



Macintosh Performa User's Guide

*Includes setup, troubleshooting, and health-related information
for Macintosh Performa 6200cd and 6300cd series computers*

 Apple Computer, Inc.

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Contents

Communications regulation information vi

Preface Welcome to 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	8
Turning the computer on	8
Problems starting up?	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
	Expanding memory	33
	Connecting to an Ethernet network	33
	Installing internal drives	34
4	Using Programs and Backing Up Disks	35
	Installing application programs	36
	Working with several programs at a time	37
	Protecting the information on a disk	38
	Using application programs designed for the PowerPC microprocessor	39
	Using older Macintosh programs	39
5	Using the CD-ROM Drive	41
	Inserting a CD-ROM disc	42
	Ejecting a CD-ROM disc	43
	Types of compact discs you can use	44
	Playing audio CDs	45
	Working with Photo CDs	46
	Sharing a CD-ROM disc over a network	48

6	Troubleshooting	49
	When you have questions	49
	If you have trouble	49
	Solutions to common problems	53
	Solutions to CD-ROM problems	65
	If your computer's performance decreases	70
	Repairing a damaged disk	71
	Initializing a hard disk	77
	Installing or reinstalling system software	79
A	Health, Safety, and Maintenance Tips	81
	Health-related information about computer use	81
	Safety instructions	86
	Handling your computer equipment	87
	Cleaning your equipment	92
	Locking and unlocking the mouse	94
B	Installing an Expansion Card	97
	Opening the computer	99
	Installing an LC-PDS card	101
	Installing a communication card	102
	Closing the computer	104
C	Special Keys on Your Keyboard	107
	Typing special characters and symbols	109
	Special key combinations	110
	Index	111

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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取扱説明書に従って正しい取り扱いをしてください。

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 either on the computer or on the CD-ROM drive inside the computer, indicates that the drive meets minimum safety requirements. (Note that the label on your computer may look slightly different from the label pictured below.) A service warning label is on the CD-ROM drive inside the computer.





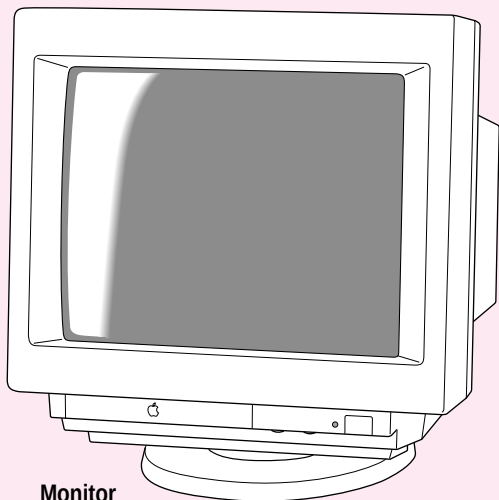
Welcome to Macintosh

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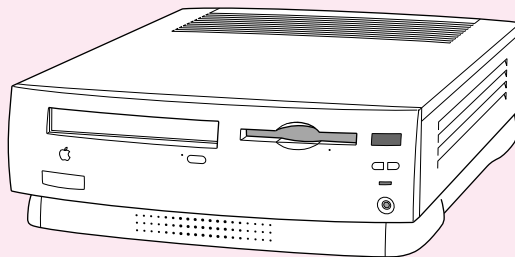
Congratulations on the purchase of your new Macintosh. Your computer is designed to give you the highest performance combined with real ease of use—it's easy to set up, easy to use, and easy to expand. This book will guide you through the setup procedure, tell you how to expand your Macintosh, and provide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



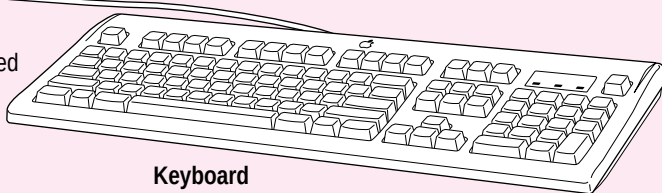
Monitor
(You may have a different monitor than shown.)



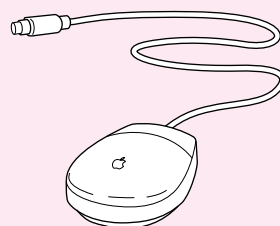
Macintosh Performa computer



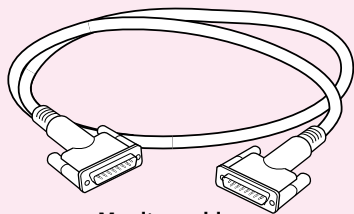
Keyboard cable
(permanently attached to the keyboard)



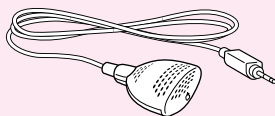
Keyboard



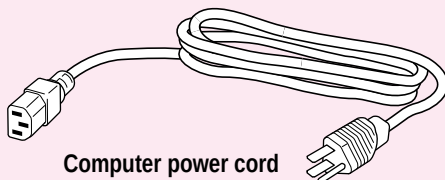
Mouse



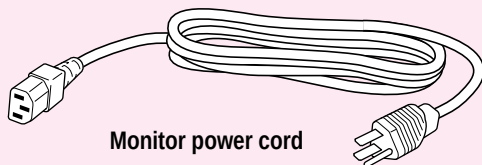
Monitor cable
(sometimes built into the monitor)



Microphone (optional)



Computer power cord



Monitor power cord

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

1

Getting Started

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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.

If you used the setup poster: The poster included with your Macintosh Performa computer was designed to help you start using your computer as quickly as possible. This chapter contains more detailed information than the poster. If you have already set up your computer using the poster, you may want to turn to the section “What’s Next?” later in this chapter.

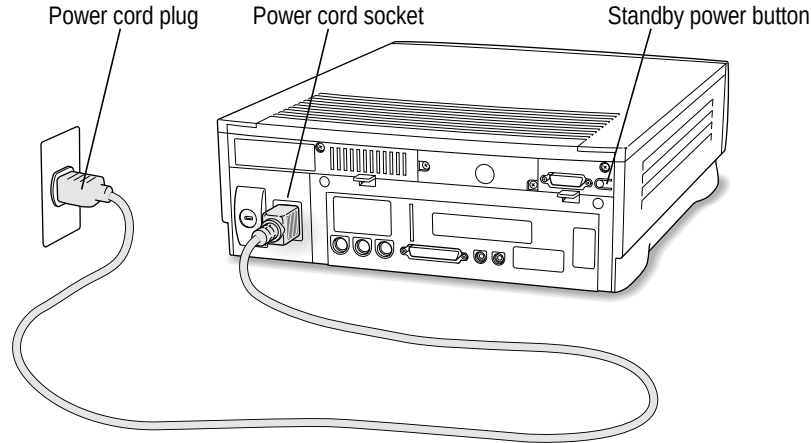
Plugging in the computer

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, you may want to 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, 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:

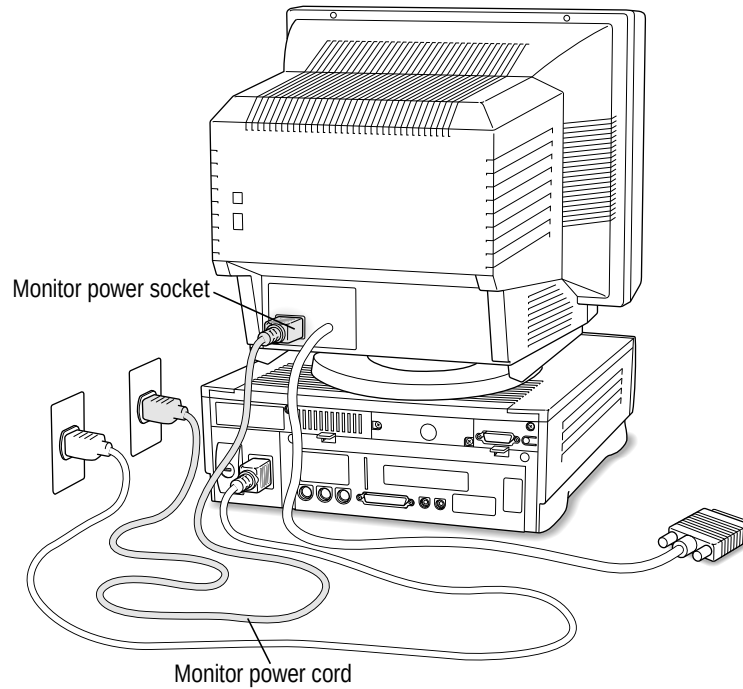
- Allow a few inches for air circulation around the sides of the computer and monitor.
- Make sure that the top of the screen is slightly below eye level when you’re sitting at the keyboard.
- Position the monitor to minimize glare and reflections on the screen from overhead lights and windows.
- Consult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

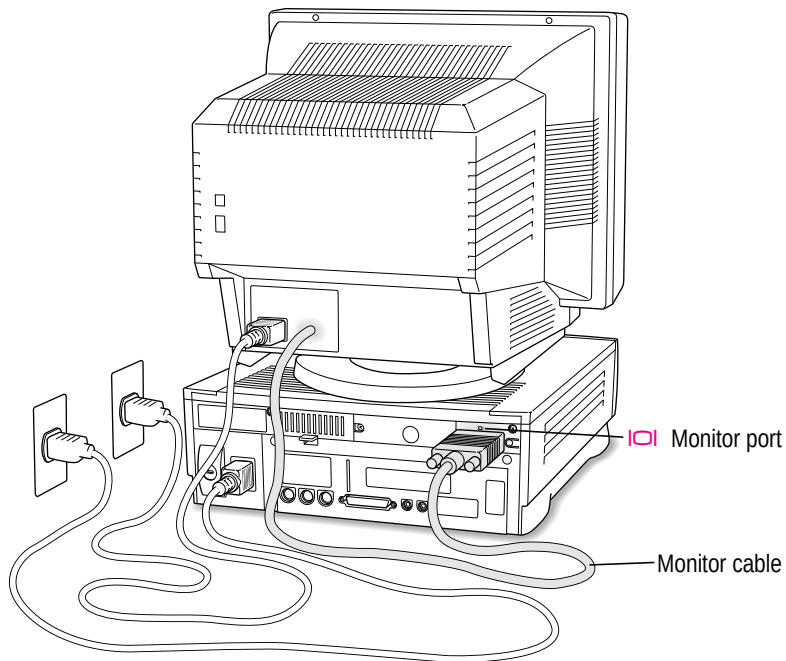
To connect the monitor cable, follow these steps:

- 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).



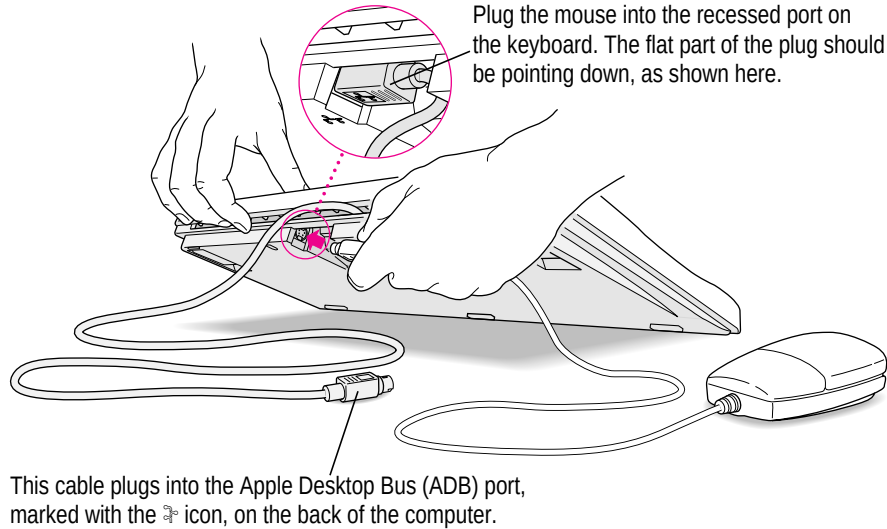
If your monitor has a microphone or speakers, you may need to connect additional cables. See the documentation that came with the monitor.

Connecting the mouse and keyboard

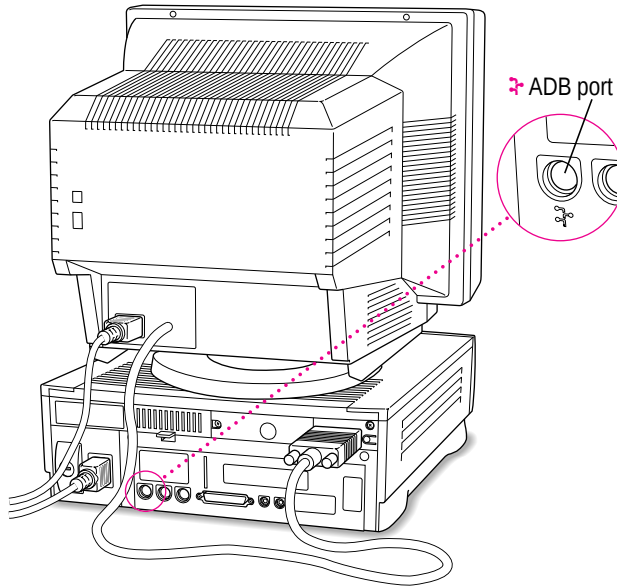
- 1 Plug the mouse cable into the recessed port on the back of the keyboard.**

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.

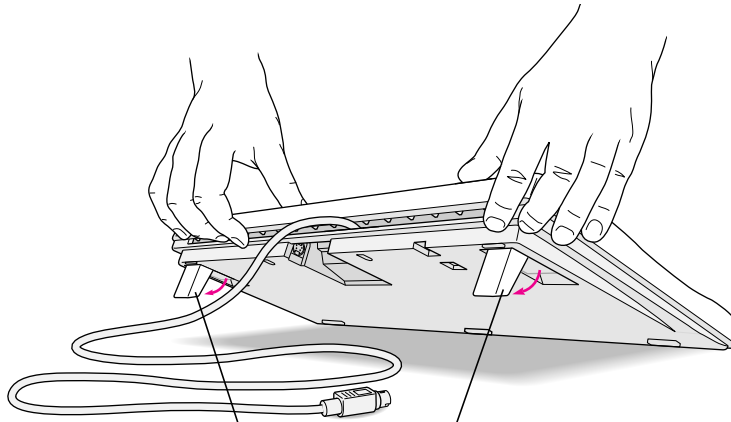


- 2 Plug the keyboard cable into the port marked with the  icon on the back of the computer.



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

- 3 If you want to adjust the keyboard angle, lower the feet on the keyboard.



To adjust the keyboard angle, lower the feet until they snap into position.

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

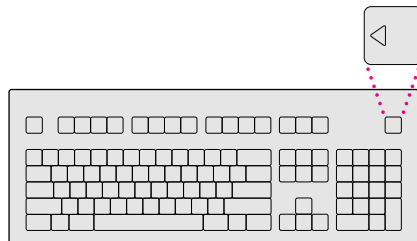
Follow these steps to turn the computer on:

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.

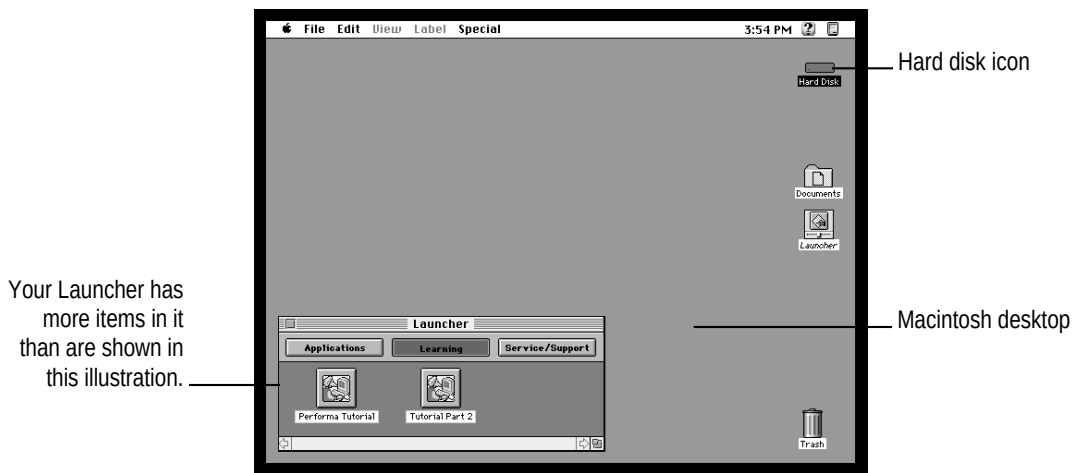
The Power key is at the top of the keyboard. You can recognize this key by the triangle outline on it (<⏏>).



