Power Macintosh

User's Guide

Includes setup, troubleshooting, and important health-related information for Power Macintosh 5260 series computers

The Apple Publishing System

This Apple manual was written, edited, and produced on a desktop publishing system using Apple Macintosh computers and QuarkXPress. Technical illustrations were drawn in Adobe™ Illustrator; screen shots were created and modified with system software, ExposurePro, and Adobe Photoshop. Final pages were output using PostScript™ technology.

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

PostScript, the LaserWriter page-description language, was developed by Adobe Systems Incorporated.

Contents

• • • • • •

iii

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.

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

情報処理装置等電波障害自主規制について

この装置は、第二種情報装置（住宅地域又はその隣接した地域において使用されるべき情報装置）で住宅地域での電波障害防止を目的とした情報処理装置等電波障害自主規制協議会（VCCI）基準に適合しております。

しかし、本装置をラジオ、テレビジョン受信機に近接してご使用になると、受信障害の原因となることがあります。

取扱説明書に従って正しい取り扱いをしてください。

Laser information

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

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

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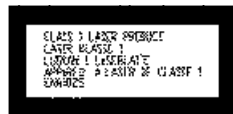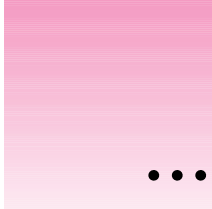
Welcome to Power Macintosh

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

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

Your new 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.

part I

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

1 Getting Started

The illustration on the next 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.
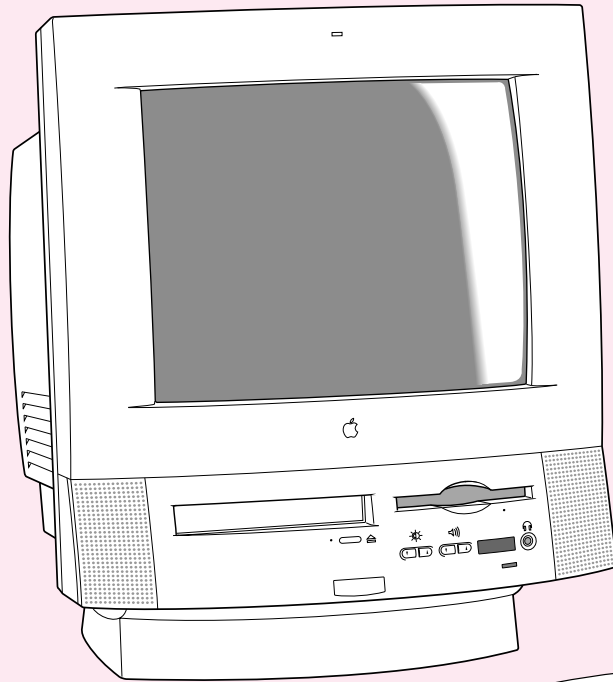
Macintosh computer

Keyboard cable
(sometimes built into the
keyboard as shown here)
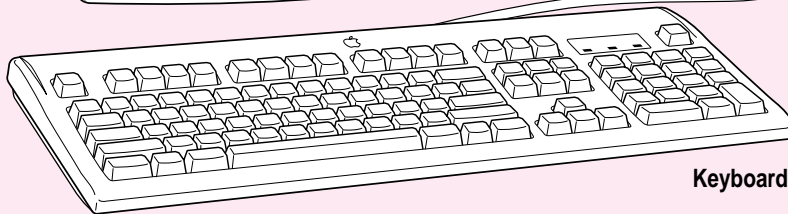
Keyboard
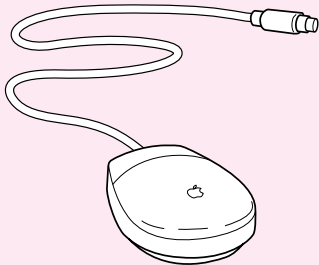
Mouse
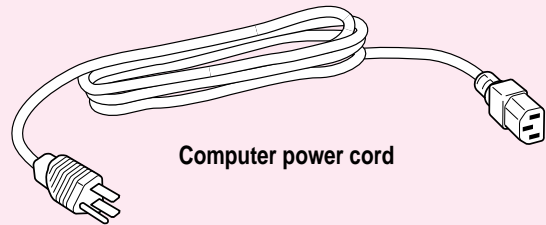
Computer power cord

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 **Place the computer where you want it.**

Carry the computer with its screen facing you. Most of its weight is near the screen. Lift with your knees, not your back.
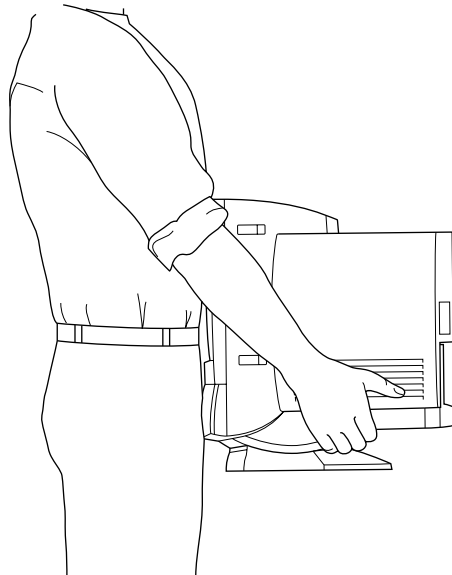
2 **Plug the socket end of the power cord into the recessed power plug (marked with the symbol ～) on the back of the computer.**

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

IMPORTANT To protect both yourself and the computer from electrical hazards, the computer should remain turned off until you are finished connecting its parts. Check the power switch at the back of the computer. Make sure that the side of the switch marked with the O symbol is pressed in.

"Off" position

Power switch
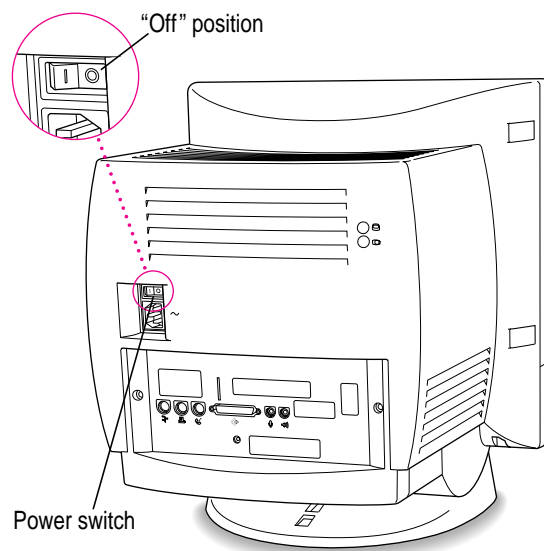
3 **Plug the other end of the power cord into a three-hole grounded outlet or power strip.**
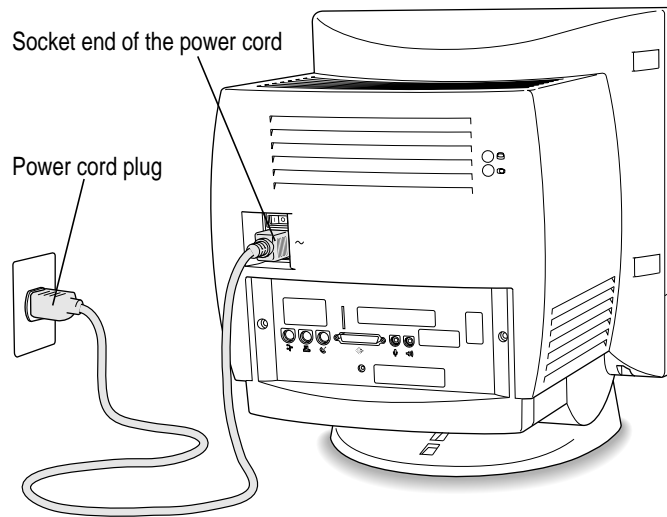
Socket end of the power cord

Power cord plug

> **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!

Installing an expansion card

If you purchased an expansion card for your Macintosh, install it now. (See Appendix B, "Installing Expansion Cards and Adding Memory," for instructions.) If you don't have an expansion card, continue with the next section, "Connecting the Mouse and Keyboard."

Connecting the mouse and keyboard

The way you connect the mouse and keyboard depends on whether the keyboard has a built-in cable or a separate cable.

Connecting a keyboard with a built-in cable

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

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

By the way: A port marked with the ✢ icon is called an Apple Desktop Bus (ADB) port.
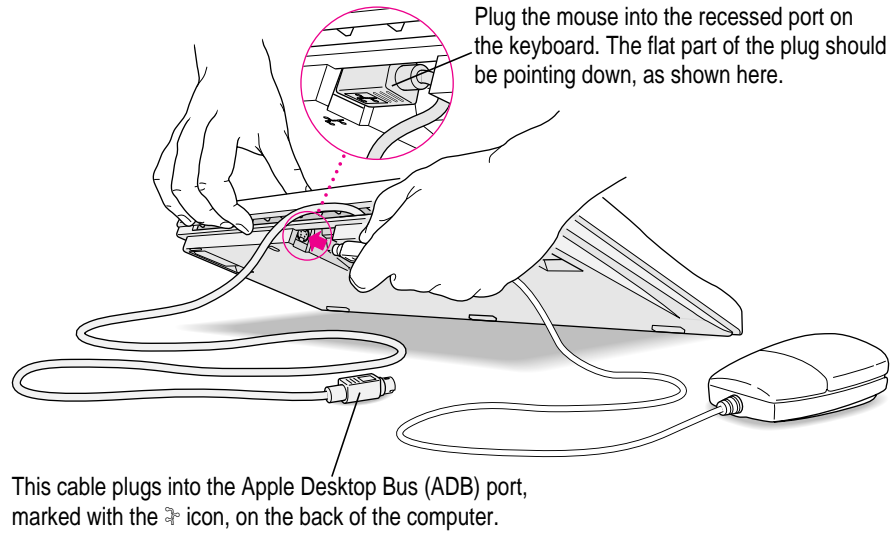
Plug the mouse into the recessed port on the keyboard. The flat part of the plug should be pointing down, as shown here.

