer is a high-voltage component and should not be opened for any reason, even when the computer is off. If the power supply needs service, contact your Apple-authorized dealer or service provider.

Cleaning your equipment

Follow these general rules when cleaning the outside of your computer and its components:

- Use a damp, soft, lint-free cloth to clean the computer's exterior. Avoid getting moisture in any openings.
- Don't use aerosol sprays, solvents, or abrasives.

Cleaning the computer case

To clean the case, do the following:

- 1** Turn off the computer completely and then disconnect the power plug. (Pull the plug, not the cord.)
- 2** Wipe the surfaces lightly with a clean, soft cloth dampened with water.

Cleaning the monitor

To clean the screen, put household glass cleaner on a soft cloth and wipe the screen. Don't spray the cleaner directly on the screen, because the liquid might drip into the monitor or computer.

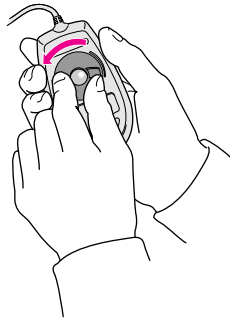
Cleaning the mouse

The mouse contains a small ball that must roll smoothly for the mouse to work properly. You can keep this ball free of dirt and grease by using the mouse on a clean, lint-free surface and cleaning it occasionally.

You need a few cotton swabs and a clean, soft, lint-free cloth.

- 1** Turn off your computer.

- 2 Turn the mouse upside-down and turn the plastic ring on the bottom counterclockwise to disengage it.**

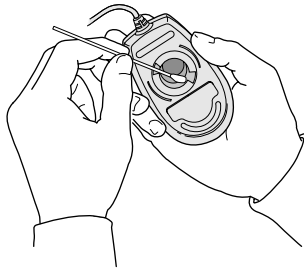


On some mouse devices, you may need to press the plastic ring (rather than turn it) to disengage it.

If you cannot disengage the ring, the mouse may be locked. See the next section, “Locking and Unlocking the Mouse.”

- 3 Turn the mouse right-side up with one hand and catch the ring and the ball with your other hand.**
- 4 Clean the three small rollers inside the mouse with a cotton swab moistened with water.**

Rotate the rollers to clean all around them.



- 5 Wipe the mouse ball with a clean, soft, dry, and lint-free cloth.**
- 6 If necessary, wash the mouse ball with warm soapy water (use a mild soap such as a dishwashing liquid) and then dry the mouse ball thoroughly.**
- 7 Gently blow into the mouse case to remove any dust that has collected there.**

8 Put the ball and the ring back in place.

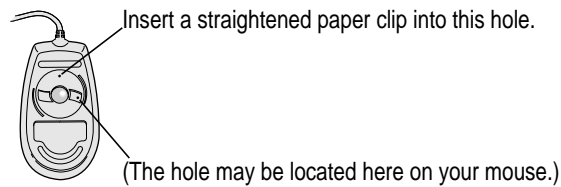
Your mouse should roll smoothly across your mouse pad or desk. If it doesn't, repeat these instructions carefully.

Locking and unlocking the mouse

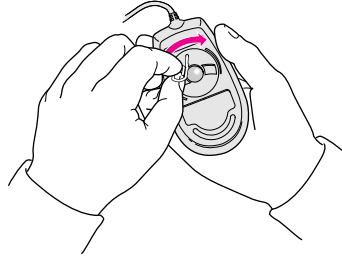
Some mouse devices can be locked so that the ball can't be removed. A locking mouse has a small hole on the plastic ring.

To lock the mouse, follow these steps:

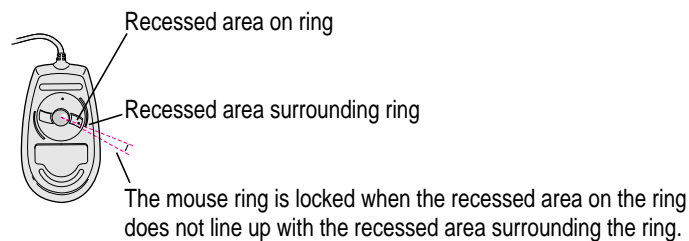
1 Insert a straightened paper clip into the hole on the plastic ring.



2 Press down on the paper clip while you turn the ring clockwise.

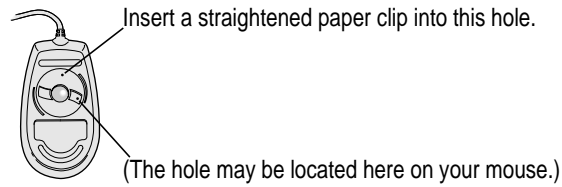


Turn the ring a very short distance, until it stops. When the recessed area on the ring is *not* lined up with the recessed area surrounding the ring, the mouse is locked.

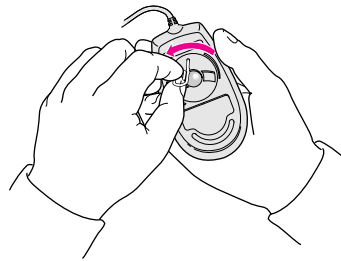


To unlock the mouse, follow these steps:

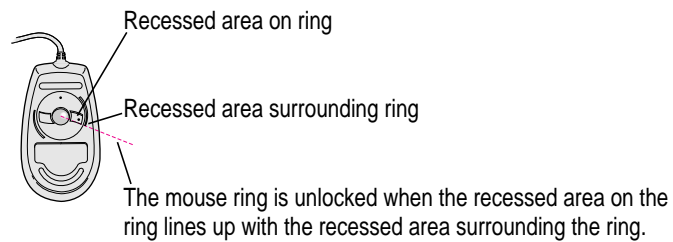
- 1 Insert a straightened paper clip into the hole on the plastic ring.**



- 2 Press down on the paper clip while you turn the ring counterclockwise.**



Turn the ring a very short distance. When the recessed area on the ring is lined up with the recessed area surrounding the ring, the mouse is unlocked.