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

3 Check to see what's on your screen.

- You will see a welcome screen that gives you a choice about what to do next. If you're new to the Macintosh or would like to review some of the basics, you'll want to go through the Performa Tutorial, a program that teaches how to use your computer. Press the Return key on your keyboard to go to the tutorial. If you already know how to use your Macintosh and you don't want to use the tutorial, you can leave the welcome screen (by clicking Go To Desktop) and go to the Macintosh desktop.
- When 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 your screen doesn't have anything on it, see the next section, "Problems Starting Up?"

Problems starting up?

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 ✱.)

If you see a blinking question mark on the screen, turn to “Solutions to Common Problems” in Chapter 6.

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 and managing memory. You'll need this information to properly set up software programs specifically designed for computers with PowerPC microprocessors.

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

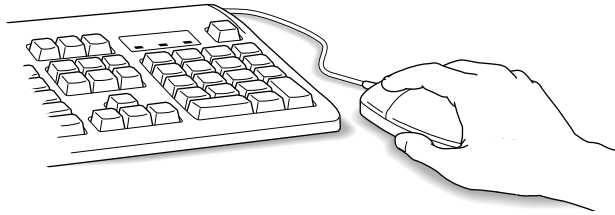
IMPORTANT If you need to turn off your computer at any point, please see “Turning the Computer Off” later in this chapter. It is very important to use the correct procedure for shutting down your Macintosh before turning it off.

Learning the basics

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

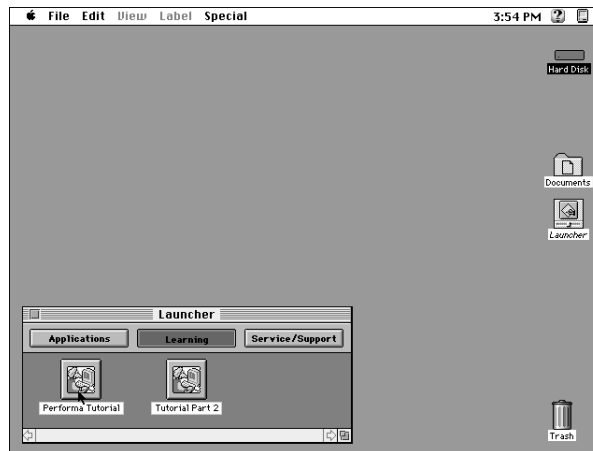
1 Slide your mouse along your mouse pad or desk.

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 mouse so that the arrow (␣) is over the picture labeled “Performa Tutorial.”



If you don't see the Performa Tutorial picture on your screen, put the arrow on the word "Learning" and click (press and release) the mouse button.

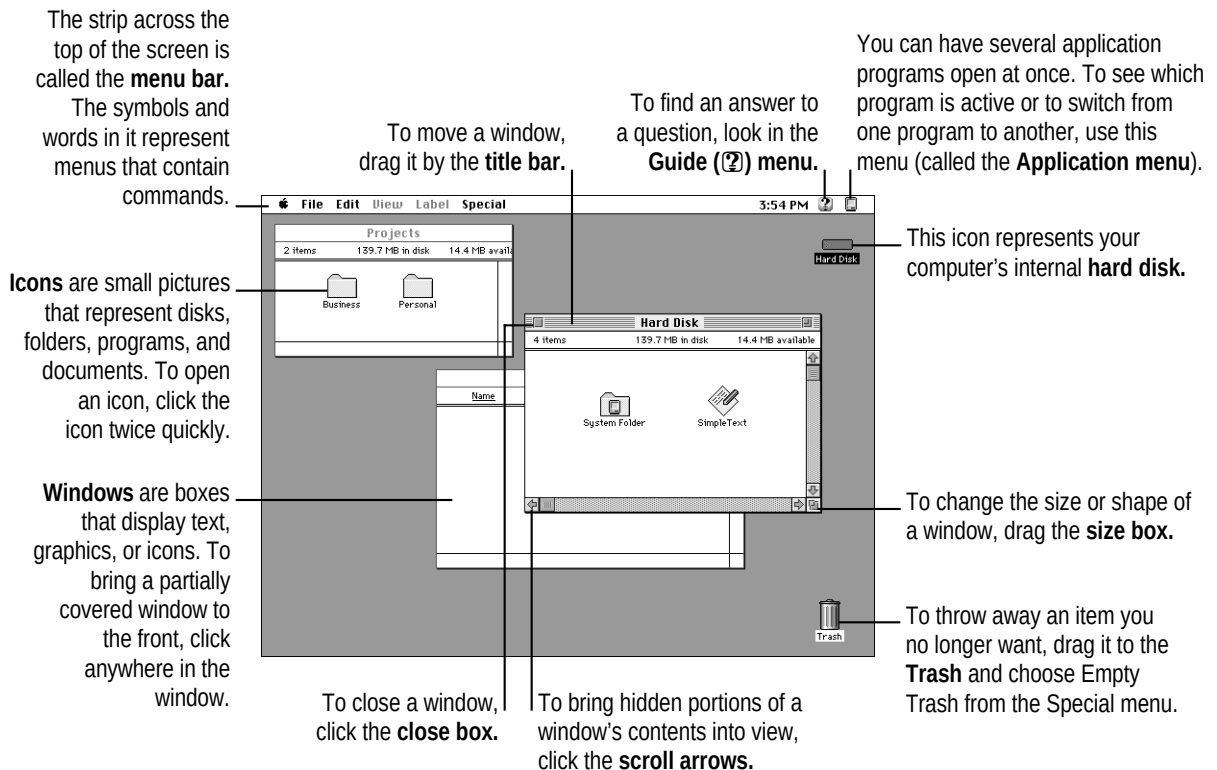
If you run out of room on your mouse pad or desk while moving the mouse, pick up the mouse and place it where there's more room. (The arrow on the screen moves only when the mouse is in contact with the mouse pad or desk.)

3 Without moving the mouse, click 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 both parts of 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.



Turning the computer off

To turn the computer off:

- 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.**

The computer is now off. To turn the computer back on, you can simply press the Power key again.

You can also turn off your computer by choosing Shut Down from the Apple () menu. Detailed instructions follow. (*Note:* The Shut Down command is also available in the Special menu.)

- 1 **Move the tip of the arrow to the Apple () menu at the top left of the screen.**
- 2 **With the tip of the arrow on the apple, 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.**



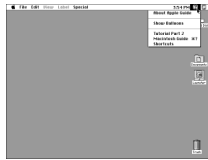
Where to find answers

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



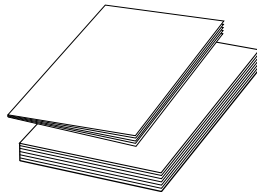
In this book

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



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.



About Apple Extras

In documents in the Apple Extras folder

The Apple Extras folder (in your System Folder) on your hard disk contains documents with important information about some of the application programs included with your computer.



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. (Note: If you have problems with an application program not published by Apple, call the program's publisher. Click the Phone Numbers button in the Service/Support area of the Launcher to see phone numbers for software publishers.)

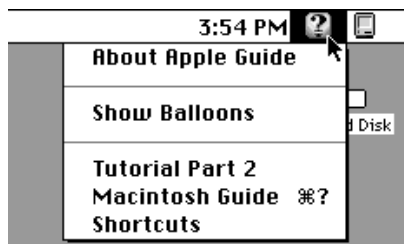
Use the instructions in this chapter to learn about the help available to you in the Guide menu.

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.

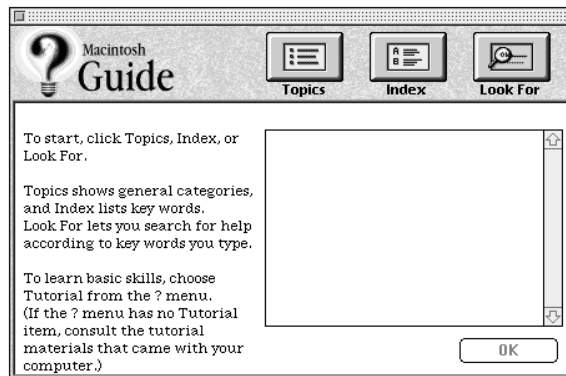


A checkmark in the menu indicates that the Finder is the active program.

- 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.

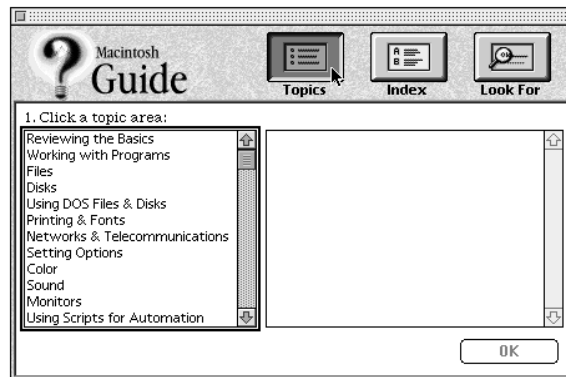
In the following sections you will practice using each method.

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

Getting answers with the Topics button

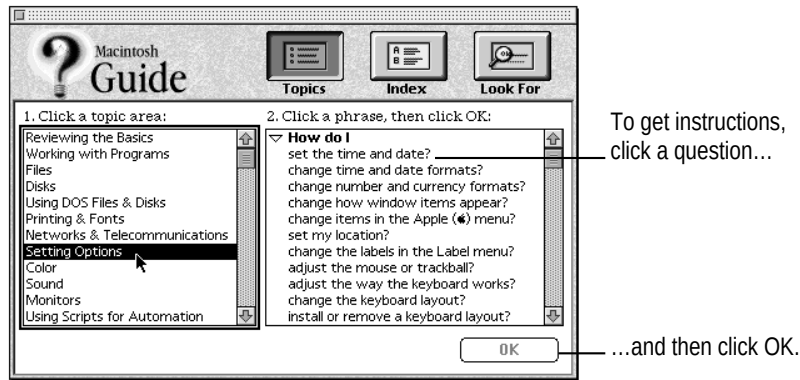
1 In the Macintosh Guide window, click the Topics button.

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.)



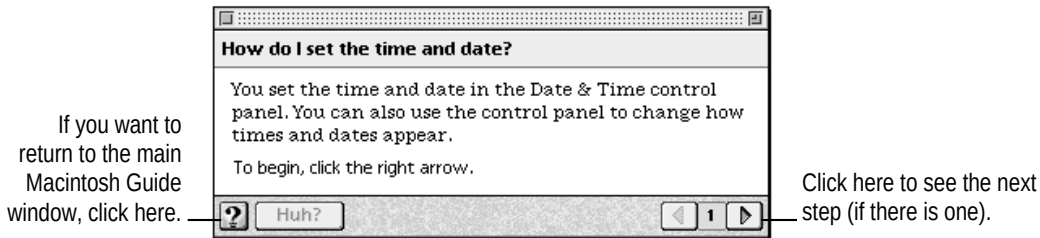
2 Click “Setting Options” in the list of topics.

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.

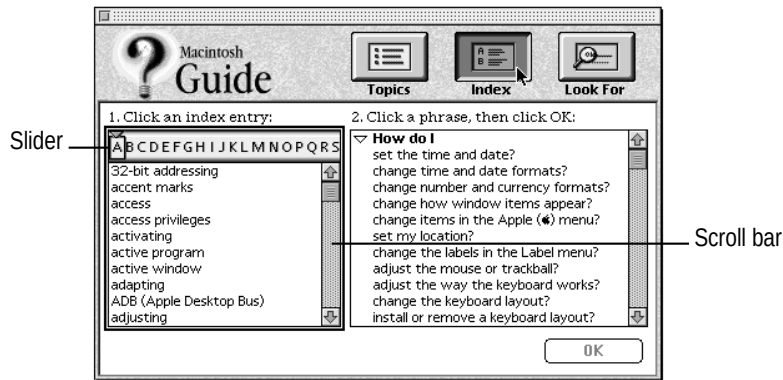
5 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

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.

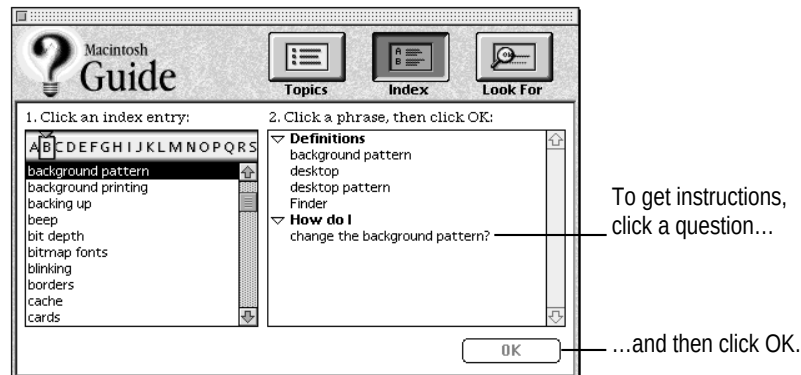


- 2 Scroll through the alphabetical list until the phrase “background pattern” is visible.

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.

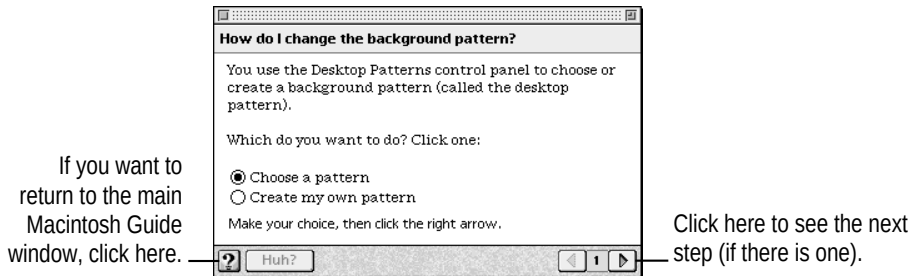
- 3 Click the phrase “background pattern” in the alphabetical list.

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.

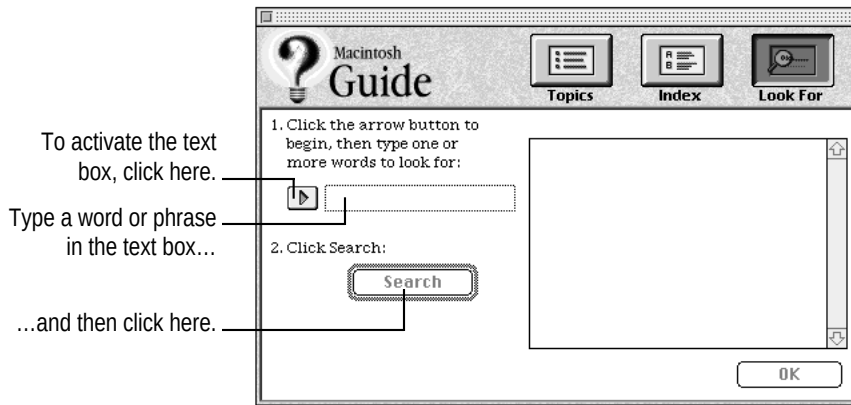
- 6 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Look For button

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

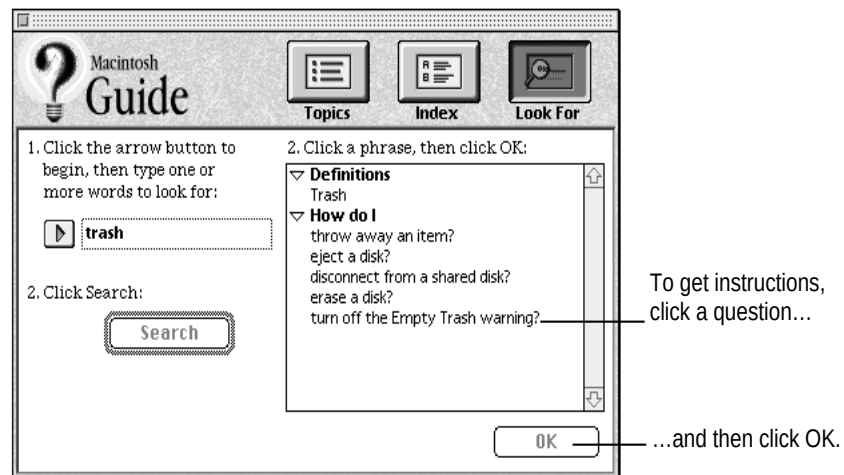
A small box appears on the left side of the window, where you can type text.



- 2 Click the arrow button to activate the text box.

- 3 Type "trash" in the text box and then click Search.