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

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

ADB port
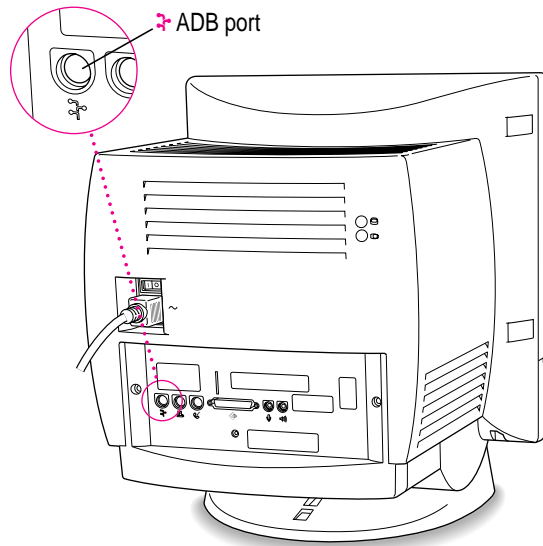
Connecting a keyboard with a separate cable

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

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

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

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

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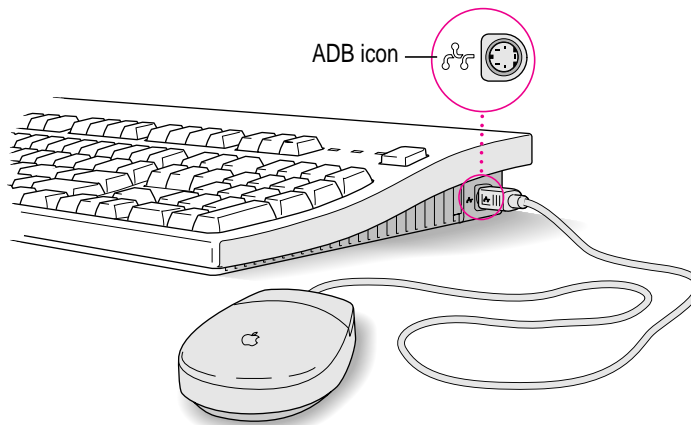
2 Plug the keyboard cable (both ends are the same) into the other port on the keyboard.

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

ADB port
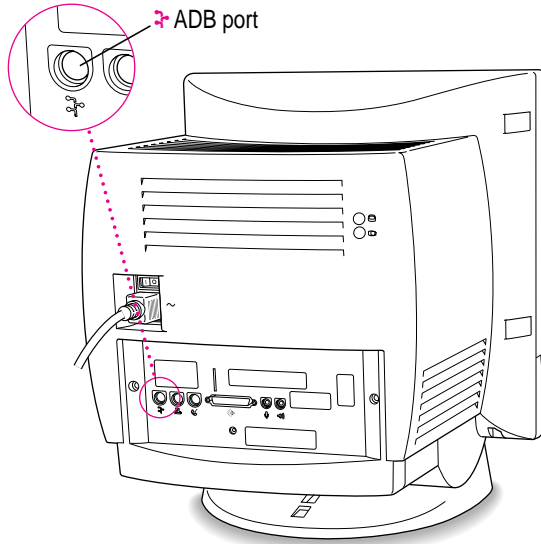
Adjusting the angle of the screen

You can adjust the angle of the screen to avoid glare and reflections by using the computer's tilt-and-swivel base. Turn the computer to either side or tilt it slightly back or forward.
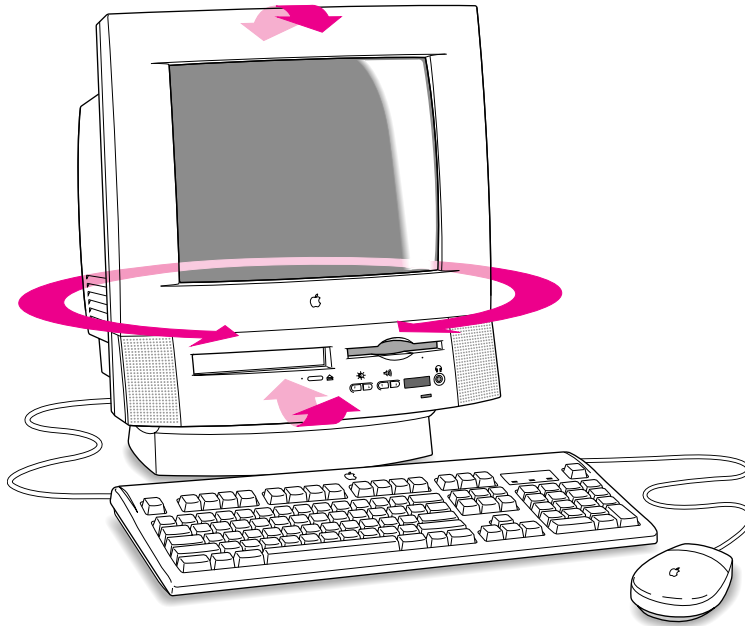
For more information on setting up your office for comfort and safety, see Appendix A, "Health, Safety, and Maintenance Tips."

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, "Expanding Your Computer and Using Special Features."

Turning the computer on for the first time

To turn the computer on for the first time, follow these steps:

1 **On the back of the computer, press the side of the power switch marked with the symbol l.**

Once you turn on the main power with the power switch, you can leave it on. From now on, you'll be starting up and shutting down your computer using the Power key on the keyboard. You only need to use the power switch on the back of the computer when you connect equipment to your computer or when you can't use the Power key for some reason.

"On" position

Power switch
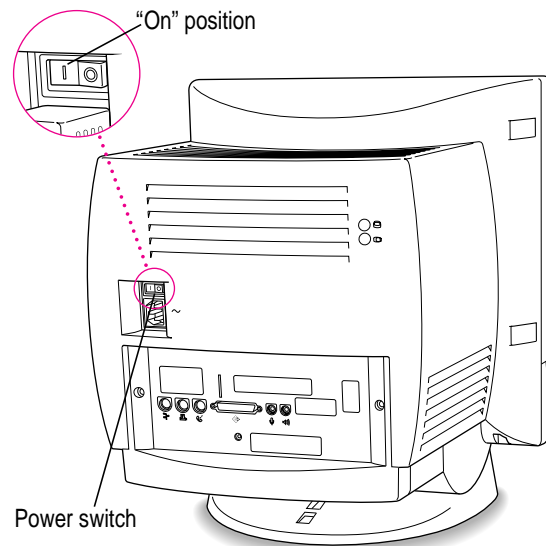
2 Press the Power key (marked with a triangle) on your keyboard.
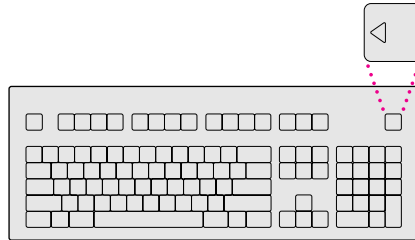
You hear a tone from the computer as it starts up.

3 Check to see what's on your screen.

After a few moments you should see a screen like the one below. This means that the Macintosh Operating System (Mac OS) software has already been installed, and your computer is ready to use.
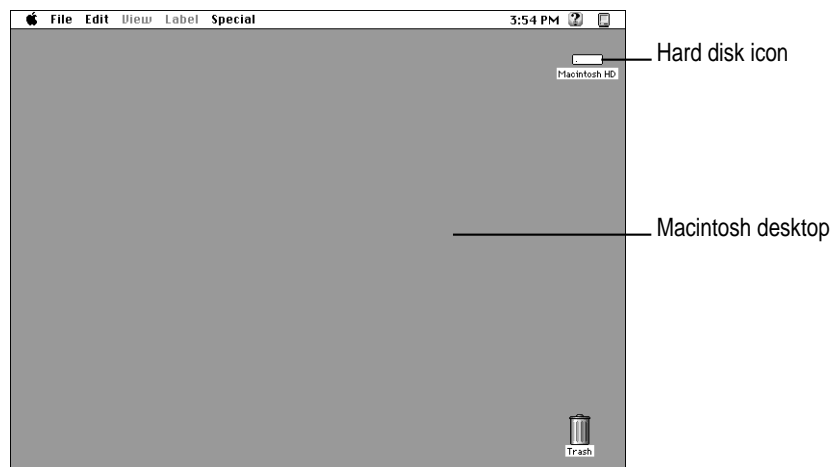
If something else happens, see "Problems Starting Up?" on the next page.

Problems starting up?

If the screen is dark, check these items to see if you can identify the problem:

- Is the computer turned on? The power-on light on the front of the computer should be on. Make sure the side of the power switch marked with the symbol | (on the back of the computer) is pressed in.

- Is the power cord connected to the computer, and is the cord plugged into a power source?

- If the computer is plugged into a power strip, is the power strip turned on?

- 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.)

- Are the screen control buttons on the front of the computer (marked with the ☼ icon) adjusted correctly?

- If you have an external hard disk attached to your computer, is that hard disk turned on? Was it turned on before you turned on the computer? If you're not sure, turn everything off. Then turn on the external hard disk before you turn on your computer.

If you see a blinking question mark on the screen, you probably need to read "Solutions to Common Problems" in Chapter 6, "Troubleshooting."

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, "Expanding Your Computer and Using Special Features."