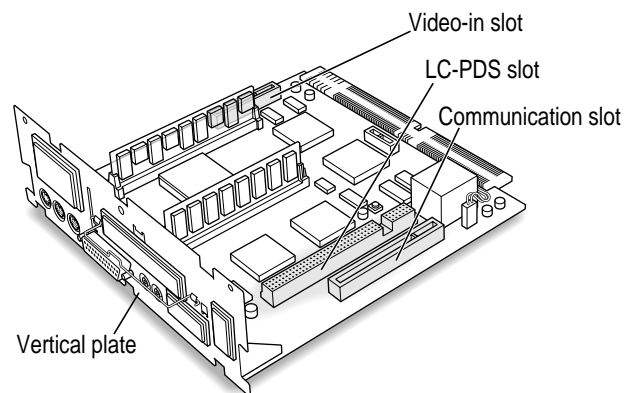
Read this appendix for instructions on installing an expansion card in your computer.

Appendix B Installing an Expansion Card

Expansion cards are printed circuit boards that can be installed in your computer to give it special features, such as enhanced video capabilities, networking and communications, and additional processing power. Your Macintosh has three slots available for the following kinds of expansion cards:

- an LC-PDS (processor-direct) slot for most cards
- a communication slot for an internal modem or Ethernet card
- a video-in slot for a card that brings signals into the computer from a videocassette recorder (VCR), laserdisc player, video camera, or similar device

You can also install a TV tuner card that allows you to watch TV on your Macintosh.



This appendix contains instructions for installing an LC-PDS card or a communication card. To install a video input card or a TV tuner card, follow the instructions that come with the card.

WARNING To avoid damaging your computer and expansion card, do not attempt to install any expansion card without first checking the documentation for that card. If the documentation specifies that an Apple-certified technician must install the card (usually because the installation requires special training or tools), consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider or Apple for assistance. If you attempt to install the card yourself, any damage you may cause to the computer or card will not be covered by the limited warranty on your computer. If the card is not an Apple-labeled product, check with an Apple-authorized dealer or service provider to see if you can install it yourself.

Installing an expansion card involves three steps:

- opening the computer
- inserting the card into a specific slot
- closing the computer



Opening the computer

- 1 Shut down your computer by choosing Shut Down from the Special menu.

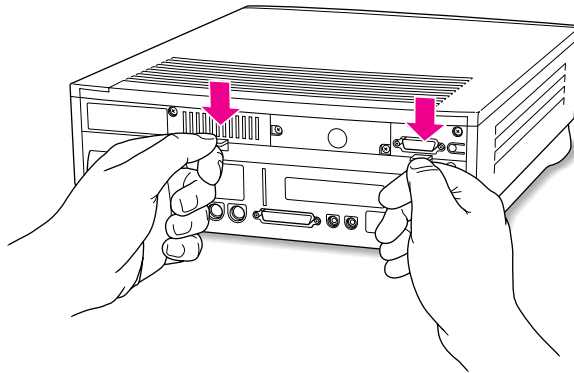
You can also press the Power key on the keyboard.

- 2 Unplug all the cables except the power cord from your computer.

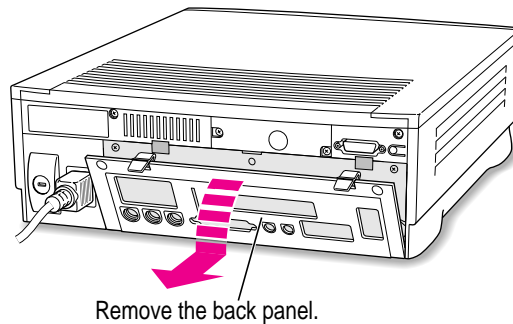
Leaving the power cord plugged in helps protect the computer from electrostatic discharge.

IMPORTANT To avoid generating static electricity that may damage components, do not walk around the room until you have completed the installation of the expansion card and closed the computer. Additionally, move the logic board as little as possible while it is outside the computer case.

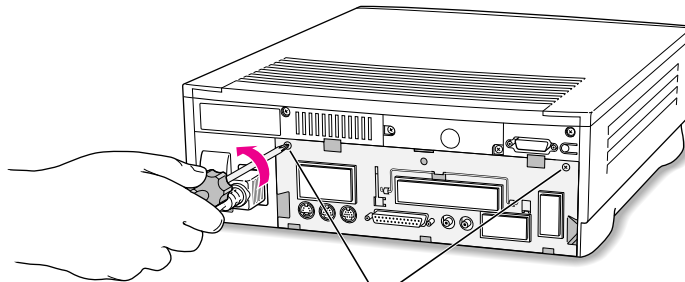
- 3 Place your thumbs on the two tabs at the top of the computer's back panel, and press down.



- 4 Pulling gently, swing the panel down, and slip it out.