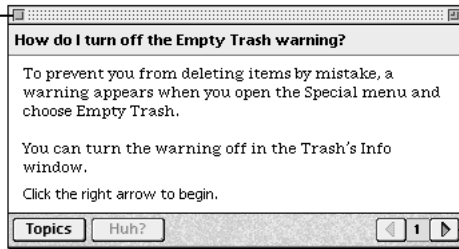
When you click Search, a list of questions related to the word or phrase you typed appears on the right side of the Macintosh Guide window.



- 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.

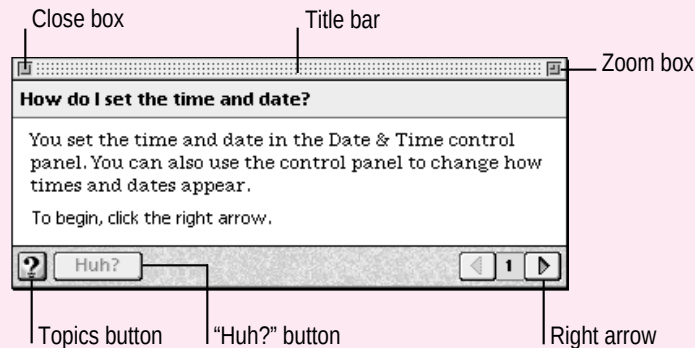
Tips for using Macintosh Guide

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.**

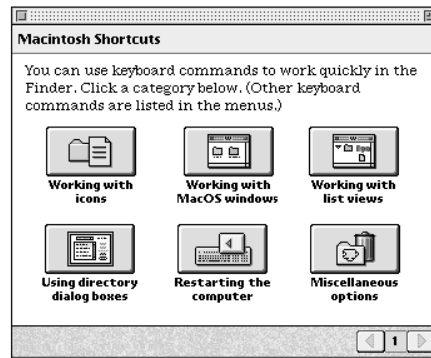
Learning useful shortcuts

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:

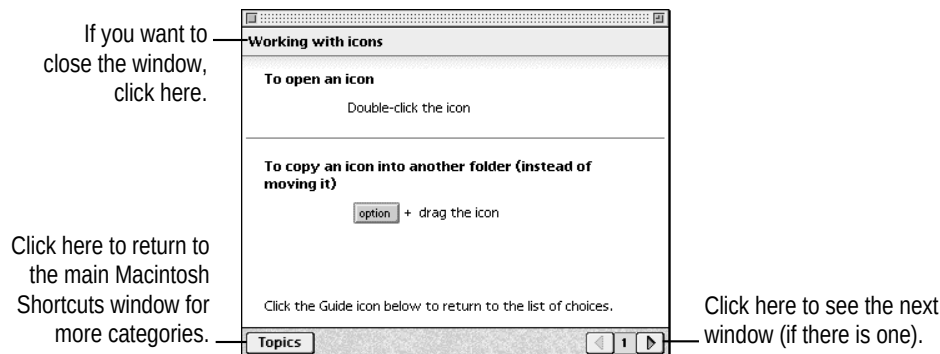
- 1 Pull down the Guide menu (marked with the ) and choose Shortcuts.

The main Macintosh Shortcuts window appears.



- 2 Click one of the category buttons.

Another window appears, describing shortcuts for that category.



If you want to close the window, click here.

Click here to return to the main Macintosh Shortcuts window for more categories.

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

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.

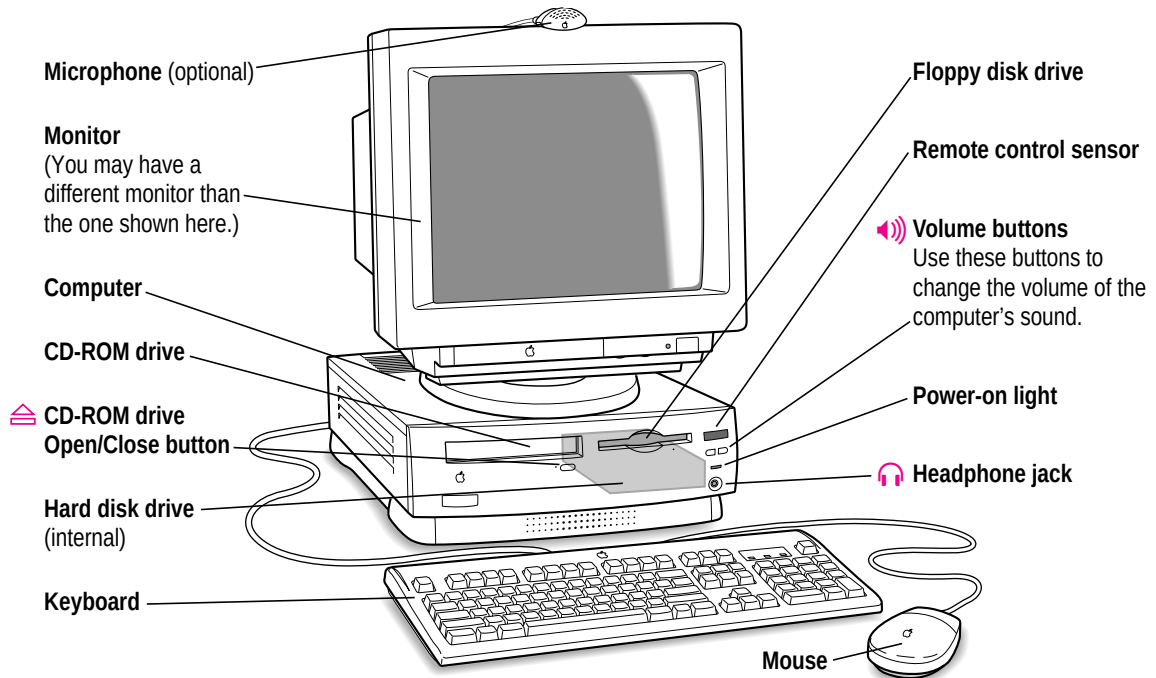
Read this chapter for
information on expanding
your computer system
with additional hardware.

3

Connecting Additional Equipment

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

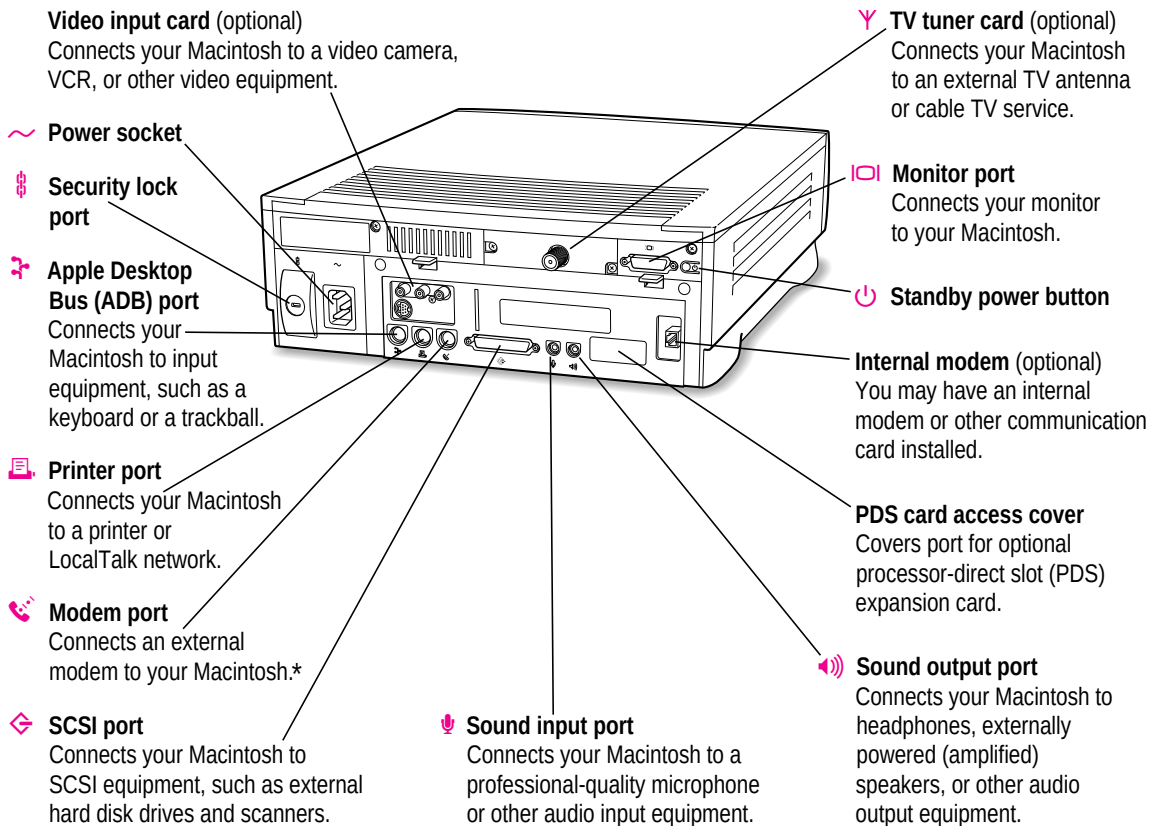


Where to connect additional equipment

The illustration on this page shows where equipment should be connected to your computer. (These items can be purchased from Apple-authorized dealers.)

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

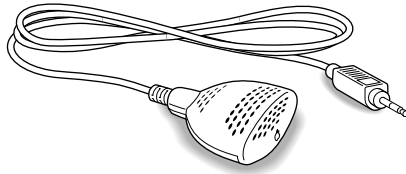
WARNING Before you connect any equipment—such as a mouse, keyboard, or external SCSI device—to your computer, make sure that your computer is plugged in (in order to ground the computer) and turned off. If you connect equipment with the computer turned on, you can damage your computer and your equipment.



*If your computer has an internal modem, this port is covered. Don't remove the cover or connect anything to this port if you have an internal modem.

Connecting an Apple PlainTalk Microphone

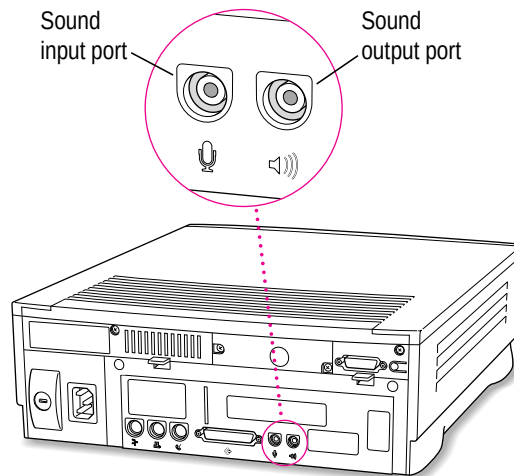
Your computer has a sound input port, which you can use to connect an Apple PlainTalk Microphone. The Apple PlainTalk Microphone is included with some computer models. If your computer did not include an Apple PlainTalk Microphone, you can purchase one at an Apple-authorized dealer.



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.**



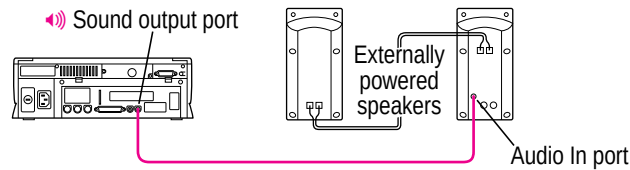
Connecting external stereo speakers

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

1 Assemble the speakers and the cable you need.

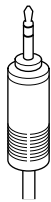
You need a cable with stereo miniplugs at each end to connect one or both speakers to the computer. (Some speakers require a dual-plug adapter. Others, like those shown here, accept a single stereo miniplug and are joined by standard speaker wires.)

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.

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.

Connecting to an Ethernet network

This section contains information for people whose computers are connected to other computers through a local area network. (Using a modem is not the same as being connected to a local area network. If you have an internal modem, you do not need an Ethernet card.)

If you buy and install an Ethernet card, you can connect your Macintosh to an existing high-speed Ethernet network that uses thin coaxial cables, 10BASE-T twisted pair cables, thick coaxial cables, or other standard cables.

Depending on the type of cables used in the Ethernet network you're connected to, you may need to purchase an Apple Ethernet media adapter or other compatible media adapter to connect your Macintosh. (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.

Installing internal drives

Your Macintosh comes with three internal storage devices—a floppy disk drive, a CD-ROM (compact disc read-only memory) drive, and a hard disk drive (several capacities are available). If you want to replace an internal drive, see your Apple-authorized dealer.

Read this chapter to learn how to work
with application programs and protect
the information on your disks.

4

Using Programs and Backing Up Disks

.....

Your computer came with several application programs already installed. You can open these programs by clicking their buttons in the Launcher.

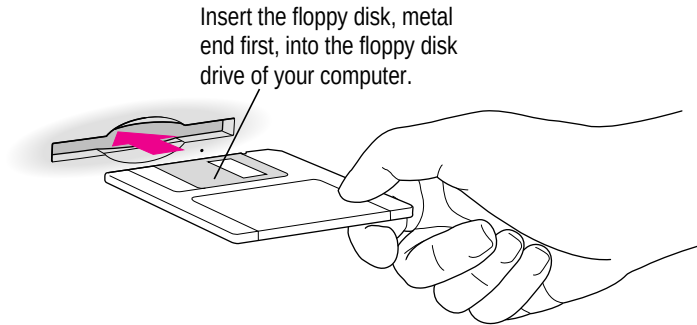
The Apple Extras folder on your hard disk (and on the *Macintosh Performance CD*) contains additional programs, including the following:

- *QuickDraw GX* gives your computer more powerful printing and font capabilities. You'll want to install QuickDraw GX only if you purchased another program that requires it. Your computer needs at least 8 megabytes of random-access memory (RAM) to use QuickDraw GX. You can install it by opening the QuickDraw GX folder and double-clicking the Installer icon.
- *PowerTalk* provides an open collaboration environment with a universal mailbox and other electronic mail services. You'll want to install PowerTalk only if you use your computer on a local area network (connected to other computers) and if you purchased another program that requires it. Your computer needs at least 8 megabytes of RAM to use PowerTalk. You can install it by opening the PowerTalk folder and double-clicking the Installer icon.
- *Apple Video Player* lets you watch video or TV on your computer. 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 card, you can watch video and TV. For instructions on using Apple Video Player, open AppleVideo Player and then choose Apple Video Player Guide from the Guide (⌘) menu.

Installing application programs

You may 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 floppy disk drive.



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

To use your programs most effectively, follow these guidelines:

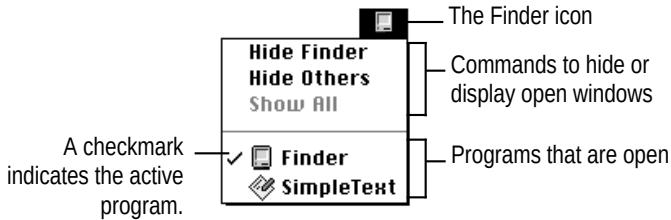
- Put only one copy of each program on your hard disk. Having more than one copy can cause errors.
- Whenever you copy a program disk to your hard disk, be careful not to copy a System Folder. Always check to see what you've copied, and drag any extra System Folders to the Trash.
- If you have problems using a program, read the manuals you received with the program.
- 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 your computer model and the system software you're using.

To put a program into the Launcher, simply drag the program's icon (or its alias) into the Launcher window, or onto the Applications category button in the Launcher.

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, by double-clicking a program icon, or by double-clicking 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.

Protecting the information on a disk

When you have a valuable document like a birth certificate, you probably make an extra copy of it for safekeeping. Similarly, you should make a copy of the documents you create on your computer. The extra copy is called a *backup*, and the process of making the copy is called *backing up*.

Once you have a backup, you're protected from accidentally losing the information on your hard disk. In the unlikely event that something happens to your hard disk, you can easily get the information back.

Your computer's hard disk comes with a lot of valuable information already stored on it, including system software and some application programs. The *Macintosh Performa CD* contains a backup copy of all the system software and application programs that came with your computer. See the *Macintosh Performa CD* booklet for instructions on using the CD to reinstall software.

Making backup copies of the documents you create

- 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 of the same capacity or larger, or by copying it 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 may be able to back up files by copying them to a shared disk on the network.

Restoring the information on your hard disk

If information on your hard disk becomes damaged or lost, you can restore it if you have a backup copy of the information. The *Macintosh Performa CD* contains copies of all the system software and application programs that came with your computer. See the *Macintosh Performa CD* booklet for instructions on using the *Macintosh Performa CD*.

Using application programs designed for the PowerPC microprocessor

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

Special memory requirements

Some native applications 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 one of these 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.