- 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 any 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 the Macintosh Tutorial. The tutorial teaches you the basic skills you'll need to use your computer. To start the tutorial, follow these steps:

1   Slide your mouse along your mouse pad or desk.

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

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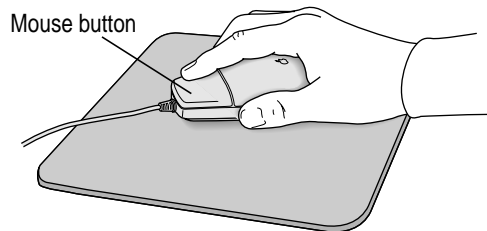
If the arrow doesn't move, make sure that the cables connecting the mouse and keyboard are secure and that your mouse is positioned as shown in the illustration.

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

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

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

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

⍖ File Edit *View* Label Special	3:30 PM ⍰ ▯
	About Apple Guide
	Show Balloons
	Macintosh Tutorial
	Macintosh Guide ⌘?
	Shortcuts
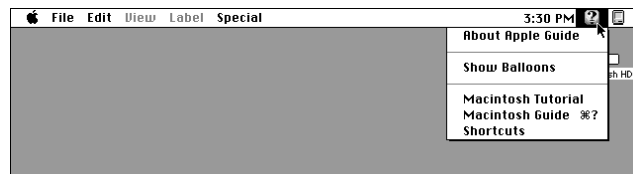
4 **While holding down the mouse button, move the arrow until the words "Macintosh Tutorial" are highlighted, then release the mouse button.**

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

Reviewing the basics

You can use the following illustrations to review the elements you use on your screen to do work with your computer.

Menu

Icons

Window
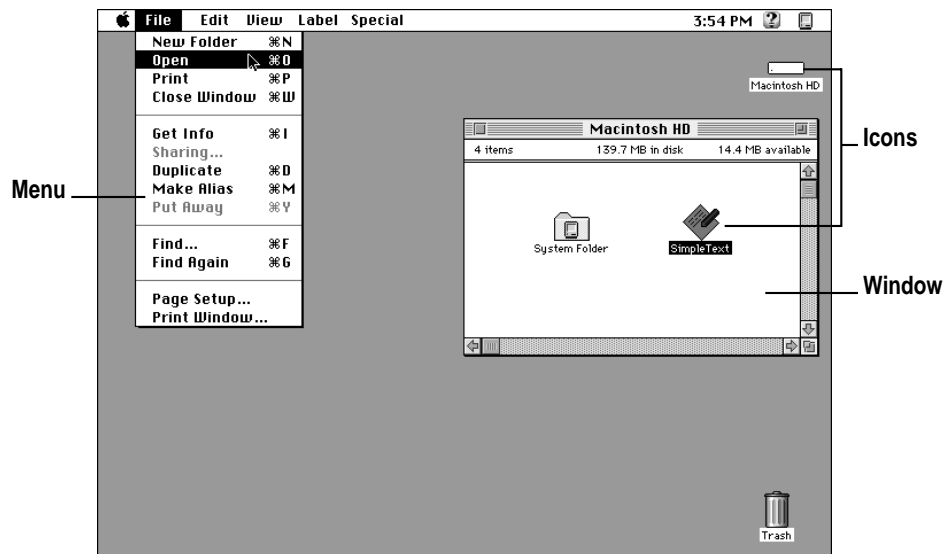
Menus

The strip across the top of the screen is called the menu bar. The symbols and words in it represent menus of commands. To open a menu, place the pointer on the symbol or word for the menu and press the mouse button.

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

 File Edit View Label Special   3:30 PM

About Apple Guide

Show Balloons

Macintosh Tutorial
Macintosh Guide ⌘?
Shortcuts

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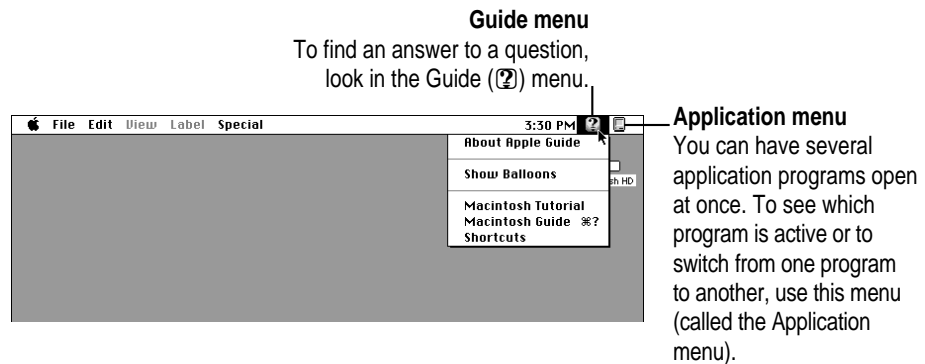
Icons

Icons are small pictures that represent disks, programs, documents, and folders. You can double-click any icon to open it and see what it contains.
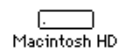
Macintosh HD	This icon represents your computer's internal hard disk.
Application	Icons like this one represent application programs, which you use to create documents and do other work.
Document	Icons like this one represent documents, which you can create and edit.
Folder	Icons like this one represent folders. A folder contains other icons.
Trash	To throw away an item you no longer want, drag it to the Trash icon and choose Empty Trash from the Special menu.

Windows

Windows are boxes that display text, graphics, or icons. To change the shape or position of a window, or to close the window, use the elements shown here.

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

Title bar
To move a window, drag it by the title bar (anywhere in the bar except the small boxes).

Macintosh HD

4 items   139.7 MB in disk   14.4 MB available

Name

System Folder   SimpleText

Scroll arrow
To bring hidden portions of a window's contents into view, click one of the four scroll arrows.

To bring a partially covered window to the front, click anywhere in it.

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

Turning the computer off

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

1   **Move the tip of the arrow () to the word "Special" at the top center of the screen.**

 File Edit View Label Special   3:54 PM

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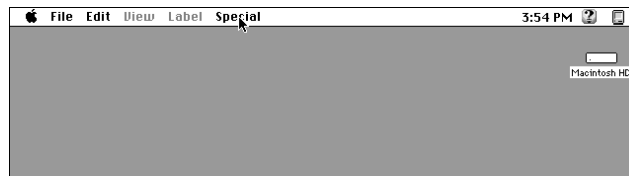
If the word "Special" does not appear at the top of the screen, you're working in the wrong program. Pull down the Application menu (to the right of the Guide [] menu) and choose Finder. Then try step 1 again.

2   **With the tip of the arrow on the word "Special," press and hold down the mouse button.**

3   While holding down the mouse button, move the arrow down the list of choices until the words "Shut Down" are highlighted, then release the mouse button.

```
 File  Edit  View  Label  Special                          3:54 PM  ?  
                          Clean Up Window
                          Empty Trash
                                                                        
                          Eject Disk      ⌘E                   Macintosh HD
                          Erase Disk...

                          Restart
                          Shut Down
```

You can also shut down your computer from the keyboard:

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

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

2   Click Shut Down.

Turning the computer on

To turn the computer on after you've shut it down with either the menu command or the keyboard:

■   Press the Power key (marked with the triangle) on the keyboard.

Leave the power switch on the back of your computer in the "on" position. (The side of the switch marked with the | symbol should be pressed in.)

Where to find answers

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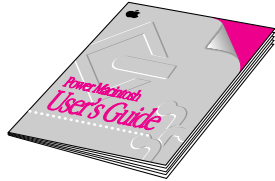
In this book

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

In the Guide menu

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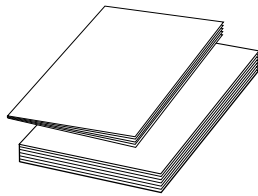
In other manuals

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

From Apple's customer support hotline

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

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

2 Getting Help

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

Getting answers to your questions

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

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

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

2 **Pull down the Guide menu (marked with the ⍰ icon) and choose Macintosh Guide.**
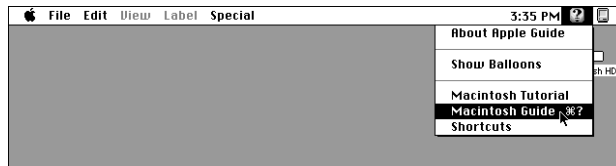
The Macintosh Guide window appears.
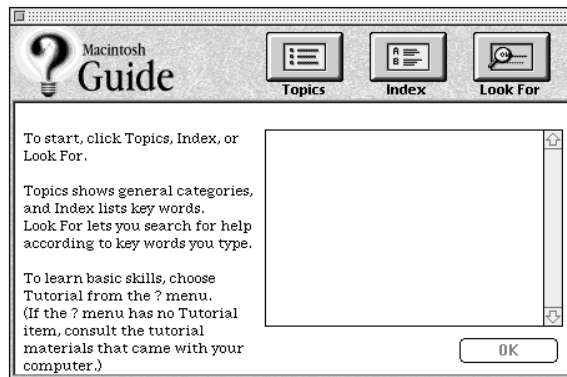
Whenever you use Macintosh Guide, its window remains in front of other windows. If the window gets in your way, you can move it by dragging its title bar (the gray bar across the top of the window).

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

Macintosh Guide gives you three ways of finding information:

- **Topics** lets you choose from a list of general subjects; it is like the table of contents in a book.

- **Index** lets you choose from an alphabetical list of more specific subjects; it is like the index in a book.

- **Look For** lets you search for information related to a specific word or phrase that you type.

In the following sections you will practice using each method.