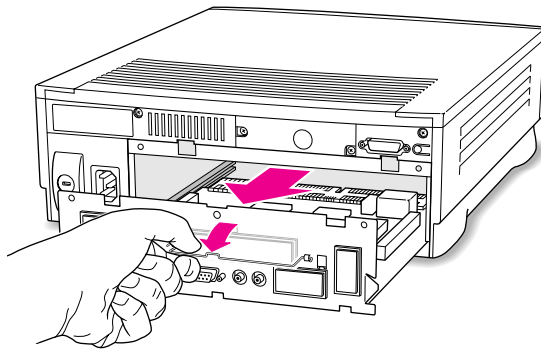
- 5** If there are security screws on the vertical plate on the back of the computer, remove them with a Phillips screwdriver.



If there are security screws, remove both screws from the vertical plate

- 6** Unplug the power cord from your computer.
- 7** Swing the handle out from its storage position. Then grasp the handle and gently but firmly pull it toward you.

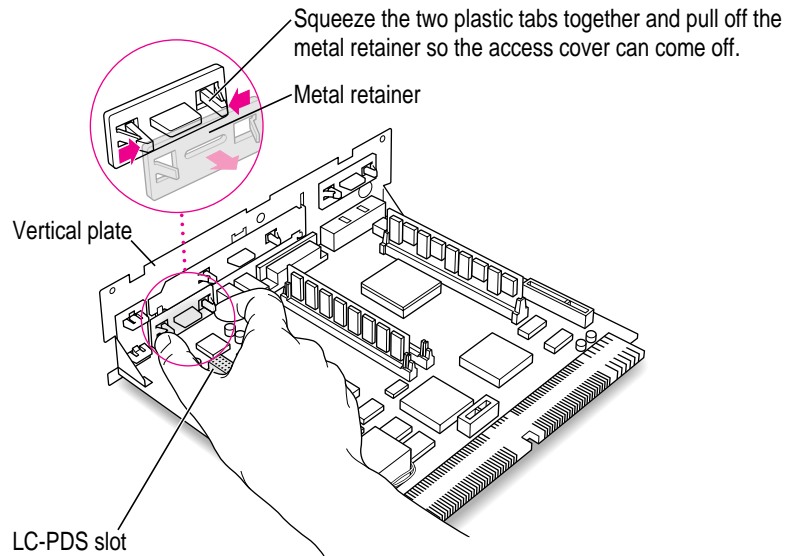
The vertical plate and the logic board to which it's attached slide all the way out of the computer. Carefully support the logic board as it comes out, and put it on a clean, flat, stable surface.



What you do next depends on the type of expansion card you want to install.

Installing an LC-PDS card

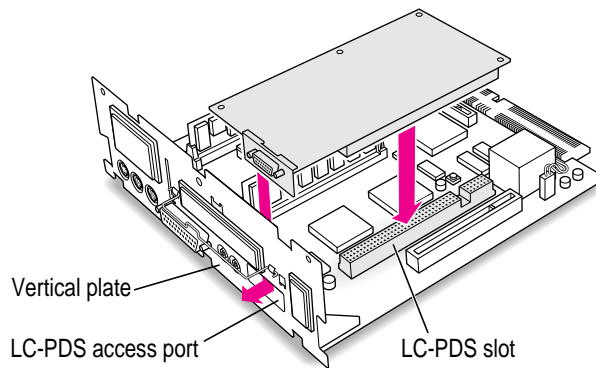
- 1** If your LC-PDS card has ports for connecting equipment, remove the plastic access cover from the vertical plate.



- 2** Remove the LC-PDS card from its static-proof bag.

Hold the card by its edges to avoid touching any connectors on the card.

- 3** Align the card over the LC-PDS slot.

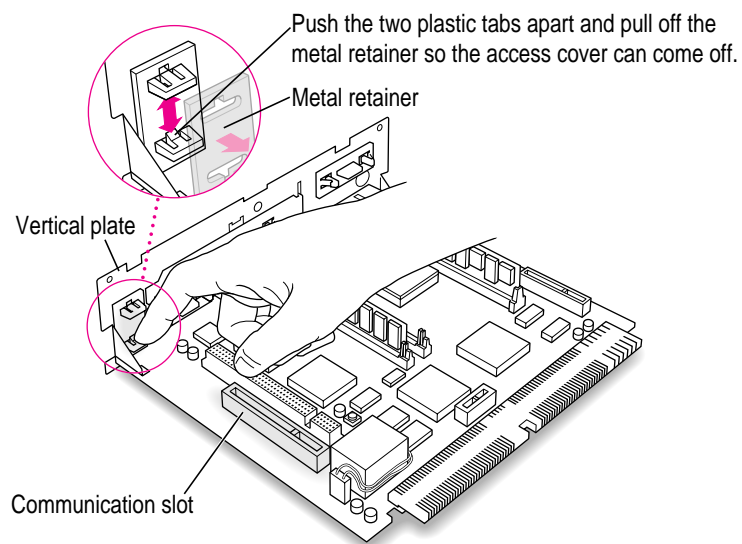


- 4 Press down on the card until the connector is solidly in place.**

Don't force the card. If you meet resistance, pull the card out and try again. To see if the card is properly connected, lift it gently. If it resists and stays in place, it's connected.

Installing a communication card

- 1 If your communication card has ports for connecting equipment, remove the plastic access cover from the vertical plate.**

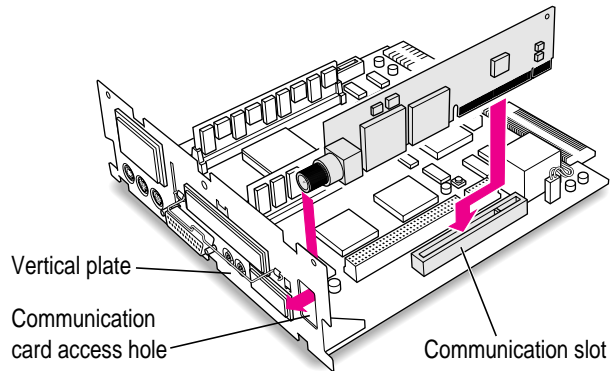


- 2 Remove the communication card from its static-proof bag.**

Hold the card by its edges to avoid touching any connectors on the card.