Using older Macintosh programs

If you experience problems using an older Macintosh program, it may be incompatible with your 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.

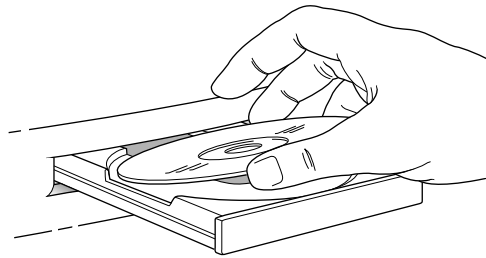
5

Using the CD-ROM Drive



This chapter provides information on the CD-ROM drive (also called a CD-ROM player). Refer to Appendix A, “Health, Safety, and Maintenance Tips” for information on the proper handling of these discs.

Your internal CD-ROM drive for Macintosh computers works with CD-ROM discs, standard audio compact discs (CDs), and single-session or multisession Photo CDs. Your CD-ROM drive provides access to large amounts of information. However, you cannot save information on CD-ROM discs. ROM stands for *read-only memory*, meaning that the drive cannot “write” information onto CD-ROM discs.

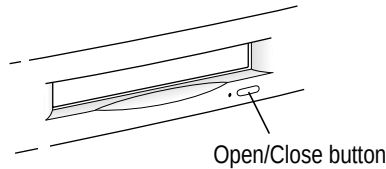


A wide selection of CD-ROM discs is available for entertainment, education, and business. A typical disc can hold over 650 megabytes (MB) of information—the equivalent of 270,000 pages of text, up to 8 hours of speech or music (depending on the sound quality), hundreds of high-resolution images, or any combination of text, sound, and graphics.

Inserting a CD-ROM disc

Follow these instructions to insert a CD-ROM disc into your CD-ROM drive. Then follow the instructions provided with your disc, as well as the instructions in this manual.

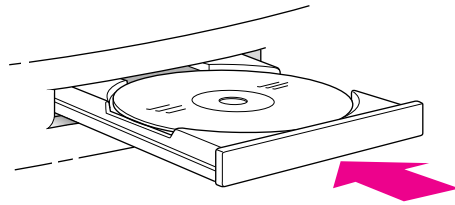
- 1** Start up your Macintosh computer, if it's not already on.
- 2** Press the Open/Close button to open the tray of the CD-ROM drive.



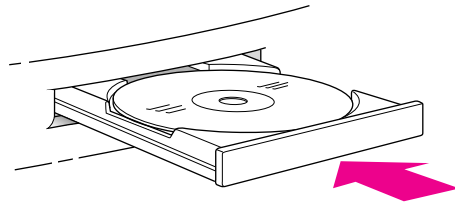
The tray opens.

- 3** Place a CD-ROM disc in the tray, with the disc label facing up.

Make sure the disc is lying flat and centered in the tray. If you are using a small (8cm) disc, make sure it is centered within the inside ring on the tray.



- 4** Push the tray in, or press the Open/Close button, to close the tray.



In a few moments, an icon for the CD-ROM disc appears on your screen.

Ejecting a CD-ROM disc

Follow these instructions to open the tray and eject a CD-ROM disc from your computer.

IMPORTANT You may not be able to eject a disc if it is being shared. To turn off file sharing, use the Sharing Setup control panel.

1 Open the tray.

There are several ways to open the tray of your CD-ROM drive.

If a CD-ROM disc icon appears on your screen:

- Select the disc icon on your screen and drag the icon to the Trash.
- Click the disc icon, then choose the Put Away command in the File menu.
- While the AppleCD Audio Player window is active, choose Eject CD from the File menu, or simultaneously press the ⌘ and E keys. (AppleCD Audio Player is a program that allows you to control your CD-ROM player and is available in the Apple [🍏] menu.)

If no CD-ROM disc icon appears on your screen:

- Press the Open/Close button for your CD-ROM drive.

2 Take the CD-ROM disc out of the tray.

Store your disc in a safe place, away from heat, dust, and moisture.

3 Push the tray in, or press the Open/Close button, to close the tray.

To avoid possible damage to the tray or the CD-ROM drive, keep the tray closed when you are not using it.

Types of compact discs you can use

Not all CD-ROM discs store information in the same way. A disc stores and displays information according to a given file format. Your computer's system software must understand the file format in order to use the contents of the disc.

Standard file formats

You can use CD-ROM discs with these standard file formats:

- HFS (Hierarchical File System)—the standard format used by the Macintosh.
- ISO 9660—the International Standards Organization's file format for CD-ROM discs. This format has been adopted by many CD manufacturers to make their discs compatible with a variety of computers. It is also the format that allows you to use Photo CDs in your CD-ROM drive.
- The High Sierra format, a predecessor of the ISO 9660 format.
- Photo CDs
- Audio CDs

The software that lets you use discs with these file formats is already installed on your computer.

Other CD-ROM formats

Your CD-ROM drive also works with file formats other than the ones listed above (for example, CD-ROM XA), provided that you install the appropriate software on your Macintosh. To find out about the availability of Macintosh software for additional file formats, contact the publisher of a particular disc.

Audio CDs

Your CD-ROM drive can play audio CDs and audio tracks on CD-ROM discs using your computer's built-in speaker. You can also attach headphones or speakers to your computer for stereo sound. For further information, see the "Disks" topic of Macintosh Guide, available in the Guide (🔍) menu.

Photo CDs

With your CD-ROM drive, you can use QuickTime to open digitized images stored on Photo CDs.

For further information on Photo CDs, see the “Disks” topic of Macintosh Guide, available in the Guide (🔍) menu.

Playing audio CDs

With your CD-ROM drive and your computer’s built-in speaker, you can play audio compact discs (CDs) or audio tracks on CD-ROM discs. You can also attach headphones or speakers to the computer to listen to audio CDs and audio tracks. See Chapter 3 for information on connecting sound equipment to your computer.

To start, stop, and otherwise control audio discs, use the AppleCD Audio Player program, available in the Apple (🍏) menu. Your audio CD software will only play tracks that contain audio information. You can listen to an audio CD or audio tracks in the background while you do other work on your computer. For more information about playing audio CDs, see the “Disks” topic of Macintosh Guide, available in the Guide (🔍) menu.

You can listen to an audio CD or CD-ROM disc with audio tracks in the background while you use your computer for other work.

Working with Photo CDs

You can use your CD-ROM drive to open Photo CD images stored on Photo CDs. A Photo CD image is a digitized version of a standard photograph that you can open and view on your computer screen.



You can do many things with the images on your Photo CDs:

- Open and view the images individually on your computer screen.
- View the images on your computer screen in a series, as you would view a slide presentation.
- Copy and save the images, print them, paste them into word-processing documents or other documents that accept graphics, and edit them with a graphics application program.

Photo CD images are an excellent source of graphics for desktop publishing, multimedia presentations, business documents, and professional-quality graphic design. For more information on working with Photo CD images, see the “Disks” topic of Macintosh Guide, available in the Guide (⌘) menu.

Obtaining Photo CDs

Your own photographs can be recorded as Photo CD images on a Photo CD. To obtain a Photo CD of your own photographs, take your standard 35-mm film to a photofinisher who has a Photo CD system. The photofinisher develops your film, digitizes the photographs, and gives you back a Photo CD containing your Photo CD images. A single Photo CD can hold approximately a hundred images.

If your Photo CD isn't full, you can take it back to the photofinisher and have more photos added until the disc is full. Such discs are called *multisession discs* because they contain images added after the first session. Your CD-ROM drive can read both single-session and multisession Photo CDs. (Other CD-ROM drives can read only single-session discs and are unable to read the additional images placed on a multisession disc.)

Before viewing the contents of a Photo CD

Normally, you open Photo CD images with the SimpleText program that came with your computer. If you wish, you can use a graphics or image-editing program instead of SimpleText to open images. For instructions, see the “Working with Programs” topic of Macintosh Guide, available in the Guide (⌘) menu. If you use SimpleText to view high-resolution images, you should increase the amount of memory that SimpleText uses. For more information on memory, see the “Memory” topic of Macintosh Guide, available in the Guide (⌘) menu.

A note about resolution

When a Photo CD image is created, it's recorded at five different levels of resolution. The higher the resolution, the more information is recorded about the image, and the sharper the image appears when displayed or printed at larger sizes. However, high-resolution images take up a lot of memory—up to 18 MB of data for one photograph—which affects file size, as well as the amount of time it takes to display or print an image.

It's best to work with a resolution appropriate for your monitor or printer. Some monitors and printers cannot display or print very high-resolution images.

For most work, a resolution of 768 x 512 pixels or smaller is suitable. For detailed work or very high-quality reproductions, you may want to use a higher resolution.

Make sure to open high-resolution images with application programs designed to handle large image files. SimpleText cannot open very large files.

Sharing a CD-ROM disc over a network

You can share a CD-ROM disc using the file-sharing feature of System 7.5. If the disc has audio portions, you will be able to hear the audio yourself, but other people on the network will not. Likewise, you cannot hear the audio portions of discs you access over a network.

For further information about file sharing in System 7.5, see the “Networks and Telecommunications” topic of Macintosh Guide, available in the Guide (🔍) menu.

Consult this chapter if you experience
problems using your computer.

6

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.

If you have trouble

While you're using your computer, you may occasionally see a bomb icon or an error message, or the pointer (🖱️) may “freeze” 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 (or Restart) button or turn off the Macintosh.

To help diagnose and correct the problem, follow the suggestions in this section. Gather as much information on the situation as you can. Then follow the instructions in the next section, "Start Over."

- Make a note of exactly what you were doing when the problem occurred. Write down the message on the screen. 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. (*Note:* Use this key combination to force a program to quit only when you can't choose Quit from the File menu.)

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 disks. It’s a good idea to rebuild the desktop of your disks once a month or so, especially 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.)

To rebuild the desktop of your internal hard 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.**

You can also use this procedure to rebuild the desktop of an external hard disk or a floppy disk. Simply turn on the external hard disk or insert the floppy disk into a floppy disk drive before you turn on the computer.

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.

Solutions to common problems

This section contains descriptions of problems you could experience with your computer. Some problems may be caused by your CD-ROM drive, so if you don't find your problem here, be sure to check the section "Solutions to CD-ROM Problems," later in this chapter.

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 brightness (☼) and contrast (●) buttons are not adjusted properly.
Adjust the brightness and contrast of your monitor.

- 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 SCSI equipment, such as hard disks, CD-ROM drives, and scanners. (SCSI stands for Small Computer System Interface.)

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 connected properly. Most printers connect to the printer port, not the SCSI port. 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.

Insert the *Macintosh Performa CD*. Then follow the instructions in "Repairing a Damaged Disk" to test your startup hard disk and repair any damage.

If repairing the disk doesn't help, follow the instructions in the *Macintosh Performa CD* booklet to reinstall system software on your startup hard disk.

A disk icon with an X appears in the middle of the screen and a floppy disk is ejected from the disk drive.



This icon indicates that the floppy disk you tried to start up from is not a startup disk. When you turn on your computer, it looks first in the floppy disk drive for a disk containing system software. If the disk in the drive does not contain system software, the computer ejects the disk and looks on its internal hard disk for system software.

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 *Macintosh Performa CD*. (For instructions on how to start up your computer from the CD-ROM disc, see the *Macintosh Performa CD* booklet, which came with your computer.) 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:

- Use the Drive Setup program to make the disk available. Drive Setup is located in the Apple Extras folder. For instructions, start Drive Setup, then choose Drive Setup Guide from the Guide (Ⓜ) menu.
- 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 with the *Macintosh Performa CD*. (For instructions on how to start up your computer from the CD-ROM disc, see the *Macintosh Performa CD* booklet.) Then follow the rest of the instructions on repairing a disk 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 “If You Have 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.

Your Macintosh can't read a floppy disk.

If you see a message that a floppy disk is unreadable, try one of the following:

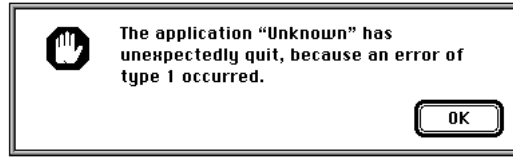
- If the disk has never been used, you may simply need to initialize it. For instructions, see the “Disks” topic of Macintosh Guide, available in the Guide (🔍) menu.
- The disk may be damaged. See “Repairing a Damaged Disk” later in this chapter for information on testing and repairing disks.
- If the disk is a high-density disk previously used on another computer, the disk may have been formatted incorrectly as an 800K disk rather than as a 1440K (high-density) disk. If so, use the other computer to copy the disk's contents onto a properly formatted disk.
- The disk may have been formatted for use on another kind of computer. You may be able to use a program that lets you work with such disks on your Macintosh.

If you are trying unsuccessfully to use a DOS floppy disk, consider the following:

- When formatting floppy disks on a DOS computer for use in a Macintosh, you need to format standard double-sided disks as 720K disks and high-density disks as 1440K disks. Double-sided disks formatted in 1440K format and high-density disks formatted in 720K format may not work in a Macintosh.

If you think your DOS floppy disk might have a format that doesn't work in a Macintosh, use a DOS computer to copy the contents of the disk onto a properly formatted disk.

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.



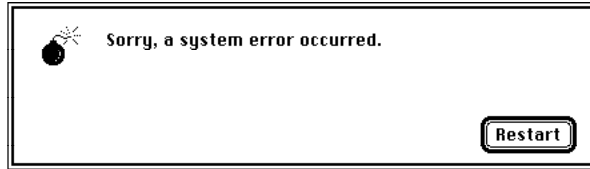
One of the following is probably the cause:

- 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.
Use the Memory control panel to turn on virtual memory. 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 is incompatible with your Macintosh.
Contact the program's publisher to see if there is an upgrade available for the program.

You see a message that you need to have an FPU installed.

Your computer has a floating-point unit (FPU) installed. If you see this message, the program is probably incompatible with your Macintosh. Contact the program's publisher to see if there is an upgrade available for the program.

A dialog box with a bomb appears.



There is a software problem.

- Write down what you were doing when the message appeared, and write down the text of the message.
- Restart your Macintosh. (See “Start Over” in the section “If You Have Trouble” earlier in this chapter for instructions.) Most software problems are temporary, and restarting usually corrects the problem.
- If the problem recurs, 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 incompatible extensions and control panels.

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 the *Macintosh Performa CD* booklet for instructions.

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

One of the following situations is probably the cause.

- There is a software problem. Try 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 “If You Have Trouble” earlier in this chapter for instructions.
- Follow the suggestions in the previous section, “A Dialog Box With a Bomb Appears.”
- 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:

- Some system software features are turned on that affect the way the keyboard works.

Use the Easy Access control panel to turn off Sticky Keys, Slow Keys, and Mouse Keys.

- There is a software problem.

Restart your Macintosh. For instructions, see “Start Over” in the section “If You Have 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 the *Macintosh Performa CD* booklet 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.

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 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 specify which Macintosh program will open the document.

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 publisher.
- 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.

Macintosh programs designed specifically for the PowerPC microprocessor (also called “native” applications) use special files called *shared libraries*. Any necessary shared libraries should be installed automatically when you install these special 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 Macintosh computers that have the PowerPC microprocessor.

- Contact the program's publisher to see if an upgrade is available.
- 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.

Solutions to CD-ROM problems

Problems using the CD-ROM drive

The CD-ROM disc icon does not appear on screen.

- If you have other SCSI devices attached to your computer, make sure that each device has a unique SCSI ID number (your CD-ROM drive has SCSI ID 3). Refer to the documentation that came with your SCSI devices if you need to reset SCSI ID numbers.

Your computer starts up and you see large folder-shaped areas, containing labeled pictorial buttons, instead of the usual Macintosh desktop.

- Your computer may have started up from a CD-ROM disc containing At Ease, an alternative to the Macintosh desktop. You need to have the Macintosh desktop on your screen before you can use any of the installation instructions in this manual.

To return to the Macintosh desktop, choose Shut Down from the Special menu. When your computer is off, press the Open/Close button of your CD-ROM drive to open the tray, then remove the CD-ROM disc. Close the tray. Then start up your computer again.

To avoid having the computer start up from a CD-ROM disc, remember to remove any disc in the drive before you shut down your computer.

The tray of your CD-ROM drive won't open.

If a CD-ROM disc icon appears on your screen:

- Drag the disc icon to the Trash, or select it and choose Put Away from the File menu. If the AppleCD Audio Player is active, choose Eject CD from the File menu.

If you see a message that a disc can't be put away because it is being shared, turn off file sharing, then try again to put away the disc.

If no CD-ROM disc icon appears on your screen:

- Press the Open/Close button for your CD-ROM drive.