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

Getting answers with the Topics button

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

A list of general topics appears on the left side of the Macintosh Guide window. (Depending on the hardware and software you have, the list of topics may look different.)
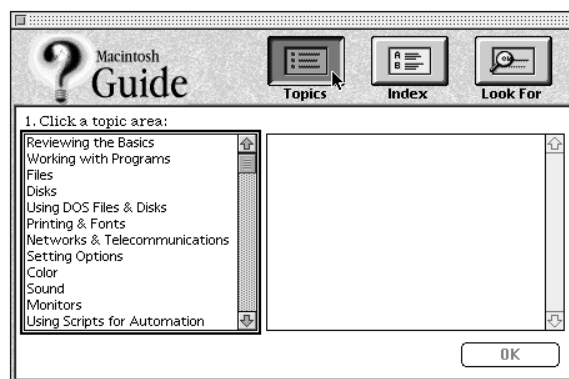
2 **Click an item (such as "Setting Options" or "Customizing Your Computer") in the list of topic areas.**

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

To get instructions, click a question…
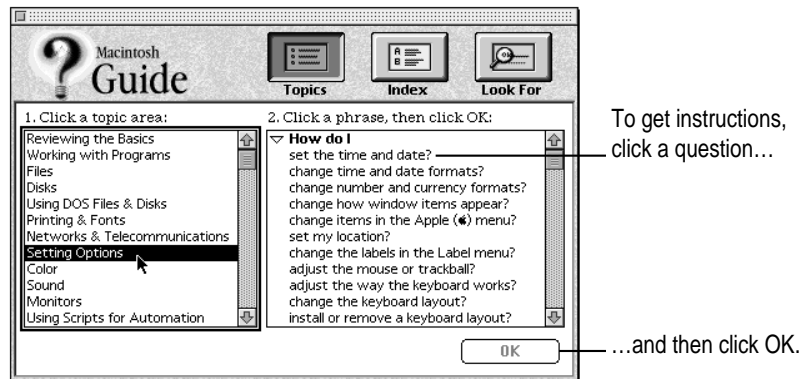
…and then click OK.

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.

If you want to return to the main Macintosh Guide window, click here.

Click here to see the next step (if there is one).
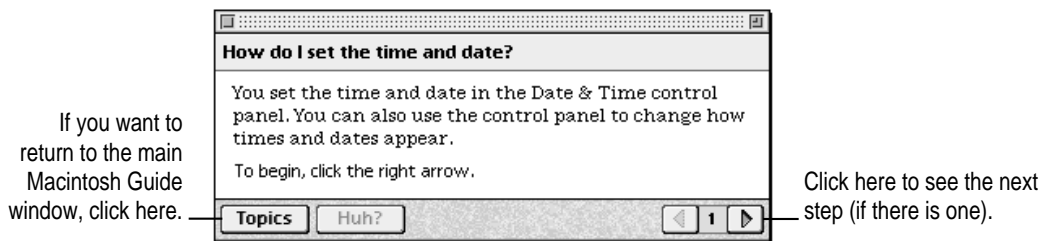
4 **Read and follow the instructions in this window.**

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.
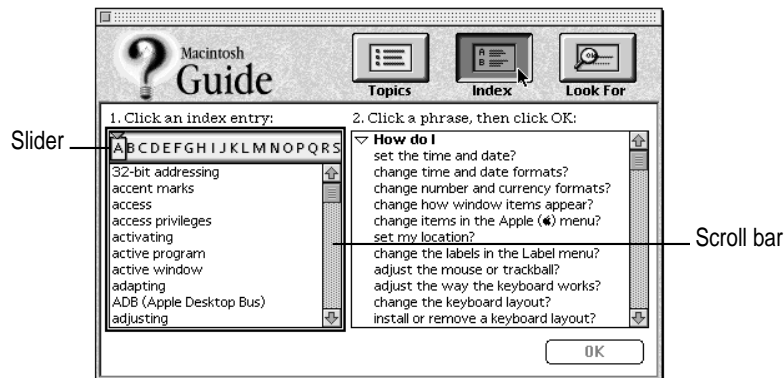
Slider

Scroll bar

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.

To get instructions,
click a question…
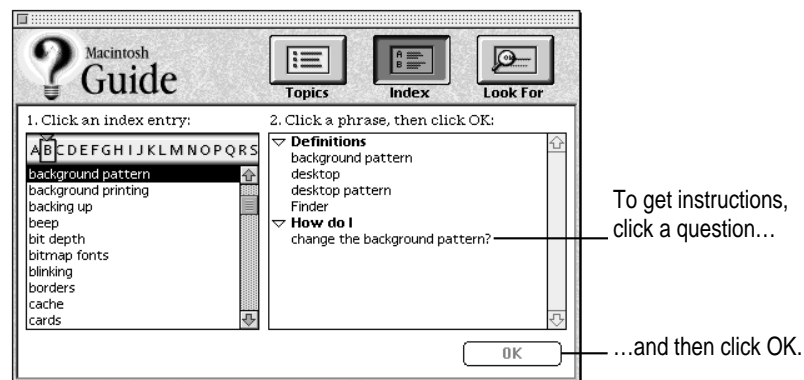
…and then click OK.

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.

If you want to
return to the main
Macintosh Guide
window, click here.

How do I change the background pattern?

You use the Desktop Patterns control panel to choose or create a background pattern (called the desktop pattern).

Which do you want to do? Click one:

⊙ Choose a pattern
○ Create my own pattern

Make your choice, then click the right arrow.

Topics   Huh?   ◁ 1 ▷

Click here to see the next
step (if there is one).
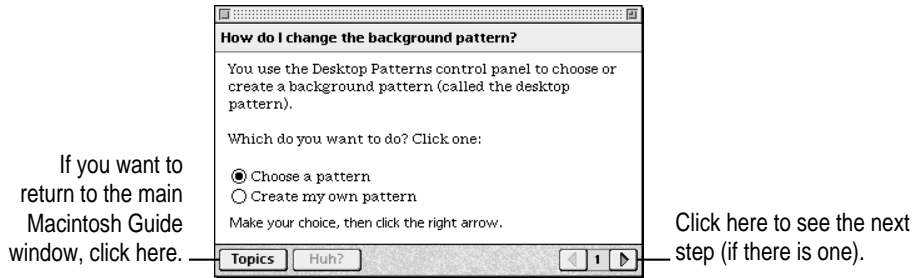
5   **Read and follow the instructions in the window.**

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 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.

To activate the text
box, click here.

Type a word or phrase
in the text box…
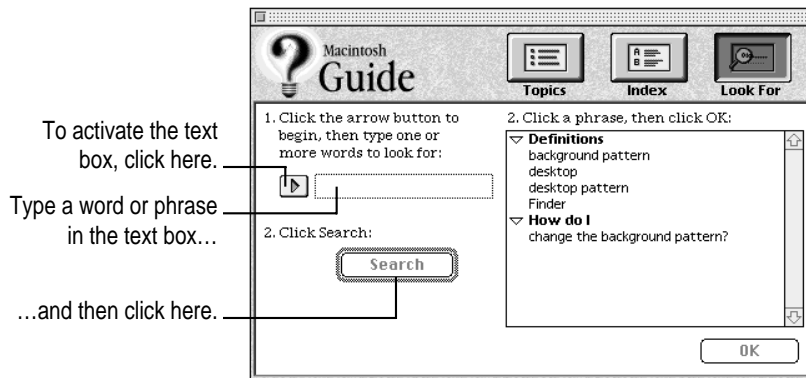
…and then click here.

2   Click the arrow button to activate the text box.

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

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

To get instructions,
click a question…
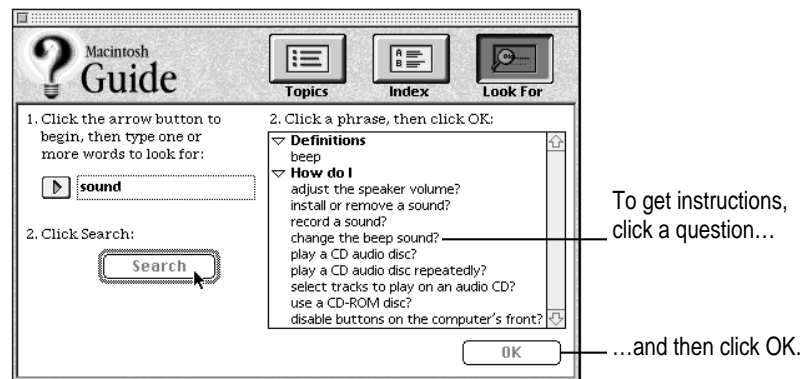
…and then click OK.

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.
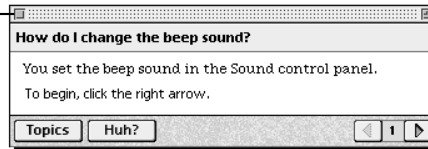
How do I change the beep sound?

You set the beep sound in the Sound control panel.

To begin, click the right arrow.

Topics   Huh?   1

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

5   **Read and follow the instructions in the window.**

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

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

Tips for using Macintosh Guide

Here are a few tips for using Macintosh Guide effectively:

- Macintosh Guide is available only when you are in the Finder—the desktop area where you can see the icons of disks, folders, and files. (Other programs may also have help available in the Guide menu, however.) If you don't see Macintosh Guide in the Guide menu, pull down the Application menu (to the right of the Guide menu) and choose Finder.

- Follow the steps when you're instructed to; don't skip ahead or read ahead. That way the computer can check to make sure you've done a step correctly.

- Unlike most windows, the Macintosh Guide window stays in front of other windows on the screen so that your instructions are never covered. If you need to move the Guide window out of the way, drag it by the title bar at the top of the window.

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

- If you need more information about an instruction or a term, click the button labeled "Huh?" to get further explanation. (The "Huh?" button is dimmed when no additional information is available.)

- If you want to return to the main Macintosh Guide window, click the Topics button in the lower-left corner of the Guide window.