3 Align the card over the communication slot.

The communication slot is the rightmost slot on the logic board.



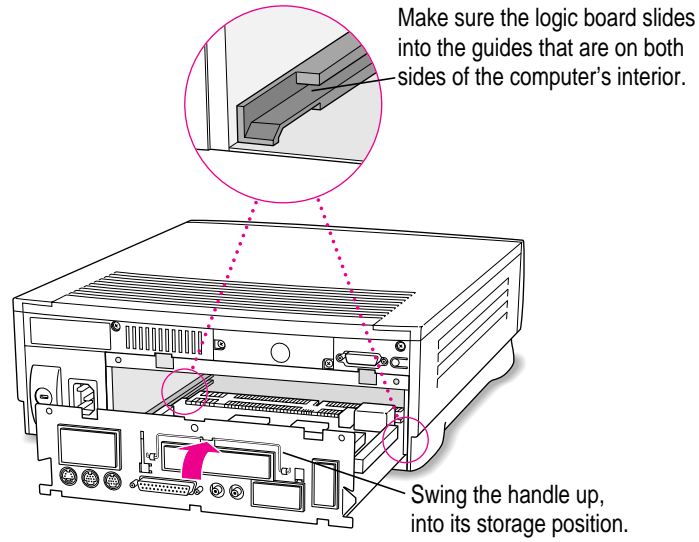
4 Press down on the card until the connector is solidly in place.

Don't force the card. If you meet resistance, pull the card out and try again.

To see if the card is properly connected, lift it gently. If it resists and stays in place, it's connected.

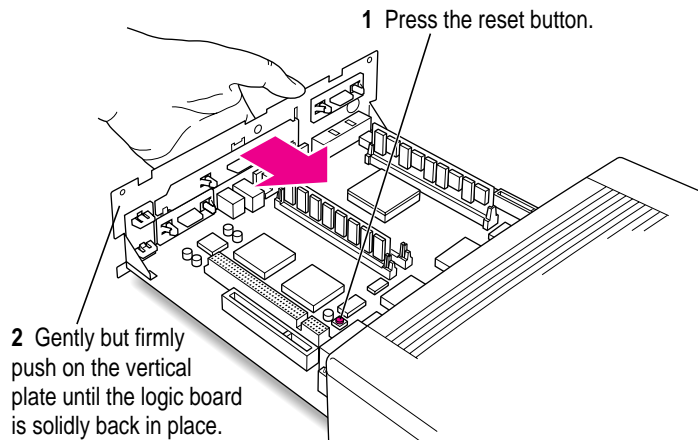
Closing the computer

- 1 Slip the base of the logic board into the guide rails inside the computer case and swing the handle back into its storage position.

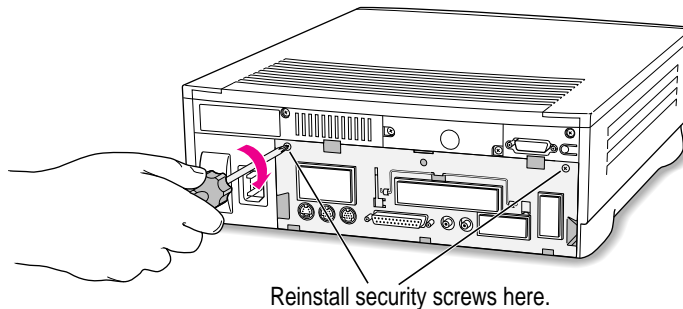


- 2 Press the reset button on the logic board, and then slide the logic board back into the computer.**

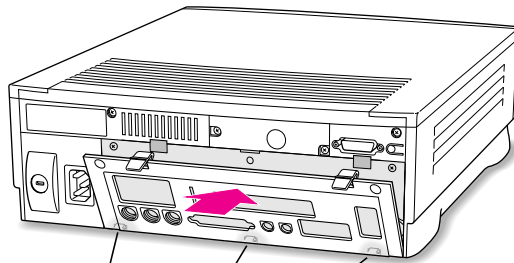
When you press the reset button, some of your computer's software settings will change. You may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see the "Setting Options" topic of Macintosh Guide, available in the Guide (📖) menu.



- 3 If you removed security screws earlier, reinstall them now.**

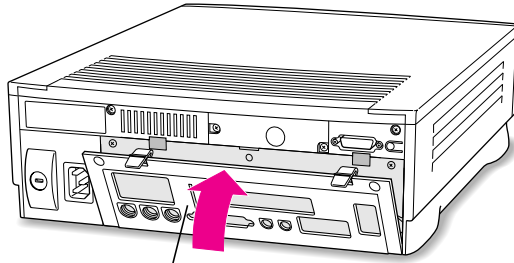


- 4 Slip the three hooks at the base of the back panel into the grooves on the computer case.



Slip the three hooks on the back panel into the grooves in the computer case.

- 5 Swing the back panel up and snap it into place.



Snap the plastic back panel into place.

- 6 Plug the cables back into the computer.

- 7 Reconnect the power cord.

Your computer is now ready to turn on and use.