- The signal to open the tray may not be reaching the computer. Turn off your computer and locate the small pinhole to the lower right of the CD-ROM tray opening. Insert the end of a large straightened paper clip firmly and horizontally into the pinhole. Push gently until the tray is released, then carefully pull the tray open. Do not force the tray open; wait until the paper clip has dislodged it or you may break the front of the tray.

WARNING Turn off your computer before you attempt to eject the tray using a paper clip. If you don't, you may damage the CD-ROM drive.

If neither of these suggestions works, your CD-ROM drive may be damaged. Contact an Apple-authorized service provider or Apple for further assistance.

Your computer won't restart, and a CD-ROM disc is in the CD-ROM drive.

- Your computer may be trying to start up from the CD-ROM disc. Press the Open/Close button of your CD-ROM drive to open the tray, and remove the CD-ROM disc. Close the tray, then restart your computer.

Problems with CD-ROM discs

You insert a CD-ROM disc, but its icon doesn't appear on the Macintosh desktop.

- Make sure that the disc label is facing up and the disc is centered in the tray. If you're using a small (8 cm) disc, make sure it is within the tray's inner ring.
- Make sure the tray is closed all the way.
- Try restarting your computer.

Your computer displays the message “This is not a Macintosh disk: Do you want to initialize it?” when you insert a CD-ROM disc in the CD-ROM drive.

- The disc may use a format that the Macintosh cannot recognize.

Your computer ejects a CD-ROM disc without giving you any error message.

- Make sure the disc is flat in the tray and the disc label is facing up. If you’re using a small (8 cm) disc, make sure it’s centered within the tray’s inner ring.
- The disc may need to be cleaned. (See “Handling CD-ROM Discs” in Appendix A.) If there are visible scratches on the shiny side of the disc, you may be able to remove them with a CD polishing kit (available from your audio CD dealer). If the scratches can’t be removed, you’ll need to replace the disc.
- The disc may be damaged. Try another disc in the drive, and try the original disc in another drive. If the original drive reads other discs or if the original disc also doesn’t work in another drive, the disc is probably damaged. You’ll need to replace the disc.

You can’t open a document on a CD-ROM disc.

- Try opening the application program first; then open the document.
- Read the manual that came with your CD-ROM disc. Some discs come with software that you need to install on your computer before using the disc.

You can’t save changes you make to information on a CD-ROM disc.

- CD-ROM is a read-only medium. This means that information can be read (retrieved) from it, but not written (stored) on it. You can save the changed information on a hard disk or floppy disk.

Problems using ISO 9660 or High Sierra discs

You cannot access files on a CD-ROM disc that uses the ISO 9660 or High Sierra format.

- Discs in the ISO 9660 and High Sierra disc formats have version numbers attached to file names. Some application programs need these version numbers in order to work with files. To make the version numbers available to programs on your computer, follow these instructions.

Drag the CD icon to the Trash. When the tray opens, hold down the Option key and push the tray back in. Continue to hold down the Option key until the disc is in the drive. The program you are using should now be able to locate file names on that CD-ROM disc.

Problems playing audio CDs

You don't hear any sound when you play an audio CD or an audio track on a CD-ROM disc using the AppleCD Audio Player.

- If you have headphones or speakers connected to the computer, adjust the connector to make sure they are firmly connected. Make sure the volume control on your headphones or speakers is not turned down too low.
- If you do not have headphones or speakers connected to the computer, make sure that nothing else is plugged into the sound output port on your computer.
- Some programs change the sound options to suit their needs. You may need to reset the sound options in the Sound control panel. Refer to the “Sound” topic of Macintosh Guide available in the Guide (?) menu.
- If you are using a CD-ROM disc over a network, you won't be able to hear the audio portion.
- Make sure the volume is turned up in the AppleCD Audio Player. With the Audio Player open, drag the volume control slider up or press the Up Arrow key on your keyboard.
- The CD may have been paused. Click the Play/Pause button in the AppleCD Audio Player once or twice.

While playing an audio track on a CD-ROM disc that combines audio tracks and data, you double-click the disc icon and the audio track stops playing.

- You can't open data files on a CD-ROM disc and listen to audio tracks on that disc at the same time.

You are unable to record sound from an audio CD.

- Check your computer's sound input port to see if a microphone or other device is connected.
- You may need to reset the sound options in the Sound control panel. Refer to the “Sound” topic of Macintosh Guide, available in the Guide (?) menu.

Problems using Photo CDs

Your CD-ROM drive will not open Photo CDs.

- Reinstall the CD-ROM and QuickTime software (available through the “MultiMedia Software” option in Custom Install).

Your computer does not display color icons for individual images on a Photo CD.

- Your computer may be low on memory. To view color icons, restart your computer and then reopen the Photos folder. See the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu for more information on managing memory.

After you open an image on a Photo CD, the image is scrambled, colors are displayed incorrectly, or no image appears in the window.

- The program you are using may not be designed to work with large (high-resolution) image files. You can open the image with another program or you can assign more memory to the program. (See the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu for more information on managing memory.)

After you open an image on a Photo CD, your system is “frozen” and does not respond to any input, or you have a “bomb” message on your screen.

- Restart your Macintosh. The program you are using may not be designed to work with large (high-resolution) image files. You can open the image with another program or you can assign more memory to the program (see the “Memory” topic of Macintosh Guide available in the Guide (🔍) menu, for more information on managing memory.)

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 the software does not work well with Macintosh computers built with the PowerPC microprocessor.

- To find out if the new software is the problem, hold down the Shift key while you restart the computer. This temporarily turns off control panels and extensions. If the computer performs better without this software, one of these items 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.
- Use the Memory control panel to turn off virtual memory. For more information on virtual memory, see the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu.
- If you use several application programs at the same time, your computer's performance will increase if you install more RAM (random-access memory). See “Expanding Memory” in Chapter 3.

If you still do not notice an improvement, you may want to reinstall system software on your startup hard disk. See the *Macintosh Performa CD* booklet for instructions.

Repairing a damaged 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. (See the following section, "Starting Up From a CD-ROM Disc.")

If, after you start up from a different disk, your 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. 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 given later in this section.

Starting up from a CD-ROM disc

To test, repair, or initialize a hard disk, or to install system software on a hard disk, you need to start up your computer from another disk. You can start up your computer using the *Macintosh Performa CD* that came with your computer.

The procedure for starting up from the CD varies depending on the condition of the system software on your hard disk. To find out which procedure to use, you must turn on your Macintosh.

The steps that follow tell how to start up from a CD-ROM disc, depending on what you see on your screen.

If you see a blinking question mark on your screen

The blinking question mark means that your Macintosh is unable to find usable system software on your hard disk.



- 1** Press the Open/Close button of your CD-ROM drive to open the CD-ROM tray.
- 2** Place the *Macintosh Performa CD* disc in the tray with the disc label facing up.
Make sure the disc is lying flat in the tray.
- 3** Push the tray in, or press the Open/Close button, to close the tray.

Your Macintosh recognizes the CD as a startup disk, and in a few seconds the Macintosh desktop with a Launcher appears.

If you see the Macintosh desktop

- 1** Press the Open/Close button of your CD-ROM drive to open the CD-ROM tray.
- 2** Place the *Macintosh Performa CD* disc in the tray with the disc label facing up.
Make sure the disc is lying flat in the tray.
- 3** Push the tray in, or press the Open/Close button, to close the tray.

If the Macintosh Performa CD icon does not appear on your screen, follow the steps in the next section, “Problems Starting Up From the CD?”

If the Macintosh Performa CD icon appears on the right side of your screen, continue with these steps.

- 4** Choose Control Panels from the Apple () menu.
- 5** Double-click the Startup Disk icon.

The Startup Disk control panel window appears.

- 6** Click the CD icon to select it as your startup disk.
- 7** Choose Restart from the Special menu.

Your computer recognizes the CD as its startup disk, and in a few seconds the Macintosh desktop with a Launcher appears.

Problems starting up from the CD?

If you've followed the steps in the previous sections and the Macintosh Performa CD icon does not appear on your screen, follow these steps:

- 1 Insert the CD into the tray.**
- 2 Choose Restart from the Special menu.**
- 3 Immediately press and hold down the Command (⌘), Shift, Option, and Delete keys.**

The computer bypasses the internal hard disk, and the Macintosh Performa CD icon appears on the desktop.

If the Macintosh Performa CD icon still does not appear on the desktop, continue with these steps:

- 4 Choose Control Panels from the Apple () menu.**
 - 5 Double-click the Startup Disk icon.**
- The Startup Disk control panel appears.
- 6 Click the CD icon to select it as your startup disk.**
 - 7 Close the Startup Disk control panel.**
 - 8 Choose Restart from the Special menu (or the Apple menu).**

The computer starts up using the CD, and in a few moments the Macintosh desktop with a Launcher appears.

Checking for damage on your hard disk

You can test a hard disk for damage with the Drive Setup program, which is on the *Macintosh Performa CD* that came with your computer.

- 1 **Start up your computer from the *Macintosh Performa CD*.**

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

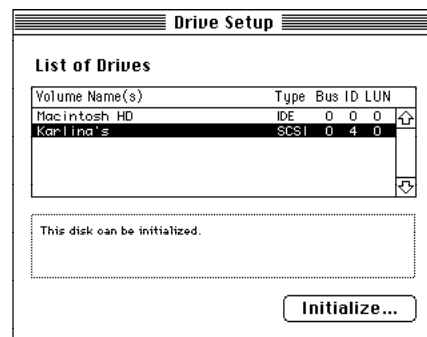
- 2 **Open the Drive Setup program.**

You may need to look in a folder called Utilities to find Drive Setup.



Drive Setup

- 3 **In the list of drives, click the disk you want to test.**



- 4 **Choose Test Disk from the Functions menu.**

- 5 **When a message tells you that the 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” later in this chapter). Consult an Apple-authorized service provider for assistance if necessary. If you had a hard disk from another manufacturer installed after you bought your computer, use the software that came with the disk or contact the disk vendor to get the latest version of software.

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 on the *Macintosh Performa CD* that came with your computer.

- 1 Start up your computer from the *Macintosh Performa CD*.

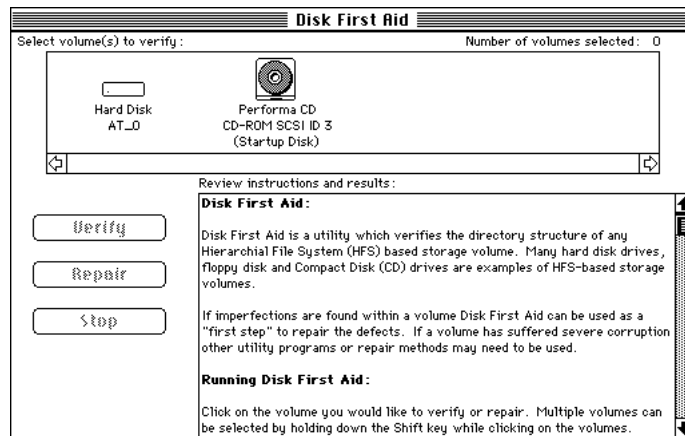
See “Starting Up From a CD-ROM Disc” earlier in this section.

- 2 Open the Disk First Aid icon.



- 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.

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

5 When testing and repair are done, 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 an Apple-authorized service provider for help.
- If you can't repair the disk, you'll need to reinitialize it, which erases all the information on it. Before you reinitialize, be sure you recover all the information you can and back it up. Then erase (reinitialize) the disk. For instructions on reinitializing a floppy disk, see the "Disks" topic of Macintosh Guide, available in the Guide (🔍) menu. For instructions on reinitializing a hard disk, see the next section, "Initializing a Hard 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). Bring the *Macintosh Performa CD* (which you received with your computer) with you to the service provider.

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 an uninitialized hard disk from another manufacturer
- 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.

You initialize your internal hard disk using a program called Drive Setup, which is on the *Macintosh Performa CD* that came with your computer.

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” earlier in this chapter.

- 1 Start up your computer from the *Macintosh Performa CD*.

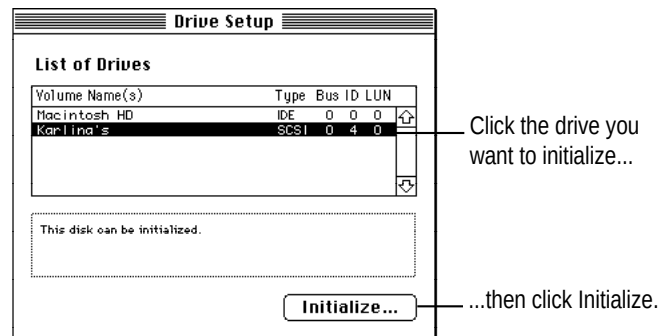
See “Starting Up From a CD-ROM Disc” in the section “Repairing a Damaged Disk,” earlier in this chapter.

- 2 Open the Drive Setup program.

You may need to look in a folder called Utilities to find Drive Setup.



- 3 In the list of drives, click the disk you want to initialize.



- 4 Click Initialize to initialize the hard disk.
- 5 When you see a message reporting that initialization was successful, click Quit.

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.

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 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.

When should you install or reinstall 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, you'll need to install system software. You can install or reinstall system software by following the instructions in the *Macintosh Performa CD* booklet that came with your computer.

If your hard disk already has system software installed on it but there is a problem with the disk or the software, you may see this icon in the middle of the screen:



If this icon appears, first try testing your startup hard disk and repairing any damage. To do this, follow the instructions in “Repairing a Damaged Disk” earlier in this chapter. If repairing the disk doesn't help, you may need to reinstall system software. You can install or reinstall system software by following the instructions in the *Macintosh Performa CD* booklet that came with your computer.

If you've used Apple Backup to back up the contents of your hard disk, you can use Apple Restore to reinstall system software. See “Restoring the Information on Your Hard Disk” in the section “Protecting the Information on a Disk” in Chapter 4.

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

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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.

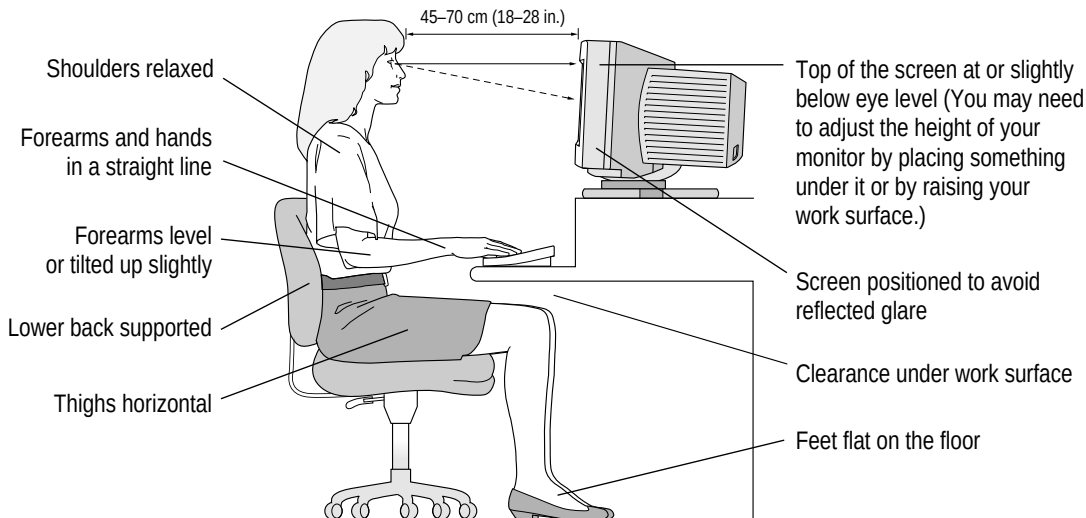
- An adjustable chair that provides firm, comfortable support is best. Adjust the height of the chair so your thighs are horizontal and your feet flat on the floor.

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.