- When you're finished using Macintosh Guide, click the close box in the upper-left corner of the window.
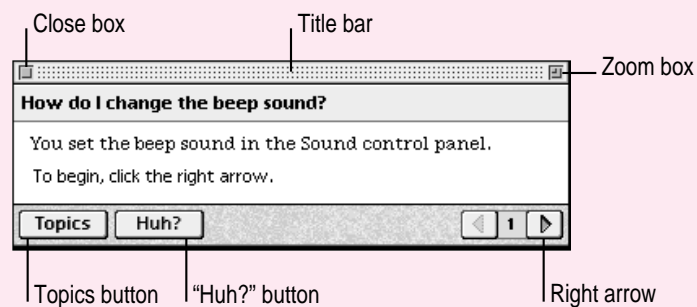
Identifying objects on the screen

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

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

Follow these steps to use Balloon Help:

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

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

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

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

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

Learning useful shortcuts

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

Follow these steps to learn keyboard and mouse shortcuts:

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

The main Macintosh Shortcuts window appears.

```
Macintosh Shortcuts
You can use keyboard commands to work quickly in the
Finder. Click a category below. (Other keyboard
commands are listed in the menus.)

  Working with        Working with        Working with
     icons              windows            list view

  Using directory     Restarting the     Miscellaneous
  dialog boxes          computer            options
                                              1
```
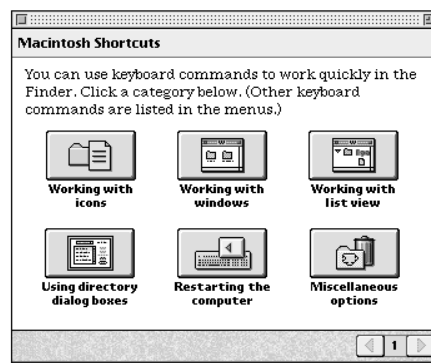
2   Click one of the category buttons.

Another window appears, describing shortcuts for that category.

If you want to
close the window,
click here.

```
Working with icons

To open an icon
        Double-click the icon

To copy an icon into another folder (instead of
moving it)
        option  + drag the icon

Topics                                      1
```

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

Click here to see the next
window (if there is one).
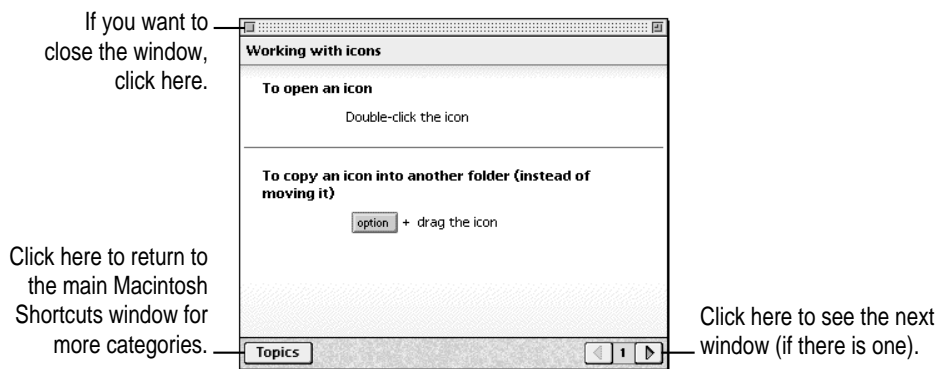
3 **Read about the shortcuts available for the category you selected.**

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
and using special features of your computer.

3 Expanding Your Computer and Using Special Features

Read this chapter to learn how to connect additional equipment to your Macintosh. Also read this chapter to learn about some of the special features of your Macintosh:

- using the sound control buttons
- using the screen control buttons
- using the built-in microphone
- connecting to a network
- connecting a second monitor
- connecting external SCSI devices

Built-in microphone

CD-ROM drive (optional)

⏏ CD-ROM drive
Open/Close button

☀ Screen control buttons
Use these buttons to lighten
or darken your screen.

Stereo speakers

Tilt-and-swivel base

Remote control sensor

Power-on light
A green light indicates
that the computer is on.

Keyboard

Color display
Your built-in monitor can
display thousands of colors.

Floppy disk drive

◀)) Sound control buttons
Use these buttons to
change the volume of
the computer's sound.

◁ Power key
Use this key to turn your
computer on and off.

🎧 Headphone jack

Mouse

Your computer's ports and connectors

Video input card (optional)		Connects your Macintosh to a video camera, VCR, or other video equipment.
Apple Desktop Bus (ADB) port	⅄	Connects your Macintosh to an input device, such as a keyboard or a trackball.
Printer port	🖶	Connects your Macintosh to a printer, LocalTalk network, or GeoPort devices, such as the GeoPort Telecom Adapter and the QuickTake 150 digital camera.
Modem port	☏	Connects an external modem or GeoPort devices, such as the GeoPort Telecom Adapter and the QuickTake 150 digital camera to your Macintosh.
TV tuner card (optional)	Ⴈ	Connects your Macintosh to an external TV antenna or cable TV service.

Power switch

~ Power socket

Video input card
(optional)

∴ Apple Desktop Bus
(ADB) port

▣ Printer port

↙ Modem port

Internal hard disk drive

⚡ SCSI port

External video connector
(optional)

LC-PDS card access cover

Communication card
access cover

◀))) Sound output port

⚲ Sound input port

Ψ TV tuner card (optional)

⊞ Security lock port
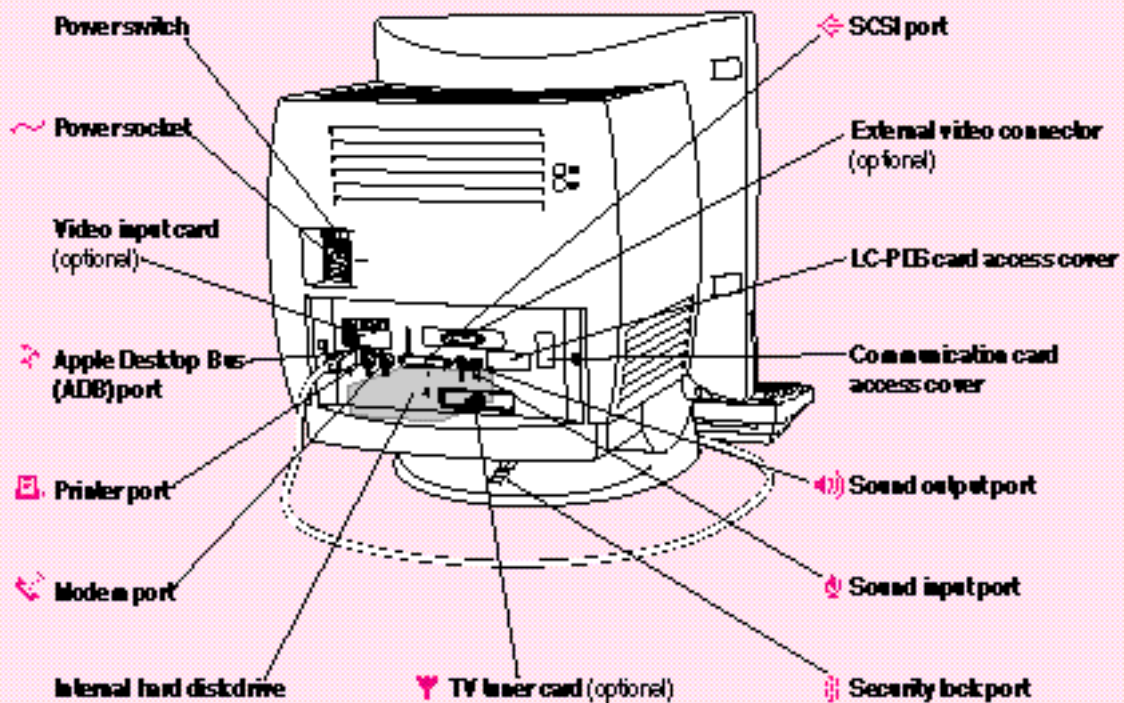
Sound input port	⚲	Connects your Macintosh to another audio source, such as a compact disc or audio cassette player.
Sound output port	◀))	Connects your Macintosh to sound output equipment, such as externally powered (amplified) speakers.
Communication card access cover		Covers port for optional communication card.
LC-PDS card access cover		Covers port for optional LC-PDS slot expansion card.
External video connector (optional)		Connects your Macintosh to a presentation system or a second monitor for video mirroring.
SCSI port	⚡	Connects your Macintosh to SCSI equipment, such as external hard disk drives and scanners.

Using the sound control buttons on your computer

There are two sets of buttons on the front of your Macintosh. The set on the right (marked with the ◀)) icon) is for sound control. You can use these buttons to increase or decrease the volume of the sound your Macintosh plays:

■ Press the button on the right to make the sound louder.

■ Press the button on the left to make the sound softer.

◀)) Sound control buttons
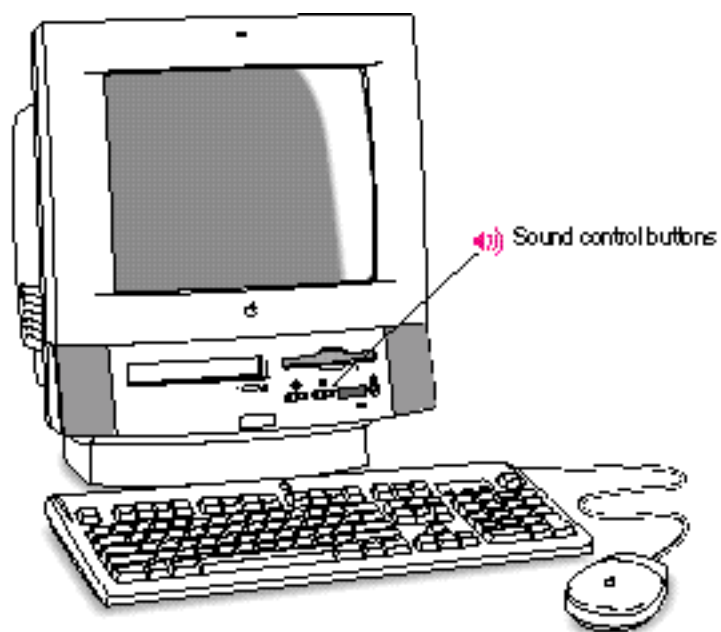
You can also adjust the sound by using the Sound control panel. For more information about adjusting sound, see the "Sound" topic of Macintosh Guide, available in the Guide (②) menu.