WARNING Never turn on your computer unless all of its internal and external parts are in place. Operating the computer when it is open or missing parts can be dangerous, and can damage your computer.





Read this appendix to learn
how to use the special
keys on your keyboard.

Appendix C Special Keys on Your Keyboard

Your computer keyboard contains certain special keys that typewriter keyboards don't have. Many of these keys allow you to give commands to the computer without using the mouse. For example, in many application programs, pressing the ⌘ (Command) key at the same time as the Q key is often an alternative method of quitting a program.







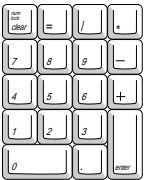





The following table describes what you can do with the special keys on your keyboard. The number of special keys on your keyboard may vary from this list; it depends on the model of keyboard you have.

Special keys on Apple keyboards

Arrow keys		Use to move the insertion point, as an alternative to using the pointer. In some programs, the arrow keys have other functions.
Caps Lock key		Use to capitalize a series of letters (numbers and symbols aren't affected).
Clear key		Use to delete the current selection (or use the Delete key). In some programs, Clear has other functions.
⌘ (Command) key		Use in combination with other keys as an alternative to choosing a menu command.

continued ►

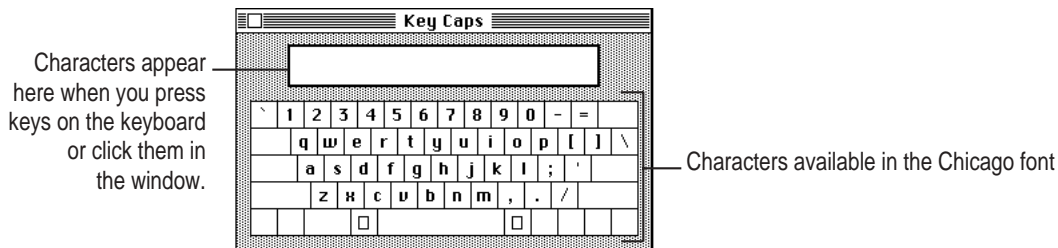
Special keys on Apple keyboards *(continued)*

Control key		In combination with other keys, this key provides shortcuts or modifies other actions.
Delete key		Use to delete selected material, or the character to the left of the insertion point.
Enter key		In a dialog box, pressing Enter is the same as clicking the outlined button. In some programs, pressing this key confirms information you have provided.
Escape key		The function of this key depends on the program you're using.
Function keys		Some programs allow you to use the 12 function keys to give commands. You can assign commands or action sequences to function keys with special utility programs.
Option key		Use in combination with other keys to produce special characters or modify actions.
Numeric keys		Use to produce numbers and mathematical symbols; some programs use these keys as function keys to initiate actions.
Power key		On some models, press to turn on the computer. Also press to shut down the computer on certain models.
Return key		Use to move the insertion point to the beginning of the next line. In a dialog box, pressing Return is the same as clicking the outlined button.
Shift key		Use to produce capital letters (or the upper character on the key).
Other special keys		The function of these keys depends on the operating system and program you're using.
Tab key		Use to move the insertion point to the next stopping place (such as a tab stop or field in a dialog box or program).

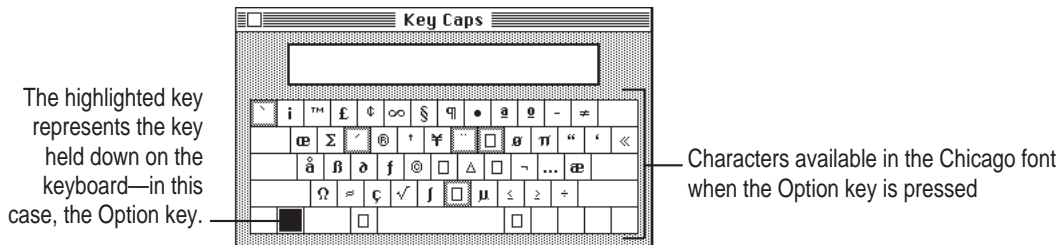
Typing special characters and symbols

You can type a variety of international and other special symbols and characters (including characters with diacritical marks, such as accents) by pressing combinations of keys.

The Key Caps program, which is installed with your system software, shows you the characters produced when you type certain keys and key combinations in the fonts available on your computer. You choose Key Caps from the Apple (🍏) menu, then choose the font from the Key Caps menu.



To have Key Caps show more options for special characters, press each of these keys or key combinations: Option, Shift, Shift-Option, Shift-⌘, and Option-⌘.



If you press the Option key, Key Caps outlines lightly the keys that you can use in combination with letter keys to type letters with accents or other diacritical marks.

If you see rectangles: If you see rectangles instead of diacritical marks on some of the pictures of keys in Key Caps, try pressing Option-⌘ to see the diacritical marks. However, you only need to use the Option key (not Option-⌘) in combination with the other keys to type letters with diacritical marks.

If you press the Option key at the same time as a key for a specific diacritical mark and then release both keys, Key Caps outlines in bold the keys for letters that can be typed with that mark. (You'll see that most key combinations for diacritical marks can be used with the Space bar as well as letter keys—producing the mark without a letter.)

The most common diacritical marks and how to create them are summarized next.

Diacritical mark	Key combination
Grave accent (`)	Option-` , then type the character
Acute accent (´)	Option-e, then type the character
Circumflex (^)	Option-i, then type the character
Tilde (~)	Option-n, then type the character
Umlaut (¨)	Option-u, then type the character
The letter "c" with a cedilla (ç)	Option-c

- **To type a letter or a space with a specific diacritical mark, press the Option key and the key for the mark simultaneously. Then type the letter that needs the mark.**

If you are having trouble getting a mark and letter to appear together, try again. Be sure to press the Option key before (or at the same time as) the key for the mark; then, after you release both keys, type the letter to be marked.