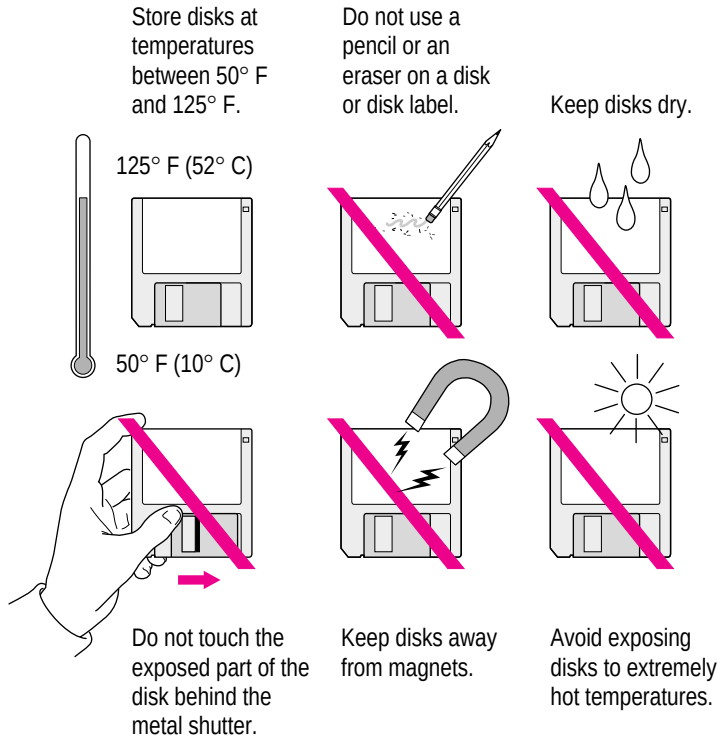
- Make sure that the ventilation openings on the computer and the monitor are clear and unobstructed.
- Some large monitors cannot safely be placed on top of the computer. Check the instructions that came with the monitor for setup information.
- If there is interference on the monitor’s screen or on 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

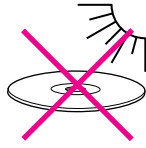


Handling CD-ROM discs

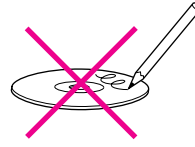
Keep these important safety instructions in mind as you use CD-ROM discs:

- Hold a disc by the edges or by one edge and the center hole. Do not touch the disc surface.
- To clean discs, wipe the shiny surface with a soft damp cloth, working in straight lines from center to edge. Do not use any form of cleaning agent.

- To avoid damage to your discs, keep these points in mind:



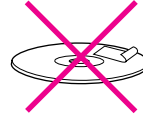
Do not expose discs to direct sunlight.



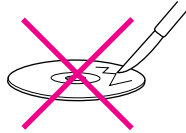
Do not write on discs.



Do not spill liquids on discs.



Do not put tape on discs.



Do not scratch discs.



Do not get dust on discs.

Other important safety instructions to keep in mind as you use your CD-ROM player:

- Position your computer so that when the tray opens, it doesn't bump into anything.
- Do not leave the disc tray open. If dust gets on the lens of the CD-ROM drive, the drive may have problems reading your compact discs.
- Do not put anything (for instance, a cup) on top of the tray when it is open.
- Do not force the tray open by hand.
- Do not wipe the lens with a paper towel or other abrasive surface. If you need to clean the lens, see an Apple-authorized service provider for a lens cleaner.
- Never transport your computer with a disc inside the CD-ROM drive.
- Keep your computer equipment away from any source of liquid (such as wash basins, bathtubs, and shower stalls). If you drink coffee or other beverages while you're at your computer, take care not to spill.
- Avoid exposing your equipment to damp or wet weather. If your system is near a window, be sure the window is closed in rainy weather.

The tray on your CD-ROM drive automatically closes when you shut down your computer. You may want to open the tray and take out your CD-ROM disc before shutting down.

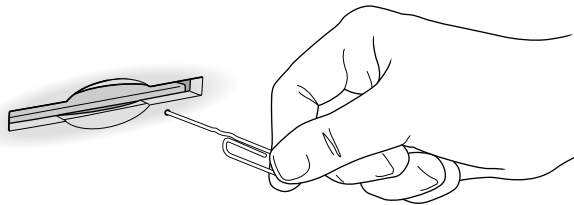
Ejecting a disk

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.

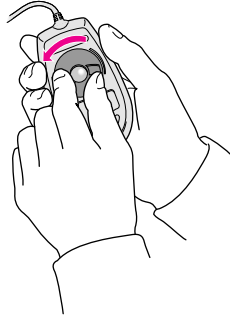
Cleaning the mouse

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.**

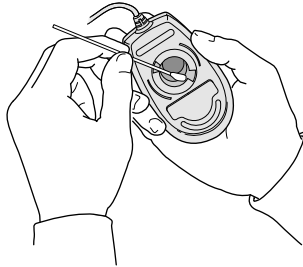
- 2 Turn the mouse upside-down and turn the plastic ring on the bottom counterclockwise to disengage it.**



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.**

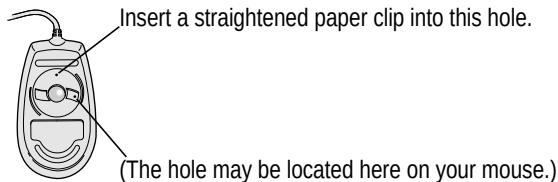
Your mouse should roll smoothly across your mouse pad or desk. If it doesn't, repeat these instructions carefully.

Locking and unlocking the mouse

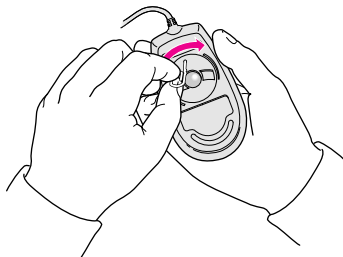
Some mouse devices can be locked so that the ball can't be removed. A locking mouse has a small hole on the plastic ring.

To lock the mouse, follow these steps:

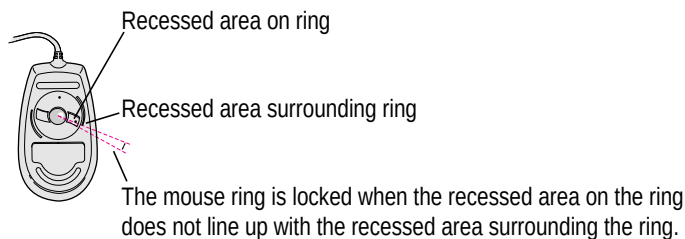
- 1 Insert a straightened paper clip into the hole on the plastic ring.**



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

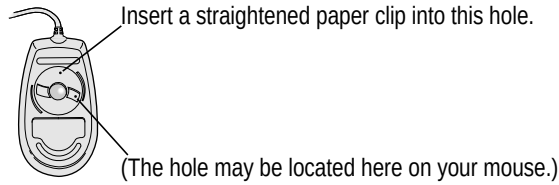


Turn the ring a very short distance, until it stops. When the recessed area on the ring is *not* lined up with the recessed area surrounding the ring, the mouse is locked.

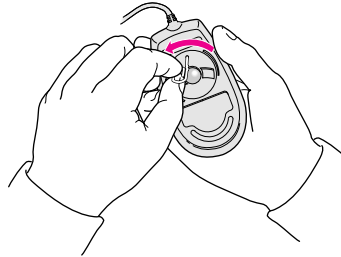


To unlock the mouse, follow these steps:

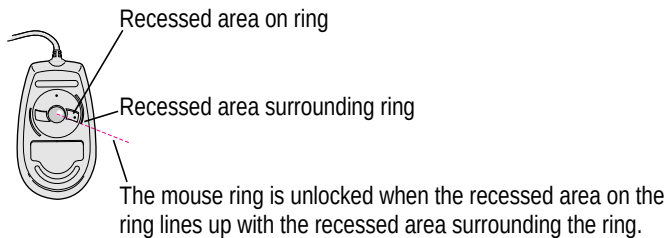
- 1 Insert a straightened paper clip into the hole on the plastic ring.**



- 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.



Appendix B

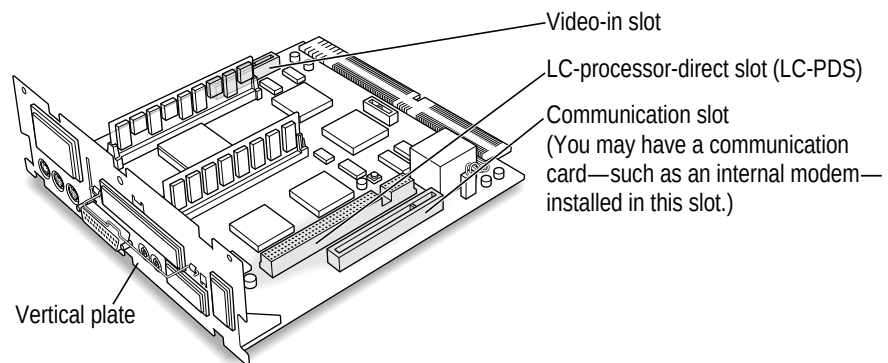
Installing an Expansion Card

.....

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 communications 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.

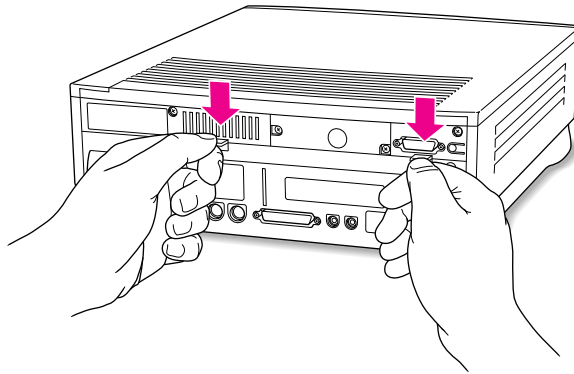
You can also press the Power key on the keyboard.

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

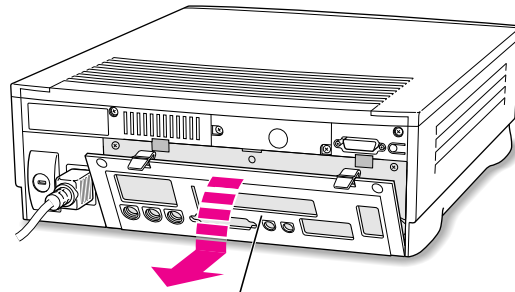
Leaving the power cord plugged in helps protect the computer from electrostatic discharge.

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.

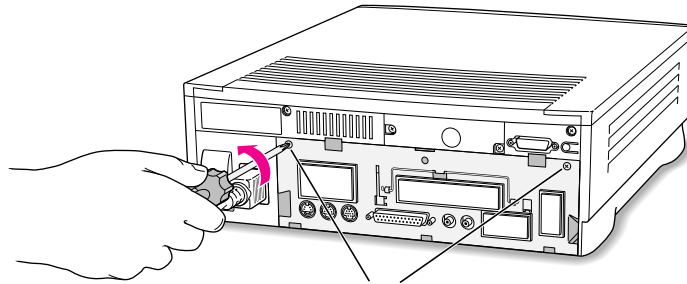


- 4 Pulling gently, swing the panel down, and slip it out.



Remove the back panel.

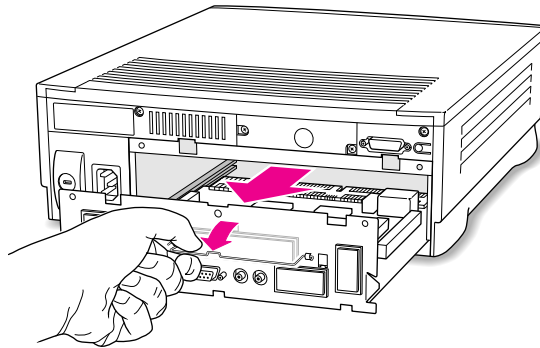
- 5** If there are security screws on the vertical plate on the back of the computer, remove them with a screwdriver.



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.

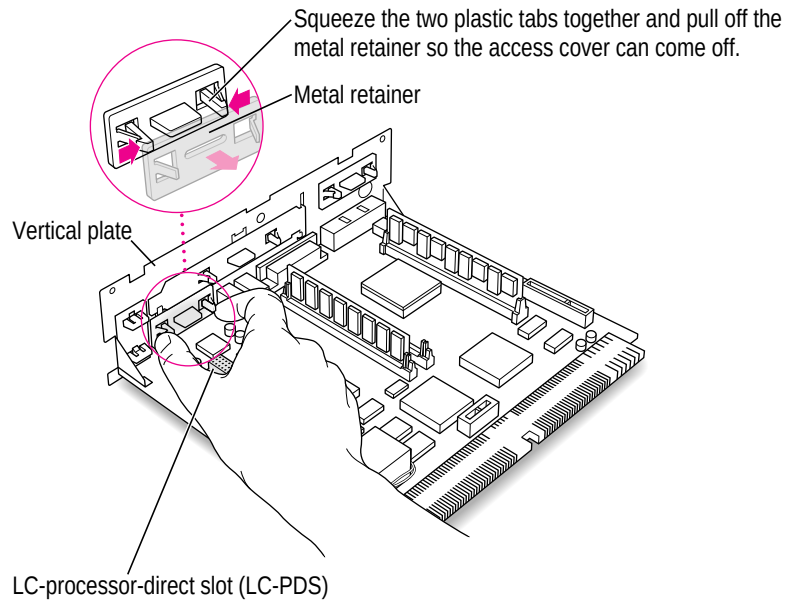
The vertical plate and the logic board to which it's attached slide all the way out of the computer. Carefully support the logic board as it comes out, and put it on a clean, flat, stable surface.



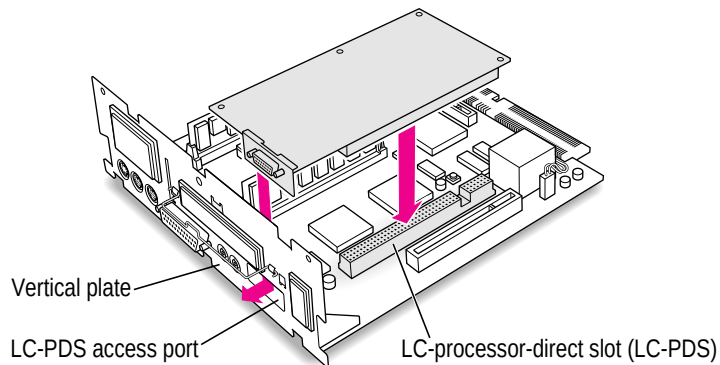
What you do next depends on the type of expansion card you want to install.

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.



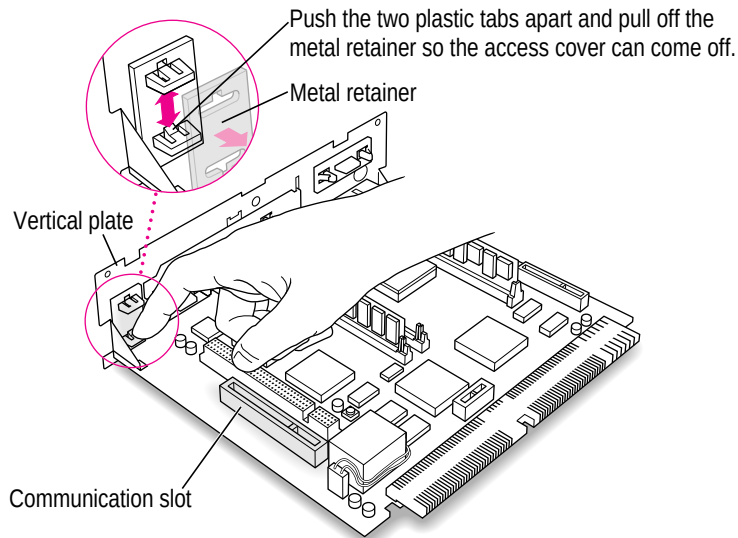
- 4 Press down on the card until the connector is solidly in place.**

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

Some Macintosh computers come with a communication card already installed.

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

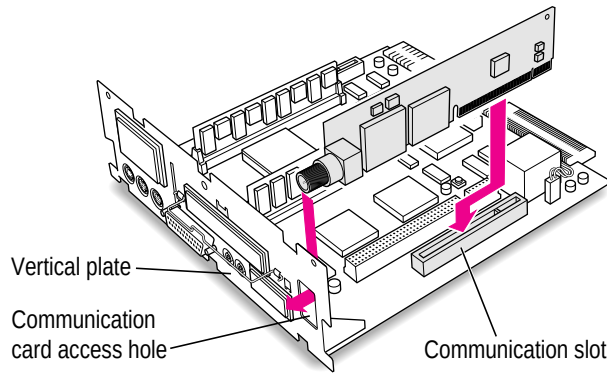


- 2 Remove the communication card from its static-proof bag.**

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.