Using the screen control buttons on your computer

You can adjust the level of light and dark on the screen of your built-in monitor by using the screen control buttons on your computer (marked with the ☀ icon).

- Press the button on the right to lighten your screen.

- Press the button on the left to darken your screen.

Screen control buttons
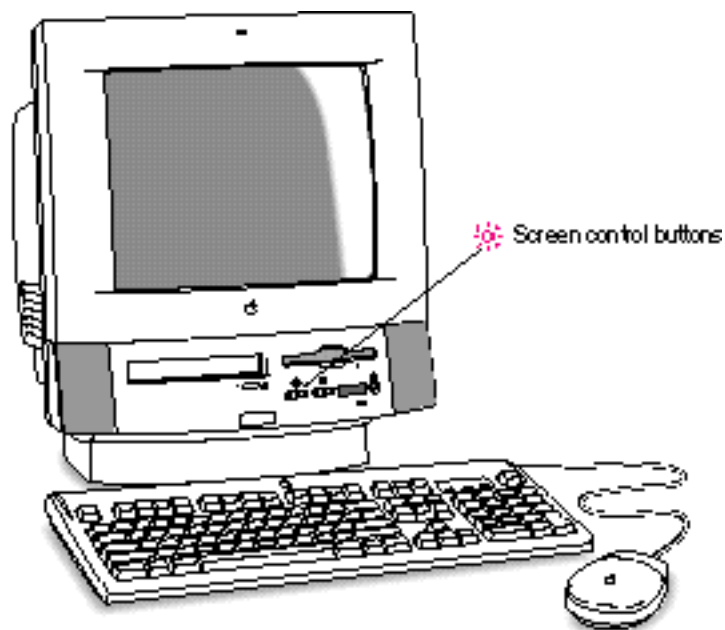
Using the built-in microphone

Your Macintosh comes with a built-in microphone for recording live sounds. The microphone is highly sensitive. Once you've turned it on (which you do with a sound-recording application program), it can pick up sounds within a range of several feet. For information on recording sound, see the "Sound" topic of Macintosh Guide, available in the Guide (?) menu.

Built-in microphone
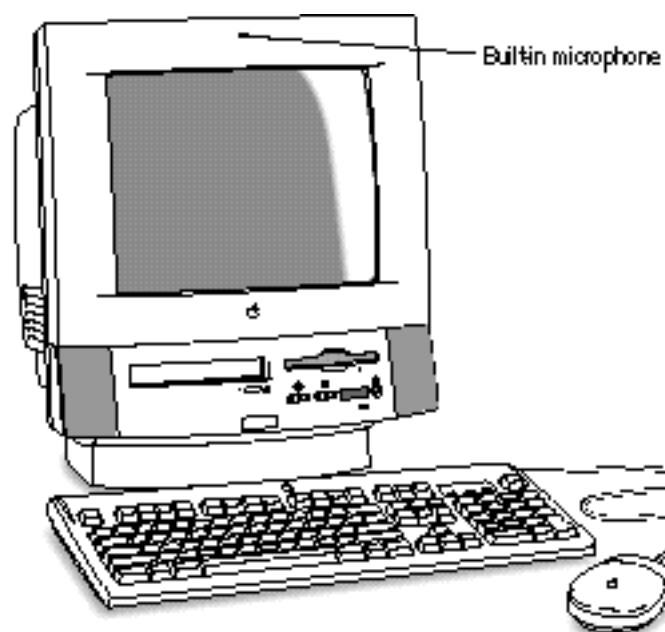
WARNING Do not stick any small objects into the built-in microphone. Doing so may damage your equipment.

Connecting to an Ethernet network

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

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

To use Ethernet, you need to change the network connection in the Network control panel. (For instructions on how to select a network connection and other information about using your Macintosh on a network, see the "Networks & Telecommunications" or "Sharing Files" topic (depending on the version of system software you are using) 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.

Connecting a second monitor for video mirroring

You can connect a second, external monitor to your computer to display the same images that are on the computer's built-in monitor. Displaying your computer's images on a second monitor, called *video mirroring,* is useful for presentations.

If you want to use video mirroring, you need an Apple External Video Connector (available from your retailer) with an external monitor attached. (If your computer doesn't have this connector, you can install one.)
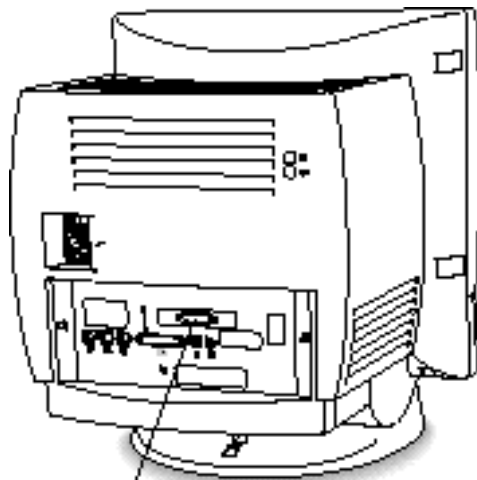
Apple external video connector installed

The external monitor must use the same resolution and timing as the built-in monitor. If you want to display your built-in monitor's images on a standard TV or record them using a VCR, you'll need the Apple Presentation System, which adds these capabilities when used with the external video connector kit. The Apple External Video Connector kit and the Apple Presentation System are available for purchase from computer stores. (Some computers come with the Apple External Video Connector kit and/or the Apple Presentation System.)

For more information about the monitors that you can connect to your computer for video mirroring, see Appendix D.

Connecting external SCSI devices

Your computer has a port for connecting devices that use the Small Computer System Interface (SCSI, pronounced "skuh-zee"). The SCSI port permits high-speed communication between the computer and the device. The SCSI icon appears below the port on the computer's back panel.
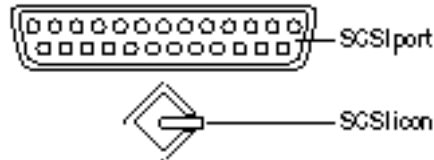
You can connect SCSI devices to the SCSI port in a chain. SCSI devices commonly used with the Macintosh include hard disk drives, CD-ROM drives, scanners, some printers, and tape or cartridge backup drives.

Your Macintosh can support a chain of up to six SCSI devices. The internal CD-ROM drive (if you have one) is the first device in the chain. Therefore, you can attach up to five external SCSI devices to your computer. (If you do not have an internal SCSI device installed, you can attach up to six external SCSI devices to your computer.) The first external device plugs into the SCSI port; the second device plugs into the first device, and so on. All SCSI devices connected to this chain must have their own unique ID number.

IMPORTANT The next sections, "Before You Connect a Device" and "Connecting a SCSI Device," contain general instructions for attaching SCSI devices to your computer. Be sure also to follow the specific instructions that came with your external hard disk drive or other SCSI device when connecting the device to your Macintosh.

Before you connect a device

Before you connect a SCSI device to your Macintosh, be sure to complete these tasks:

■ Make sure each SCSI device connected to your Macintosh has its own, unique ID number from 1 to 6, but not 3 (the internal CD-ROM drive is device 3). See the instructions that came with each SCSI device for information on checking and setting its SCSI ID number.

IMPORTANT If you use two or more devices attached to the same SCSI interface with the same ID number, your equipment could malfunction and you could lose data as a result.

■ Make sure you have the appropriate cable for attaching the SCSI device to your Macintosh.

If the device is the first or only one you're connecting, use a SCSI system cable to connect it to the computer's SCSI port:

SCSI system cable
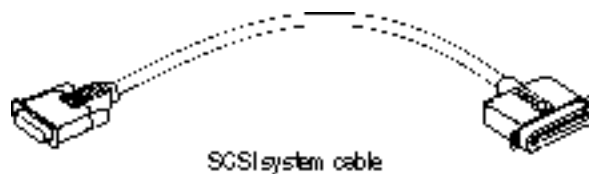
If the device is not the first one, use a SCSI peripheral interface cable to connect it to the last device in the chain:

SCSI peripheral interface cable
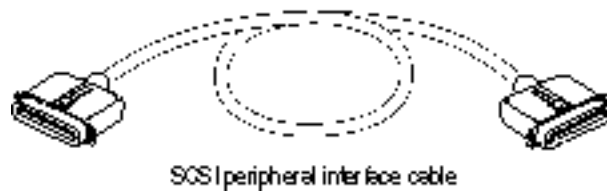
IMPORTANT The total length of the cables in a SCSI chain should not exceed 6 meters (20 feet). SCSI cables must have a 110-ohm impedance. For best results, use SCSI cables manufactured by Apple Computer.

- Make sure that the last (or only) device in the SCSI chain has a terminator. Make sure that no other external SCSI device has a terminator.

  To ensure accurate transmission of information, a terminator must be at each end of a SCSI chain. Your internal hard disk, which is the first device in the chain, has a built-in terminator.

  Some external SCSI devices from manufacturers other than Apple have built-in terminators. (Check the information that came with the device.) If the device at the end of the SCSI chain does not have a built-in terminator, you need to attach an external terminator.
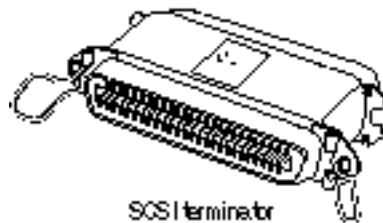
SCSI Terminator

If your SCSI device has a built-in terminator, use it as your last device in the chain. (Or, you may have your Apple-authorized service provider remove any extra built-in terminators.) You can attach or remove external terminators yourself.