Special key combinations

If difficulties with your mouse or computer don't allow you to use standard methods of quitting a program or restarting your computer, you can try using these special key combinations.

To do this press this key combination
Force a program to quit	⌘-Option-Esc
Force the computer to restart	x-Control-Power



Index

• • • • •

⌘ (Command) key 101
❓ (question mark icon), for
 Guide menu 12

A

accent marks, typing letters with
 103–104
active program, checkmark as indicator
 of 18
Apple customer support hotline 15
Apple Desktop Bus (ADB) icon 7
Apple Desktop Bus (ADB) port 6, 7, 30
Apple Extras folder, pre-installed
 programs in 35
Apple HD SC Setup icon 61, 65
Apple HD SC Setup program 61–62
 for installing system software 69, 72
Apple (🍏) menu, Key Caps 103–104
Apple (🍏) menu, Shut Down 14
Apple PlainTalk microphone,
 connecting 31
AppleScript program 35
AppleTalk Phase 2 Protocols for Ethernet
 networks 33
Apple Video Player program 35

Application menu 13
 active programs listed in 37
 Hide Others/Show All 38
application programs 35–40
 forcing to quit or restart 104
 increasing memory for 54
 installing 36
 older Macintosh 40, 56
 opening DOS documents from 56
 Power Macintosh 39
 pre-installed 35
 troubleshooting 36, 54–55, 56
 unable to find or open 56
 working with several at a time 37–38
arrow cursor. *See* pointer
arrow keys 101
arrows, scroll 13
audio in port, on speakers 32

B

backing up 38
Balloon Help 26
basic skills
 with mouse 12–13
 tutorial review 13
bomb 41

C

- cables
 - for Ethernet network 33
 - keyboard 6, 7
 - monitor 5
 - mouse 6, 7
 - safety precautions 83
- Caps Lock key 101
- case
 - cleaning 87, 89
 - opening 93–94
- CD-ROM disc
 - repairing a damaged disk with 65–66
 - starting up from 58–59
- CD-ROM drive 29
 - adding or replacing 34
 - Open/Close button on 29
 - safety warning, vii
- cleaning the equipment 87–90
- Clear key 101
- clock, troubleshooting 45
- close box 13
- closing the computer 98–100
- Command (⌘) key 101
- communication card, installing 96–97
- communication card access cover 30
- communication slot 91, 96
- communications regulation information
 - vi–vii, 33
- compact disc read-only memory drive.
See CD-ROM drive
- computer case
 - cleaning 87
 - opening 93–94, 95
- connecting cables, safety precautions 83
- Control key 102
- cumulative trauma disorders (CTDs),
avoiding 78
- cursor. *See* pointer
- customer support hotline 15
- Custom Install dialog box 76
- custom system software installation
75–76

D

- Delete key 102
- desk accessories, switching between
programs and 37
- desktop
 - hiding and showing windows on 38
 - as opening screen 9
 - rebuilding 44
- diacritical marks, typing letters with
103, 104
- dialog boxes 43
- disk drive. *See* floppy disk drive; hard
disk drive
- Disk First Aid, using 65–66
 - for installing system software 69, 72
- Disk First Aid icon 66
- Disk Tools floppy disk
 - reinitializing hard disk with 60, 61
 - repairing a hard or floppy disk
with 65
 - starting from 59
 - testing for damage with 64
- DOC statement, vii
- documents
 - backing up 38
 - unable to find or open 55
- DOS disk, unable to read 49
- DOS document, unable to open 55, 56

E

- Easy Install dialog box 70
 - for clean installation 73, 74
 - for custom installation 75
- ejecting a floppy disk 36
- electromagnetic emissions 81
- Enter key 102
- error messages, responding to 42–43.
See also troubleshooting
- Escape key 102, 104
- Ethernet network, connecting to 33
- EtherTalk Phase 2 support 33

- expansion cards, installing 91–100
 - closing the computer 98–100
 - communication card 96–97
 - LC-PDS card 95–96
 - opening the computer 93–94, 95
 - types of 91
- Extensions Manager control panel,
for turning off extensions
50, 51, 57
- external stereo speakers, connecting
32–33
- external video, video-in slot for 91
- eye fatigue, avoiding 79

F

- fatigue, avoiding 81
- FCC statement, vi
 - Ethernet card and 33
- files, backing up 38
- Finder
 - automating scripts in 35
 - making active program 18
- floppy disk
 - backing up files on 38
 - ejection problems 86
 - handling 85
 - inserting and ejecting 36
 - repairing 65–67
 - starting up from 59
 - startup problems with 47
 - unable to read 49
- floppy disk drive 29
 - adding or replacing 34
- foreign languages, typing in 103–104
- frozen pointer 41, 50
- function keys 102

G

- grounding plug 2, 83
- Guide (⌘) menu 12, 17
 - Macintosh Guide 18–25
 - Macintosh Tutorial 12–13
 - Shortcuts 27–28
 - Show/Hide Balloons 26