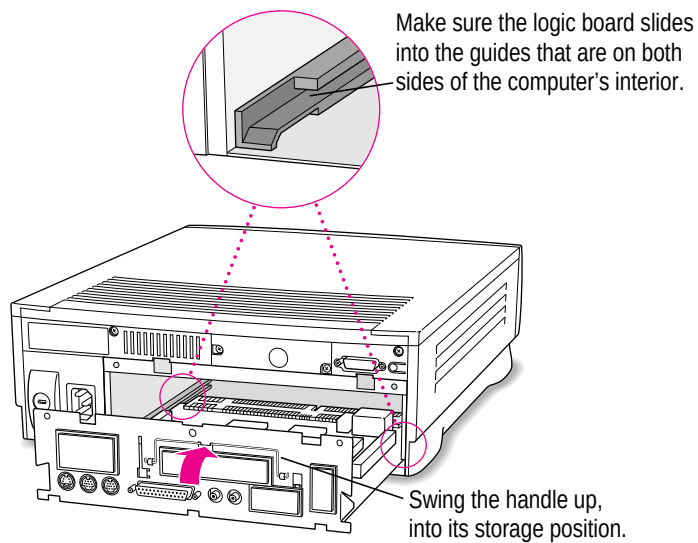
4 Press down on the card until the connector is solidly in place.

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.

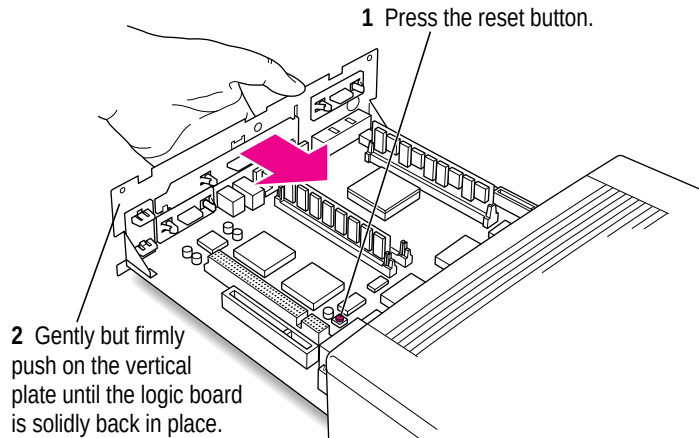
Closing the computer

- 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.

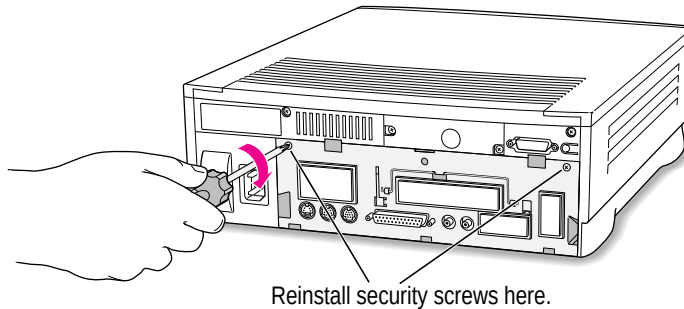


- 2 Press the reset button on the logic board, and then slide the logic board back into the computer.**

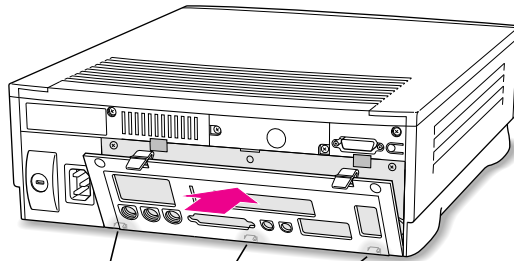
When you press the reset button, some of your computer's software settings will change. You may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see the "Setting Options"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



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

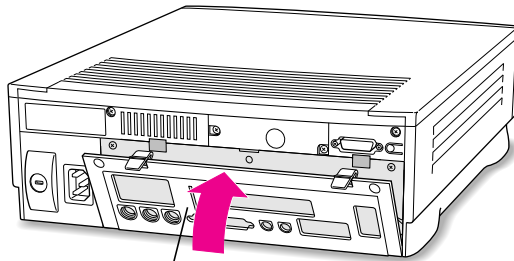


- 4** Slip the three hooks at the base of the back panel into the grooves on the computer case.



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.

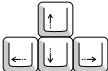
Appendix C

Special Keys on Your Keyboard

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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 lets you quit a program.

The following table describes what you can do with the special keys on your keyboard. The special keys on your keyboard depend on the model of keyboard you have; some keyboards do not have all the keys listed.

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 ►

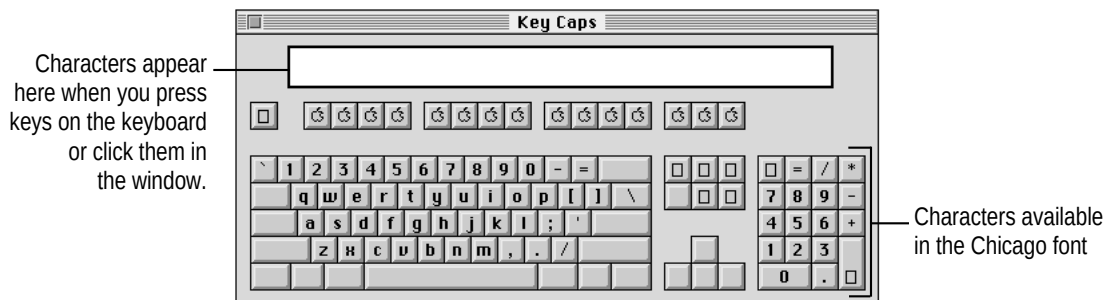
Special keys on Apple keyboards *(continued)*

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).
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).
Other special keys		The function of these keys depends on the operating system and program you're using.

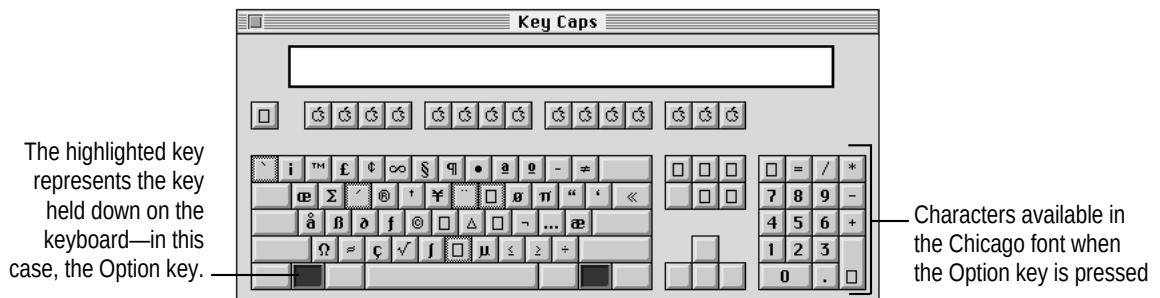
Typing special characters and symbols

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. 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	⌘-Control-Power



Index

• • • • •

A

- accent marks, key combinations for 109–110
- active program, checkmark indicating 37
- acute accent, key combinations for 110
- answers. *See* help
- AppleCD Audio Player program 45
 - ejecting CDs using 43, 65
 - unable to hear discs played with 68
- Apple customer support hotline 15
- Apple Desktop Bus (ADB) icon 6
- Apple Desktop Bus (ADB) port 6, 7, 30
 - troubleshooting keyboard problems and 61
- Apple Ethernet media adapter 34
- Apple Extras folder
 - answers to questions in 15
 - application programs in 35
- Apple menu
 - AppleCD Audio Player program in 45
 - Key Caps program in 109–110
 - Shut Down command in 14
- Apple PlainTalk Microphone x, 29
 - connecting 31
- AppleTalk Phase 2 Protocols, for Ethernet communication 34
- Apple Video Player program 35
- Application menu 13
 - active programs listed in 37
 - Hide Others on 38
 - Show All on 38
 - switching among programs using 37
- application programs 35–39
 - active 37
 - backing up 38–39
 - crashing. *See* “bomb” icon/message
 - forcing to quit 51, 110
 - hiding and showing windows for 38
 - incompatible 36, 59, 70
 - increasing memory for 33
 - installing 36
 - “native” 39, 64
 - older Macintosh, problems working with 39, 64
 - open 37
 - opening DOS documents from 63
 - for PowerPC microprocessor ix, 39, 64
 - pre-installed 35
 - quitting unexpectedly 58
 - switching among 37
 - troubleshooting 58
 - unable to find or open 64
 - unable to start 58
 - working with several at a time 37–38

- arrow keys 107
- arrow pointer
 - “frozen” (not moving) 49, 60
 - moving with mouse 12–13
- arrows, scroll 13
- At Ease (alternative desktop), returning to Macintosh desktop from 65
- audio compact discs (CDs) 41, 44
 - playing 45
 - troubleshooting problems with 68
- Audio In port, on external speaker 32
- audio tracks on CD-ROM discs 44, 45, 68
 - opening data files and 68
 - unable to hear 68

B

- backing up 38
- back panel, removing 99
- backup copy
 - making 38
 - restoring information from 39
- Balloon Help 26
- basic skills
 - with mouse 12–13
 - tutorial for teaching 12–13
- blank screen (dark screen) 53
 - at startup 9, 10
- blinking question mark icon 54, 79
 - when starting up from CD-ROM disc 72
- body position, for computer use 83–84
- “bomb” icon/message 51, 59
 - Photo CD causing 69
- booting up. *See* starting up
- brightness control 10, 53
 - avoiding screen “burn in” and 88

C

- cables
 - for Ethernet network connection 34
 - handling 87
 - keyboard x
 - monitor x
 - with stereo miniplug 32
- Caps Lock key 107
- carpal tunnel syndrome, computer use and 82
- CD. *See* compact disc
- CD-ROM disc 41–48. *See also* compact disc; *Macintosh Performa CD*
 - audio tracks on 44, 45, 68
 - automatically ejected without error message 67
 - avoiding startup from 65, 66
 - cleaning 67, 89
 - document on won’t open 67
 - ejecting 43, 65–66, 91
 - handling 89–91
 - inserting 42
 - not recognized as Macintosh 67
 - shared 43, 48, 65
 - software for nonstandard formats for 44
 - standard file formats for 44
 - starting up from 72–74
 - troubleshooting problems with 66–68
- CD-ROM disc icon 42
 - ejecting disc and 43, 65–66
 - not appearing on screen 65
 - not on desktop 43, 66
- CD-ROM drive/player 29, 41–48. *See also* CD-ROM disc; compact disc
 - failure of tray to open and 65–66
 - Open/Close button for 29, 42, 43
 - replacing 34
 - safety warning about vii
 - troubleshooting problems with 65–66

- cedilla, key combinations for 110
- chair, for maximum comfort 83
- chips, memory. *See* memory
- circumflex, key combinations for 110
- cleaning computer equipment 92–93
- Clear key 107
- clock, troubleshooting problems with 53
- close box 13
- closing the computer 104–106
- color icons, for images on Photo CD, not displayed 69
- Command key 107
 - in Key Caps program 109, 110
- Command-Option-Esc, for restarting computer 51
- communication card, installing 102–103
- communication slot 97, 102, 103
- communications regulation information vi-vii
- compact disc. *See also* CD-ROM disc
 - audio 41, 44, 45, 68
 - cleaning 67, 89
 - handling 89–91
 - Photo 41, 45, 46–48
 - types that can be used 44–45
- compact disc read-only memory disc. *See* CD-ROM disc
- compact disc read-only memory drive/player. *See* CD-ROM drive/player
- computer case, cleaning 92
- computer/computer system x, 29
 - arranging components of 1, 3, 7, 83–84
 - basic 29
 - cleaning 92–93
 - closing 104–106
 - connecting additional hardware to 8, 29–34
 - disconnecting before attempting repair 30, 60, 66, 87
 - handling 87–92
 - health-related information about use of 81–85
 - opening 99–100
 - performance decreases and 70
 - setting up 1–11
 - troubleshooting problems with 49–79
 - turning off 11, 14
 - turning on 8–9
- computer “crash.” *See* “bomb” icon/message
- computer power cord x
 - connecting 2
- computer power socket 2
- connecting. *See also* installing
 - additional equipment 8, 29–34
 - Apple PlainTalk Microphone 31
 - cables, safety precautions for 87
 - computer power cord 2
 - external speakers 32–33
 - keyboard 7
 - keyboard cable 7
 - to local area network 33–34
 - monitor 3–5
 - monitor cable 5
 - monitor power cord 3–4
 - mouse and keyboard 6–7
- contrast control (screen) 53
- Control key 108
- control panels
 - Easy Access 61
 - Extensions Manager, for turning off extensions 59, 70
 - incompatible 59, 70
 - Memory 39, 58, 64, 70
 - Network, changing for Ethernet use 34
 - PC Exchange, for opening DOS document 62, 63
 - resetting after installing expansion card 105

- copying
 - for backup 38
 - System Folder, warning about 36
- crash. *See* “bomb” icon/message
- cumulative trauma disorders (CTDs), computer use and 82
- cursor. *See* pointer
- cursor keys. *See* arrow keys
- customer support hotline 15

D

- damaged disk, repairing 71–77
 - checking for damage and 75
 - with Disk First Aid program 76–77
 - starting up from CD-ROM disc and 72–74
- dark screen (blank screen) 53
 - at startup 9, 10
- data recovery programs 77. *See also* Disk First Aid program
- date. *See* clock
- Delete key 108
- deleting
 - by dragging item to Trash 13
 - with Zero Out Data command 78
- desktop 9
 - At Ease (alternative), returning to Macintosh desktop from 65
 - hiding and showing windows on 38
 - pictorial buttons on instead of usual appearance 65
 - rebuilding 52, 56, 62
 - starting up from CD-ROM disc and 73
- diacritical marks, key combinations for 109–110
- disconnecting computer 86
 - before attempting repair 30, 60, 66, 87
- disc tray (CD), failure to open 65–66
- disk. *See* floppy disk; hard disk
- disk drive. *See* floppy disk drive; hard disk drive

- Disk First Aid icon 76
- Disk First Aid program 76–77
- disk icon with “X,” troubleshooting 55
- disk repair programs 77. *See also* Disk First Aid program
- DOC statement vii
- documents
 - backing up 38
 - on CD-ROM disc, unable to open 67
 - unable to find or open 62, 63
- DOS disk
 - formatting for use in Macintosh 57
 - unreadable 57
- DOS document
 - problems using 63
 - unable to open 62, 63
- Drive Setup program
 - hard disk icon doesn’t appear 56
 - initializing a hard disk 77–78
 - testing a hard disk 75

E

- Easy Access control panel 61
- Eject CD command 43, 65
- ejecting
 - CD-ROM discs 43, 65–66, 67, 91
 - floppy disks 36, 91
- electrical grounding 2, 87
- electrical safety 86
- electromagnetic emissions 85
- electronic mail (e mail), PowerTalk
 - providing 35
- Empty Trash command, in Special menu 13
- Enter key 108
- erasing
 - disks. *See* initializing
 - by dragging item to Trash 13
- error messages, responding to 50. *See also* troubleshooting
- Escape key 108
- Ethernet card 33, 34
- Ethernet network, connecting to 33–34

- EtherTalk Phase 2 protocols, for Ethernet communication 34
 - exiting
 - forcing, for program with problem 51, 110
 - quitting unexpectedly and 58
 - expansion cards, installing 3, 97–106
 - closing computer after 104–106
 - a communication card 102–103
 - an LC-PDS card 101–102
 - opening computer for 99–100
 - safety warning about 98
 - extensions, system
 - performance decreases and 70
 - startup problems and 56, 59
 - Extensions Manager control panel, for turning off extensions 59, 70
 - external stereo speakers, connecting 32–33
 - extremely low frequency (ELF)
 - electromagnetic fields 85
 - eye fatigue, computer use and 83
- F**
- fatigue, avoiding 85
 - FCC statement vi
 - Ethernet card use and 34
 - file formats for CD-ROM discs 44
 - not recognized by Macintosh 67
 - problems with 67–68
 - files
 - backing up 38
 - on CD-ROM discs 67–68
 - file-sharing in System 7.5, for sharing CD-ROM disc 48
 - Finder
 - Macintosh Guide in 25
 - making active program 18, 25
 - floating-point unit (FPU) 58
 - floppy disk icon, with an “X,”
 - troubleshooting 55
 - floppy disk
 - backing up 38
 - ejecting 36, 91
 - formatting on DOS computer for use in Macintosh 57
 - handling 89
 - inserting 36
 - rebuilding desktop of 52
 - reinitializing 77
 - repairing 76–77
 - startup problems and 55
 - unreadable 57
 - floppy disk drive 29
 - replacing 34
 - folders
 - Apple Extras 15, 35
 - System, warning about copying from application program 36
 - fonts, in QuickDraw GX program 35
 - foreign characters, Key Caps program for 109–110
 - formatting. *See also* initializing on DOS computer for use in Macintosh 57
 - FPU. *See* floating-point unit
 - “frozen” pointer 49, 60
 - “frozen” screen 49
 - Function keys 108
- G**
- glare, eliminating 84
 - graphics, Photo CD images as source of 46
 - grave accent, key combinations for 110
 - grounding plug 2, 87
 - Guide menu 13, 15, 17–25
 - Drive Setup Guide in 56
 - icon for 17
 - Macintosh Guide in 18–25
 - Shortcuts in 27
 - Show/Hide Balloons in 26