Connecting a SCSI device

Use these general instructions in conjunction with the instructions that came with your SCSI device:

1 **Turn off your Macintosh.**

2 **Make sure the SCSI device is switched off.**

> **WARNING** Do not connect or disconnect any device while the device or your Macintosh is turned on. Doing so could damage the device, your computer, or both.

3 **Use a SCSI cable to connect the device either to the computer's SCSI port or to the last SCSI device already in the chain.**

4 **Turn on all devices in your SCSI chain.**

IMPORTANT Always turn on any external SCSI devices connected to your Macintosh before turning on the computer itself. Otherwise, your computer won't be able to recognize that the SCSI devices are connected to it and your computer may not be able to start.

5 **Install any necessary device drivers (software that makes a device work with your computer).**

Drivers needed for a SCSI device usually come on a floppy disk with the device. (If no drivers come with the device, contact the device manufacturer.)

Note: If you experience problems after connecting a SCSI device, see the troubleshooting information in Chapter 6 for possible solutions.

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

4 Installing and Using Application Programs

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

■ AppleScript, which allows you to automate any actions you perform repeatedly on your Macintosh

■ PowerTalk, which provides built-in mail and collaboration services

■ QuickDraw GX, which gives your computer more powerful printing capabilities

■ Apple Video Player, which you use to watch video or TV on your computer

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

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

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

Installing application programs

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

If you have questions about installing and using an application program, refer to Macintosh Guide, available in the Guide (⁇) menu, and the Read Me files for the program. (Read Me files are text files that contain additional information about application programs. They are usually found on the first installation disk, as well as inside the program's folder.)

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

Insert the floppy disk, metal end first, into the floppy disk drive of your computer.

For instructions on how to eject floppy disks, see the "Disks" topic area of Macintosh Guide, available in the Guide (⁇) menu.

Sometimes, you'll install an application program on your internal hard disk from a CD-ROM disc that contains the program. The following illustration shows how to insert a CD-ROM disc into your computer's CD-ROM drive, the disc lying flat with the label side up.
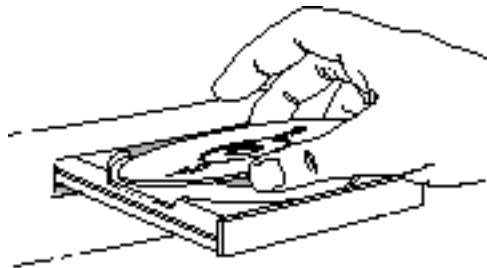
For instructions on how to eject CD-ROM discs, see "Ejecting a CD-ROM Disc" in Chapter 5.
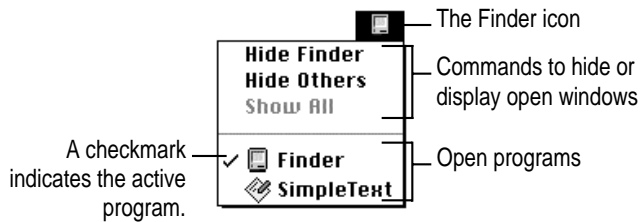
To use your programs most effectively, follow these guidelines:

■ To avoid installation problems, turn off virus-detection programs before you install any software.

■ Put only one copy of each program on your hard disk. Having more than one copy can cause errors.

■ Whenever you copy a program disk to your hard disk, be careful not to copy a System Folder. Always check to see what you've copied, and drag any extra System Folders to the Trash.

■ If a program malfunctions consistently, try installing a fresh copy. If that doesn't help, find out from the software manufacturer whether your version of the program is compatible with the system software you're using.

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.

The Finder icon

Commands to hide or display open windows

A checkmark indicates the active program.

Open programs

Hide Finder
Hide Others
Show All

✓ Finder
SimpleText

Finding out which programs are open

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

Switching programs

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

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

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

Hiding and showing windows on the desktop

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

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

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

Backing up your files

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

■ You can back up files stored on your hard disk by copying them to floppy disks.

■ You can back up an entire floppy disk by copying it to another floppy disk, or to a hard disk.

■ If a file is too large to fit onto a single floppy disk, you will need to use a commercial backup program to copy the file onto multiple floppy disks.

■ You can use a commercial backup program to copy new and changed files from a hard disk to another hard disk, to a tape drive, or to a series of floppy disks.

■ If your computer is on a network, you can back up files by copying them to a shared disk on the network.

Using Power Macintosh application programs

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

Special memory requirements

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

You can also add more memory to your computer, as described in "Installing Memory (DRAM SIMMs)" in Appendix B.

Shared libraries

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

If one of these programs requires a shared library and there is not enough memory available for the shared library, you'll see a message that the program could not be opened because of insufficient system memory. If this happens, see the "Memory" topic area of Macintosh Guide, available in the Guide (❷) menu, for instructions on turning on virtual memory.

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

Using older Macintosh programs

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

**Read this chapter for information on
using the internal CD-ROM drive,
if your computer has one.**

5 Using the Internal CD-ROM Drive

Read this chapter for information on using the internal CD-ROM (Compact Disc Read-Only Memory) drive, if your computer has one. (CD-ROM drives are also sometimes called CD-ROM *players.*) Refer to Appendix A, "Health, Safety, and Maintenance Tips," for information on the proper handling of CD-ROM discs.

Your internal CD-ROM drive 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 player cannot "write" information onto CD-ROM discs.
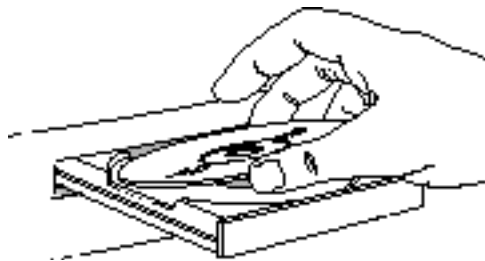
A wide selection of CD-ROM discs is available for entertainment, education, and business. A typical disc can hold over 650 megabytes (MB) of information—the equivalent of 270,000 pages of text; up to 8 hours of speech or music (depending on the sound quality); hundreds of high-resolution images; or any 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.

WARNING It's best not to use small (8 cm) discs with your computer. Because your computer is designed to tilt and swivel on its base (allowing you to position the monitor to minimize glare and reflections), small discs may not stay in the proper position in the CD-ROM drive. If you do use a small disc, make sure your computer is as level as possible before you insert the disc, and don't tilt and swivel the base while a small disc is in the drive. If a small disc is not properly seated, the disc or the CD-ROM drive (or both) may be damaged.

1 Start up your Macintosh computer, if it's not already on.

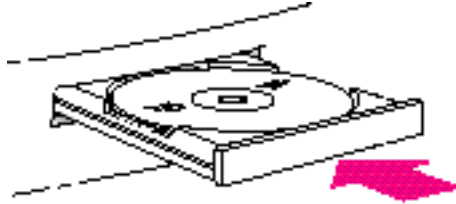**2 Press the Open/Close button to open the tray of the CD-ROM drive.**
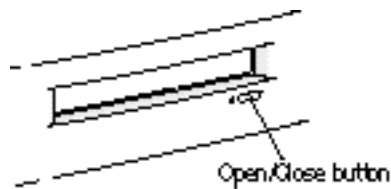
Open/Close button

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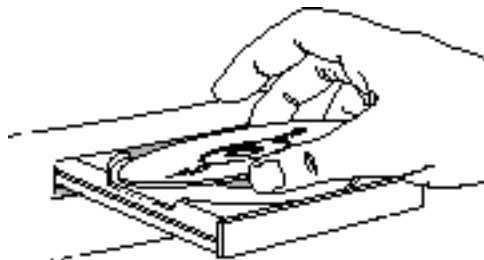
4 **Push the tray in, or press the Open/Close button, to close the tray.**

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 drive 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.

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 to the computer to listen to audio CDs and audio tracks.

Note that you may need to set control panel options in order to play audio CD-ROM discs. Refer to the "Sound" topic area of Macintosh Guide, available in the Guide (⍰) menu.

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.

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" or "CD-ROM Discs" topic (depending on the version of system software you are using) of Macintosh Guide, available in the Guide (②) menu.

Viewing the contents of a Photo CD

When you double-click a Photo CD file, it is opened by the TeachText or SimpleText program, unless you select another program to open Photo CD images. See "Setting Preferences for How Photo CD Images are Displayed" later in this chapter.

IMPORTANT If you plan to use TeachText or SimpleText to view Photo CD images or other large files, you should use the program's Info window to assign it more memory. For instructions on assigning memory to a program, refer to the "Memory" topic area of Macintosh Guide, available in the Guide (②) menu.

To view images on a Photo CD:

1 **Insert a Photo CD in the CD-ROM player's tray, with the disc label facing up.**

2 **Close the tray.**

The first time you insert a particular Photo CD, a message appears telling you the system is creating icons. These icons are tiny representations of the photo CD's contents. Click Stop if you want to use generic document icons instead.

After a few moments, an icon for the Photo CD appears on the desktop. The disc name has the letters "PCD" and an identifying number supplied by the photofinisher. You cannot change the name of the disc.

By the way: If you choose generic document icons and later decide you want Photo CD icons instead, you can create them by pressing ⌘-Option as you insert the Photo CD. Continue holding down the keys until the disc icon appears.

3 **Double-click the disc icon to open the Photo CD window.**
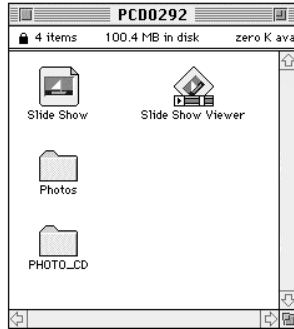
A Photo CD window always contains a Slide Show, the Slide Show Viewer, and a Photos folder. The Slide Show is a QuickTime movie that contains all your images. (See "Viewing Several Images in Sequence," later in this chapter, for more information.) The Photos folder holds your individual images.