H

- hard disk. *See also* hard disk drive
(external SCSI); hard disk
drive (internal)
 - backing up files on 38
 - initializing 58–59
 - installing application programs on 36
 - installing system software on 68–76
 - reinitializing 60
 - repairing 63, 65–67
- hard disk drive (external SCSI). *See also*
hard disk
 - initializing 61–62
 - testing 64–65
- hard disk drive (internal). *See also*
hard disk
 - adding or replacing 34
 - checking for damage on 63, 64
 - location of 30
 - reinitializing 60
 - repairing 65–67
- hard disk icon 13
 - not on desktop 48
- hardware
 - cleaning 87–90
 - connecting other equipment 30–33
 - described ix, 29–30
 - for Ethernet connection 33
 - safety precautions 82, 83
- hardware requirements, for Power
Macintosh programs 39

- headphone jack 29
 - health-related information 77–81
 - help 17–28
 - Balloon 26
 - Guide (⌘) menu for 12, 17
 - Macintosh Guide for 18–25. *See also* Macintosh Guide
 - Shortcuts 27–28
 - sources for 15
 - Hide Balloons (Guide [⌘] menu) 26
 - Hide Others (Application menu) 38
 - hiding windows 38
 - “Huh” button 25
- I, J**
- icons 13
 - Apple Desktop Bus (ADB) 7
 - Apple HD SC Setup 61, 65
 - blinking question mark 46, 68
 - Disk First Aid 66
 - Guide (⌘) menu 12
 - hard disk 13
 - Installer 35
 - not appearing correctly on screen 48
 - “sad Macintosh” 47
 - sound input port 31
 - sound output port 31
 - Trash 13
 - identifying screen objects 26
 - Index button (Macintosh Guide window) 19, 21–22
 - initializing a hard disk 58–59
 - external SCSI hard disk 61–62
 - reinitializing 60
 - inserting a floppy disk 36
 - Installer icon, using 35
 - Installer program, using 69–71
 - in clean installation 73–74
 - installing application programs 36
 - installing expansion cards 91–100
 - closing the computer 98–100
 - communication card 96–97
 - LC-PDS card 95–96
 - opening the computer 93–94, 95
 - installing or reinstalling system software 67–76
 - clean installation 71–74
 - custom installation 75–76
 - indications for 67–68
 - normal installation 68–71
 - Install Me First floppy disk 59, 69
 - internal drives, adding or replacing 34
 - Internal HD Format 60, 64
- K**
- keyboard 29
 - connecting 6–7
 - handling 84
 - positioning 79, 80
 - special keys on 101–102
 - troubleshooting 53
 - Key Caps (Apple [⌘] menu) 103–104
- L**
- LC-processor direct slot (LC-PDS) expansion card 91
 - access cover for 30
 - installing 95–96
 - Look For button (Macintosh Guide window) 19, 23–24

M

- Macintosh desktop. *See* desktop
- Macintosh Guide 18–25
 - looking for specific topic in 23–24
 - tips for using 25
 - viewing list of topics in 19–20
 - viewing topics alphabetically in 21–22
- Macintosh Guide window 18–19, 25
 - Index button 19, 21–22
 - Look For button 19, 23–24
 - Topics button 19–20
- Macintosh programs
 - older 40
 - Power Macintosh 39
- Macintosh Shortcuts 27–28
- Macintosh tutorial 13
 - starting 12–13
- MacTCP software support 33
- memory, expanding 34
- Memory control panel
 - older Macintosh programs and 40, 56
 - virtual memory and 54
- memory insufficiency 54
- memory requirements, for Power Macintosh programs 39
- menu bar 13
- menus, using 12
- microphone, connecting 31
- microprocessor, described, ix
- modem port 30
- Modern Memory Manager, older
 - Macintosh programs and 40, 56
- monitor 29
 - brightness control 10
 - cleaning 87
 - connecting 3–5
 - electromagnetic emissions and 81
 - handling 84
 - positioning 3, 79, 80
- monitor cable, connecting 5

- monitor port 5, 30
- mouse 29
 - cleaning 87–90
 - connecting 6–7
 - locking and unlocking 89–90
 - troubleshooting 12, 52
 - using 12–13
- mouse button 12
- mouse cable, connecting 6, 7
- musculoskeletal discomfort, avoiding 77, 78, 79–81

N

- “native” applications, using 39
- network
 - backing up files on 38
 - connecting to 33
- Network control panel, Ethernet and 33
- numeric keys 102

O

- office arrangement guidelines 79–80, 81
- on/off switch. *See* power button
- opening the computer 93–94, 95
- opening screen 9
- open programs, identifying 37
- open windows, hiding or showing 38
- Option key 102
- Options menu, Zero Out Data 60

P

- PC Exchange control panel, for opening DOS document 55, 56
- performance problems 57
- plugging in the computer 1–2
- pointer
 - freezing on screen 41, 50
 - moving with mouse 12

- ports
 - Apple Desktop Bus (ADB) 6, 7
 - monitor 5
 - printer 30
 - SCSI, 30
 - sound input and output 30, 31
- power button, standby 2, 30
- power cord
 - connecting 1–2
 - monitor 4, 5
- Power key 8, 102
- Power Macintosh 6200 series system 29–30
- Power Macintosh programs, using 39
- power-on light 29
- PowerPC microprocessor, ix
- power socket 30
- power supply, safety precautions 86
- power switch 30
- PowerTalk program 35
- Previous System Folder 74
- printer port 30

Q

- question mark icon (Ⓜ)
 - blinking 9
 - blinking at startup 46, 68
 - as Guide (Ⓜ) menu indicator 12
- QuickDraw GX program 35
- quitting an application, with special key combination 104

R

- radio interference, vi
- random-access memory (RAM),
 - expanding 34
- rebuilding the desktop 44
- Reduced Instruction Set Computing (RISC) technology, ix
- remote control sensor 29
- repairing a damaged disk 65–67
- repetitive stress injuries (RSIs), avoiding 77, 78