H

- hard disk
 - backing up 38
 - checking for damage on 75
 - initializing 77–78
 - installing application programs on 36
 - installing/reinstalling system software on 54, 79
 - rebuilding desktop of 52, 56, 62
 - reinitializing 77–78
 - repairing 71–77
- hard disk drive (internal) 29
 - replacing 34
- hard disk icon 13
 - not on desktop 56, 71
- hardware. *See also* computer/computer system
 - for Ethernet connection 34
- headphone jack 29
- health-related information 81–85
- help 17–28. *See also* Guide menu; troubleshooting
 - Balloon 26
 - from Macintosh Guide 18–25. *See also* Macintosh Guide
 - Shortcuts and 27–28
 - sources of 15
- HFS (Hierarchical File System) format
 - for CD-ROM discs 44
- Hide Balloons command, in Guide menu 26
- Hide Others command, in Application menu 38
- hiding windows 38
- Hierarchical File System (HFS) format
 - for CD-ROM discs 44
- High Sierra format for CD-ROM discs 44
 - problems using discs with 67–68
- hotline, customer support 15
- “Huh?” button 25

I

- icons 13
 - Apple Desktop Bus (ADB) 6
 - blinking question mark 54, 72, 79
 - “bomb” 51, 59, 69
 - CD-ROM disc 42, 43, 65–66
 - CD-ROM player 65
 - color, for images on Photo CD, not displayed 69
 - disk, with an “X” 55
 - Disk First Aid 76
 - Drive Setup 75, 78
 - Guide menu 17
 - hard disk 13, 56, 71
 - Macintosh Performa CD 74
 - not appearing correctly on screen 56
 - “sad Macintosh” 55
 - Trash 13
- identifying screen objects 26
- image “burn in,” avoiding 88
- incompatibility, software 36, 59, 70. *See also* software compatibility
- Index button, in Macintosh Guide window 19, 21–22
- initializing. *See also* formatting
 - floppy disk 77
 - internal hard disk (reinitializing) 77–78
- inserting
 - CD-ROM disc 42
 - floppy disk 36
- installing. *See also* connecting
 - additional memory 33
 - application programs 36
 - communication card 102–103
 - expansion cards 3, 97–106
 - internal drives 34
 - LC-processor-direct slot (PDS) card 101–102
 - system software 54, 79

- insufficient memory 58, 69, 70
 - performance decreases and 70
 - for Photo CDs 69
 - for PowerPC applications 39
- interference, on monitor
 - screen/radio/television 88
- internal drives, installing 34
- internal hard disk. *See* hard disk
- internal modem 30
- international symbols/characters, key combinations for 109–110
- ISO 9660 format for CD-ROM discs 44
 - problems with discs using 67–68

J

- jack, headphone 29

K

- keyboard x, 29
 - adjusting angle of 7
 - connecting 7
 - handling 88
 - liquid spills on 88
 - no response to typing on 61–62
 - positioning 7, 83–84
 - Power key on 8, 14
 - special keys on 107–108
 - troubleshooting problems with 61–62
- keyboard cable x
 - connecting 7
- keyboard shortcuts 27–28
- Key Caps program, in Apple menu 109–110
- key combinations, special 110
- keys, special 107–108

L

- LAN. *See* local area network
- Launcher
 - opening applications from 35
 - putting program into 36
 - Service/Support area of 15
 - at startup 9
- LC-processor-direct slot (LC-PDS) 97, 101
- LC-processor-direct slot (PDS) card 30
 - access cover for 30
 - installing 101–102
- libraries, shared 64
- local area network
 - connecting to 33–34
 - PowerTalk program for 35
- locking mouse 94–95
- “lock up,” keyboard (no response to typing) 61–62
- logic board
 - removing 100
 - replacing 104–105
- Look For button, in Macintosh Guide window 19, 23–24

M

- Macintosh desktop 9
 - hiding and showing windows on 38
 - pictorial buttons on instead of usual appearance 65
 - rebuilding 52, 56, 62
 - returning to from At Ease 65
 - starting up from CD-ROM disc and 73
- Macintosh Guide 18–25
 - tips for using 25
- Macintosh Guide window 18–19
 - Index button in 19, 21–22
 - Look For button in 19, 23–24
 - moving 18, 25
 - Topics button in 19, 19–20

- Macintosh Performa system 29. *See also* computer/computer system
- Macintosh Performa CD 38, 39. *See also* CD-ROM disc
 - backup copies on 39
 - checking for damaged disk with 75
 - reinitializing hard disk with 77–78
 - reinstalling system software from 54, 79
 - repairing damaged disk with 54, 76–77
 - starting up from 72–74
 - startup problems with 74
- Macintosh Performa CD icon, not on screen 74
- Macintosh programs. *See also* application programs
 - older, problems working with 39, 64
 - for PowerPC microprocessor 39
- Macintosh Shortcuts 27–28
- MacTCP software, for Ethernet communication 34
- mailbox, PowerTalk providing 35
- media adapter, Apple Ethernet 34
- memory
 - expanding 33, 70
 - insufficient 39, 58, 69, 70
 - requirements for for special programs 35
 - virtual 58, 70
- Memory control panel
 - older Macintosh programs and 39, 64
 - virtual memory and 58, 70
- menu bar 13
- microphone x, 29
 - connecting 31
- microprocessor, PowerPC ix
 - application programs designed for 39
- miniplug, stereo 32
- modem, internal 30
- modem port 30
- Modern Memory Manager, older
 - Macintosh programs and 39, 64
- monitor x, 29. *See also* screen display
 - adjusting angle of 3, 84
 - cleaning 92
 - connecting 3–5
 - electromagnetic emissions and 85
 - handling 88
 - positioning 3, 84, 88
 - troubleshooting problems with 53
 - turning on 8
- monitor brightness control 10, 53
 - avoiding screen “burn in” and 88
- monitor cable x, 5
 - connecting 5
- monitor control buttons
 - for brightness 10, 53, 88
 - for contrast 53
- monitor port 5, 30
- monitor power cord x
 - connecting 3–4
- monitor power socket 4
- mouse x, 29
 - cleaning 92–93
 - connecting keyboard to ADB port on 6
 - locking and unlocking 94–95
 - positioning of for maximum comfort 84
 - troubleshooting problems with 60
 - using 12–13
- mouse cable, connecting 6
- mouse shortcuts 27–28
- multisession discs 47
- musculoskeletal discomfort, computer use and 82

N

- “native” applications 39
 - shared libraries needed for 64
- network
 - backing up and 38
 - CD-ROM disc shared over 43, 48, 65
 - connecting to 33–34
 - PowerTalk program for 35
- Network control panel, changing for
 - Ethernet use 34
- numeric keys 108

O

- office furniture and equipment, arranging 83–84
- on/off switch. *See* power button
- Open/Close button, on CD-ROM drive 29, 42, 43
- opening the computer 99–100
- open programs, identifying 37
- open windows, hiding and showing 38
- Option key 108
 - in Key Caps program 109, 110

P

- PC Exchange control panel, for opening
 - DOS document 62, 63
- PDS expansion card. *See* LC-processor-direct slot (PDS) card
- Performa system x, 29
 - connecting additional hardware to 8, 29–34
- performance decreases 70
- Performa Tutorial, for learning basics 9, 12–13
- Photo compact discs (CDs) 41, 45
 - obtaining 47
 - opening 47
 - resolution of 47–48
 - system errors caused by 69
 - troubleshooting problems with 69

- unable to open 69
 - working with 46–48
- photographs, putting on Photo CD 47
- pictures, on CD. *See* Photo compact discs
- PlainTalk Microphone x, 29
 - connecting 31
- plugging in computer 1–2
- pointer
 - “frozen” (not moving) 49, 60
 - moving with mouse 12–13
- ports
 - Apple Desktop Bus (ADB) 6, 7, 30, 61
 - Audio In, on external speaker 32
 - modem 30
 - monitor 5, 30
 - printer 30
 - SCSI 30
 - security lock 30
 - sound input 30, 31
 - sound output 30, 31, 32
- posture, for maximum comfort while using computer 83–84
- power button (standby power button) 2, 30, 51
- power cord
 - computer x, 2
 - monitor x, 3–4
- Power key 8, 14, 108
- power-on light 29
- PowerPC microprocessor ix
 - application programs designed for 39
 - software affecting performance of 70
- power socket
 - computer 2
 - monitor 4
- power supply, safety precautions and 92
- PowerTalk program 35
- pre-installed application programs 35
- printer port 30
- printing, QuickDraw GX program
 - enhancing 35
- programs. *See* application programs
- Put Away command 43

Q

- question mark, Guide menu identified by 17
- question mark icon, blinking 54, 79
 - when starting up from CD-ROM disc 72
- questions. *See* help; troubleshooting
- QuickDraw GX program 35
- QuickTime 45
- quitting application
 - special key combinations for 51, 110
 - unexpectedly 58

R

- radio interference vi, 88
- random-access memory (RAM). *See also* memory
 - expanding 33
 - requirements for for special programs 35
- rebuilding desktop 52, 56, 62
- recording, from audio CD,
 - troubleshooting problems with 68
- recovery programs 77. *See also* Disk First Aid program
- rectangles, instead of diacritical marks, in Key Caps 110
- Reduced Instruction Set Computing (RISC) technology ix
- reinitializing disks 77–78
- reinstalling system software 54, 79
- remote control sensor 29
- repairing damaged disk 71–77
 - checking for damage and 75
 - with Disk First Aid program 76–77
 - starting up from CD-ROM disc and 72–74
- repetitive stress injuries (RSIs), computer use and 82

- reset button, on logic board 105
- resolution, viewing Photo CDs and 47–48
- Restart command, in Special menu or dialog box 51
- restarting computer
 - after “bomb” message 59
 - eliminating problems by 51
 - problems with, with CD-ROM disc in player 66
 - with special key combination 51, 110
- restoring information from backup copy 39
- Return key 108
- RSIs. (repetitive stress injuries) 82

S

- “sad Macintosh” icon 55
- safety instructions 86
 - CD-ROM drive vii
 - disconnecting computer 30, 60, 66, 86, 87
 - grounding plug 2, 87
 - power supply 92
- saving changes to information on CD-ROM disc 67
- scanning disk for defects 75
- screen control buttons
 - for brightness 10, 53, 88
 - for contrast 53
- screen display. *See also* monitor
 - adjusting light and dark on 10, 53, 88
 - blank 9, 10, 53
 - “bomb” on 51, 59, 69
 - identifying objects on 26
 - introductory 9
 - pointer freezing on 49, 60
 - protecting from “burn in” 88
 - at startup 9
- screen saver 88
 - causing screen to go dark 53

- scroll arrows 13
- SCSI chain, incorrect termination of, start up problems caused by 71
- SCSI devices, troubleshooting problems with 54, 71
- SCSI ID numbers, incorrect setting of
 - CD-ROM player problems and 65
 - missing hard disk icon and 56, 71
- SCSI port 30
- searching, for help topics, with Look For button 23–24
- security lock port 30
- security screws 100, 105
- Service/Support area, of Launcher 15
- service and support
 - (customer support) 15
- setting up the computer 1–11
 - connecting additional equipment 8, 29–34
 - connecting monitor 3–5
 - connecting mouse and keyboard 6–7
 - connecting to network 33–34
 - plugging computer in 1–2
 - turning computer on 8–9
- shared CD-ROM disc 48
 - ejecting 43, 65
- shared libraries 64
- Shift key 108
 - in Key Caps program 109
- Shortcuts 27–28
- Show All command, in Application menu 38
- Show Balloons command, in Guide menu 26
- showing windows on desktop 38
- Shut Down command
 - in Apple menu 14
 - in Special menu 14
- Shut Down message 14
- shutting computer down. *See* turning computer off
- SimpleText program 47
- single-session discs 47
- size box 13
- Small Computer System Interface. *See* SCSI devices
- software. *See* application programs; system software
- software compatibility 36, 59, 70
 - Extensions Manager control panel and 59, 70
- floating-point unit (FPU) message and 58
- older Macintosh programs and 39, 64
- performance decreases and 70
- sound
 - adjusting 33
 - recording from audio CD, troubleshooting problems with 68
- sound control (volume control) buttons 29, 33
- sound input port 30, 31
- sound output port 30, 31, 32
- space, diacritical mark with, key combinations for 110
- speakers, external, connecting 32–33
- special characters, key combinations for 109–110
- special key combinations 110
- special keys 107–108
- Special menu
 - Empty Trash command in 13
 - Restart command in 51
 - Shut Down command in 14
- speed, decreases in 70
- spills, handling keyboard and 88
- standard file formats for CD-ROM discs 44
- standby power button (power button) 2, 30, 51
- starting over. *See* restarting computer
- starting up 8–9
 - from CD-ROM disc 72–74
 - troubleshooting problems with 10, 54, 55, 71, 79
- startup disk. *See also* starting up rebuilding desktop of 52, 56

- static electricity 99
- stereo miniplug, for connecting external speakers 32
- stereo speakers, external, connecting 32–33
- storage devices, internal, installing 34
- support, customer 15
- switching among application programs 37
- symbols, key combinations for 109–110
- system error. *See* “bomb” icon/message
- system extensions, incompatible
 - performance decreases and 70
 - startup problems and 56, 59
- System Folder, warning about copying from application program 36
- system software
 - installing/reinstalling, with Macintosh Performa CD 54, 79
 - problems with 54, 55, 71, 79

T

- Tab key 108
- TCP/IP protocols, for Ethernet communication 34
- television
 - interference with reception on vi, 88
 - watching on computer 35
- three-wire grounding plug 2, 87
- tilde, key combinations for 110
- time. *See* clock
- title bar 13
- Topics button, in Macintosh Guide
 - window 19, 19–20
- Trash, emptying 13
- Trash icon 13
- troubleshooting 49–79. *See also* help
 - for application program problems 58, 64
 - for blank screen 53
 - for blinking question mark icon 54, 72, 79
 - for “bomb” message 59, 69
 - for CD-ROM disc ejection problems 43, 65–66
 - for CD-ROM problems 65–69
 - for clock problems 53
 - for disk icon with “X” on startup 55
 - disk repair and 71–77
 - for document that can’t be found or opened 62, 63
 - for DOS document problems 63
 - for floating-point unit (FPU) missing message 59
 - for floppy disk ejection problems 91
 - for floppy disk that’s unreadable 57
 - Guide menu for 17–25
 - for hard disk damage 75, 76–77
 - for hard disk icon not on desktop 56, 71
 - for icons incorrect on screen 56
 - information sources and 15
 - initializing/reinitializing hard disk and 77–78
 - for keyboard problems 61–62
 - for mouse problems 60
 - for older Macintosh programs 39, 64
 - for performance decreases 70
 - for pointer “frozen” (not moving) 49, 60
 - rebuilding desktop and 52, 56, 62
 - repairing damaged disk and 71–77
 - for “sad Macintosh” icon 55
 - for screen dark 53
 - for screen “frozen” 49
 - for shared library missing 64
 - starting over and 51
 - starting up from CD-ROM disc and 72–74
 - for startup problems 10, 54, 55
 - for unreadable DOS disk 57

- turning computer off 11, 14
 - before attempting repair 30, 60, 66, 86, 87
 - before connecting equipment 30
- turning computer on 8–9
- turning monitor on 8
- tutorial program, for learning basics 9, 12–13
- TV. *See* television
- TV tuner card 30, 98
 - Apple Video Player and 35
- typing. *See also* keyboard
 - nothing produced on screen by 61–62
 - special characters and symbols 109–110

U

- umlaut, key combinations for 110
- unlocking mouse 94–95
- unreadable DOS disk 57

V

- VCCI statement vii
- version numbers, for using CD-ROM discs 67–68
- vertical plate 97, 100, 102
- very low frequency (VLF)
 - electromagnetic fields 85
- video, watching on computer 35
- video input card 30, 98
 - Apple Video Player and 35
- video-in slot 97
- virtual memory 58, 70
- volume, in AppleCD Audio Player 68
- volume buttons 29, 33

W, X, Y, Z

- warranty considerations, installing
 - additional RAM and 33
- windows 13. *See also* specific type of windows
 - hiding and showing on desktop 38
- work area, arranging 83–84
- wrist problems, computer use and 82



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