- restarting the computer, with special key combination 104
- Restart (Special menu) 43
- Return key 102

S

- “sad Macintosh” icon 47
- safety precautions
 - CD-ROM drive, vii
 - disconnecting the computer 82, 83
 - grounding plug 2, 83
 - power supply 86
- screen display. *See also* monitor
 - basics 13
 - bomb on 51
 - dark 45
 - error messages on 41
 - frozen pointer on 41, 50
 - identifying objects on 26
 - off center 45
- scroll arrows 13
- SCSI devices, troubleshooting 46, 48, 63, 64–65
- SCSI hard disk, external
 - initializing 61–62
 - installing system software on 72
 - testing 64–65
- SCSI port 30
- searching, for help topics 19–24
- security lock port 30
- setting up 1–11
 - connecting additional equipment 30–34
 - connecting to an Ethernet network 33
 - connecting external speakers 32–33
 - connecting keyboard and mouse 6–7
 - connecting microphone 31
 - connecting monitor 3–5
 - connecting other equipment 7, 30
 - plugging in the computer 1–2
 - troubleshooting startup problems 46–47
 - turning computer on 8–10

- shared libraries 39
 - missing 56
 - Shift key 102
 - Shortcuts 27–28
 - Show All (Application menu) 38
 - Show Balloons (Guide [⌘]) menu) 26
 - Shut Down (Apple [⌘] menu) 14
 - Shut Down (Special menu) 14
 - size box 13
 - slots 91
 - Small Computer System Interface (SCSI), startup problems and 46. *See also* SCSI devices; SCSI hard disk, external
 - software compatibility
 - Extensions Manager control panel and 57
 - older Macintosh programs 40, 56
 - sound, adjusting volume 33
 - sound input port 30, 31
 - connecting microphone to 31
 - sound output port 30, 31
 - connecting external speakers to 32
 - speakers, connecting 32–33
 - special characters, typing 103–4
 - special key combinations 104
 - special keys 101–102
 - Special menu
 - locating 14
 - Restart 43
 - Shut Down 14
 - speed, problems with 57
 - standby power button 2, 10, 30
 - starting the computer 8–10
 - from a CD-ROM disk 58–59
 - for eliminating a problem 43
 - from a floppy disk 59
 - troubleshooting 10, 46–47
 - startup disk
 - checking for damage 63, 64–65
 - rebuilding desktop of 44
 - stereo miniplug, connecting to speaker 32
 - support, sources of 15
 - switching between programs 37
 - symbols, typing 103–104
 - system extensions, startup problems and 50, 51, 52
 - System Folder
 - extra copy warning 36
 - file opening caution 55
 - Previous 74
 - shared libraries in 39
 - system software, problems with 9, 46, 47, 50, 51, 52. *See also* installing or reinstalling system software
- T**
- Tab key 102
 - tape drive, backing up to 38
 - TCP/IP support 33
 - television, watching on computer 35, 36
 - television interference, vi
 - title bar 13
 - Topics button (Macintosh Guide window) 19–20, 25
 - Trash icon 13
 - troubleshooting 41–76
 - application programs 36, 54–55, 56
 - Balloon Help for 26
 - clock problems 45
 - diagnosing the problem 42
 - document can't be found or opened 55
 - ejecting a floppy disk 86
 - floppy disk unreadable 49, 52
 - Guide (⌘) menu for 12, 13
 - hard disk icon not on desktop 48
 - icons not appearing correctly 48
 - information sources 15
 - keyboard 53
 - Macintosh Guide for 18–25, 41
 - mouse 12, 52
 - older Macintosh programs 56
 - performance problems 57

- pointer freezing on screen 50
- pointer not moving 52
- screen dark 45
- SCSI devices 46, 48
- shared library missing 39, 56
- starting over 43
- startup problems 10, 46–47
- system software 67–76
- turning the computer on 8–9
 - problems with 10
- turning the computer off 2, 14–15
- tutorial program, starting 12–13
- TV tuner card 91, 92
 - Apple Video Player and 35, 36
 - location of 30

U

- Utilities folder
 - Apple HD SC Setup in 61–62
 - Disk First Aid in 66

V

- VCCI statement, vii
- VCR, displaying on computer from 35, 36
- video input card 30, 91, 92
 - Apple Video Player and 35, 36
- video-in slot 91
- virtual memory, application program malfunction and 54
- VLF (very low frequency)
 - electromagnetic fields 81
- volume button 29, 33

W, X, Y

- warranty considerations
 - installing additional RAM 34
 - installing expansion cards 92
- windows 13
 - changing size of 13
 - hiding and showing on desktop 38
 - Macintosh Guide 18–19, 25

Z

- Zero Out Data (Options menu) 60

The Apple Publishing System

This Apple manual was written, edited, and produced on a desktop publishing system using Apple Macintosh computers and QuarkXPress. Technical illustrations were drawn in Adobe™ Illustrator; screen shots were created and modified with system software, ExposurePro, Aldus SuperPaint, and Adobe Photoshop. Proof pages were created on Apple LaserWriter printers and on QMS and Tektronix color printers. Final pages were output directly to separated film on a PostScript™-driven imagesetter.

Text type is Times®, display type is Helvetica® Narrow, and cover type is Apple Garamond, Apple's corporate font. Ornaments are custom symbols designed for Apple Computer. Some elements, such as computer voice, are set in Apple Courier, a fixed-width font.

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