The Photo CD window also contains a PHOTO_CD folder that holds technical information about your Photo CD images. Normally, you won't need to use this folder.

4 **Double-click the Photos folder to open it.**
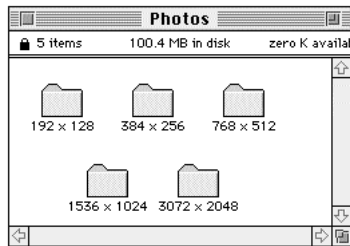
The Photos folder contains five folders. Each folder contains all your Photo CD images recorded at a particular resolution. (See "A Note About Resolution" later in this chapter.)

5 **Double-click the folder for the resolution you want.**

The icons represent the individual images on your Photo CD.
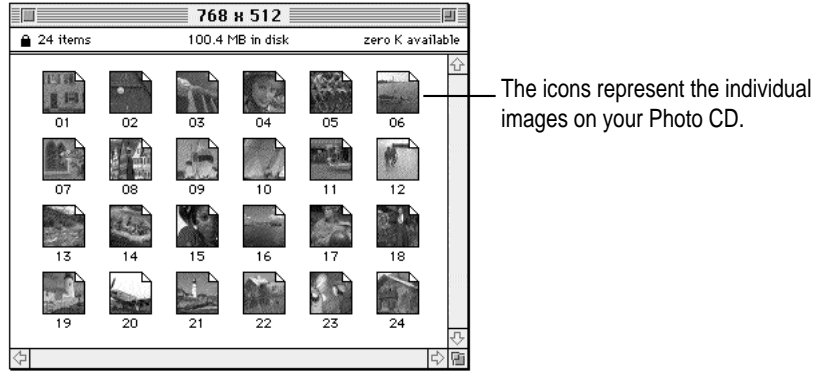
Within the folder, an icon appears for each Photo CD image. Each icon is a tiny representation of the image the file contains. The image numbers correspond to the index that comes with your Photo CD.

IMPORTANT When your system is low on memory, your computer may not be able to display color icons for your Photo CD images; however, the images themselves are not affected. To see the color icons, quit all open programs, restart your computer, and then reopen the Photos folder. See the documentation or on-screen help that came with your computer for more information on managing memory.

6 **Double-click the icon of the image you want to see.**

The image appears in a TeachText or SimpleText window. (You can choose to have Photo CD images opened by another program. See "Setting Preferences for How Photo CD Images Are Displayed" later in this chapter).

You can view and print the image, or paste it into your Scrapbook or into a document created by another program that can handle graphics.

IMPORTANT You can't rename or change the Photo CD images on the CD-ROM disc. To rename or change an image, you first need to copy it to a hard disk or floppy disk.

Viewing several images in sequence

You can browse through all your Photo CD images using the Slide Show and the Slide Show Viewer in the Photo CD window. The Slide Show is a QuickTime movie of all your Photo CD images.

To play the Slide Show:

1 **Insert a Photo CD and open the Photo CD window.**

2 **Double-click the Slide Show icon.**

The Slide Show Viewer automatically begins displaying Photo CD images.

3 **Use the Slide Show Viewer controls to stop or start the slide show, scroll to particular images, or move forward or backward through the images.**

You can also go directly to an image by typing its number.

To go to a different image, type its number here.

Click to start or stop the Slide Show.

Drag to scroll to a different image.

Drag to resize the viewer window.

Click to move forward or backward through the images one at a time.
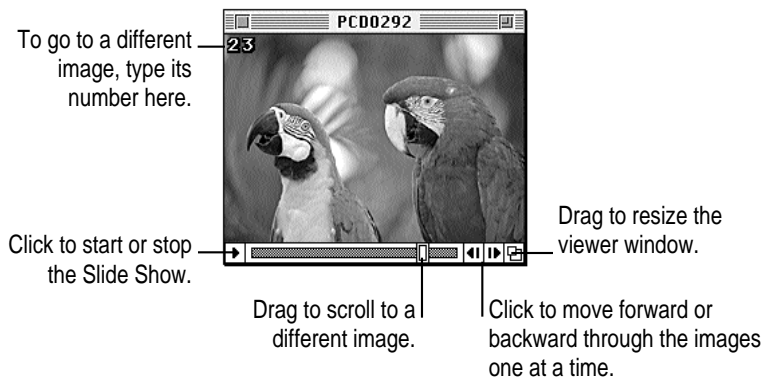
Setting preferences for how Photo CD images are displayed

You can control how Photo CD images are displayed by using the Preferences command in the Slide Show Viewer. You can choose

■ which program will automatically open Photo CD images

■ which resolution is used

■ the size of the Slide Show window

To set your preferences for viewing Photo CD images:

1 **Double-click the Slide Show Viewer icon to open it.**

2 **Choose Preferences from the File menu.**

The Preferences dialog box appears.

Choose a size by clicking a button.

Choose a program for opening Photo CD images from the Using pop-up menu.

Choose a resolution from this pop-up menu.

Change the programs that appear in the Using pop-up menu by clicking Add or Remove, then locating and specifying the program you want.
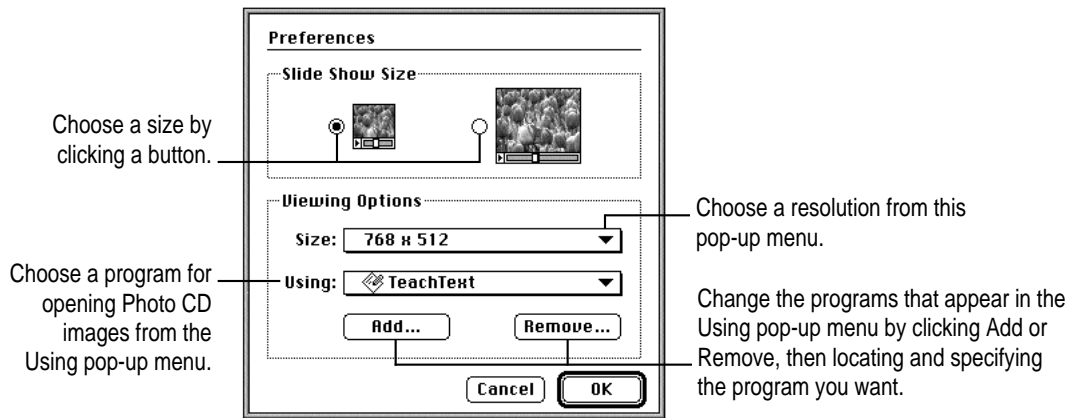
IMPORTANT You may see an error message when you choose a program for opening Photo CD images. The message indicates that you can't open an image in this program by double-clicking the image. However, you may be able to open an image from within the program, using its Open command. (See the documentation that came with your program for more information.)

3 **After you've chosen the options you want, click OK to close the Preferences dialog box.**

4 **Restart your Macintosh.**

After you restart your Macintosh, double-clicking a Photo CD image will open it in the selected program at the specified resolution and size.

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 l8 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. TeachText and SimpleText cannot open very large files.

Working with Photo CD images in other programs

There are several ways to open and work with Photo CD images in other programs:

■ You can choose a program that automatically opens a Photo CD image when you double-click it. See "Setting Preferences for How Photo CD Images Are Displayed" earlier in this chapter.

■ From the Slide Show Viewer, you can transfer a displayed image directly to another program, without copying and pasting. See the next section, "Transferring the Displayed Image to Another Program."

■ You can copy and paste an image. See "Copying Images From a Slide Show" later in this chapter.

Once you've opened an image in a program, you can change the image and save your changes on a hard disk or floppy disk. (The images on the Photo CD cannot be changed.)

Transferring the displayed image to another program

You can transfer an image from the Slide Show Viewer into another program, using the current Preferences settings or using different settings.

To transfer an image using the current settings in the Preferences dialog box:

■ Display the image you want, then choose View from the Photos menu (or double-click the image).

The image opens in the program and resolution you specified in the Preferences dialog box.

To transfer the image using different settings:

1   Display the image you want, then choose View As from the Photos menu.

2   In the dialog box that appears, choose a resolution from the Size pop-up menu.

```
┌──────────────────────────────────────┐
│  View As...                          │
│  ─────────────────────────────       │
│  Size: │ 768 x 512          ▼│       │
│                                      │
│  Using: │ ⬙ TeachText         ▼│      │
│                                      │
│  ( Add... )        ( Remove... )     │
│  ..............................      │
│              ( Cancel )  ( OK )      │
└──────────────────────────────────────┘
```
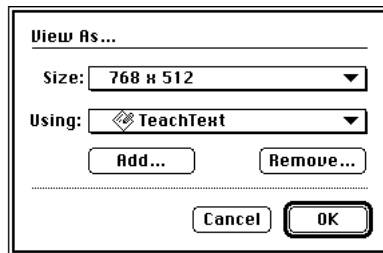
3   From the Using pop-up menu, choose a program to open the image.

If the program you want is not in the pop-up menu, click Add. In the dialog box that appears, locate and select the program you want to add.

4   When you've chosen the options you want, click OK.

The image opens in the program and at the resolution you specified.

Copying images from a Slide Show

You can paste a Slide Show image into any document that accepts images.

To paste an image at the resolution specified in the Preferences dialog box:

1   Display the image you want to copy, then choose Copy from the Edit menu.

2   Open the document you want to paste the image into.

3   Choose Paste from the Edit menu.

The image appears in your document.

To paste the image at a different resolution:

1   Display the image you want to copy, then choose Copy As from the Edit menu.

2   In the dialog box that appears, choose a resolution from the Size pop-up menu.

3   Click OK.

4   Open the document you want to paste the image into.

5   Choose Paste from the Edit menu.

The image appears in your document.

Copying a Slide Show onto another disk

You can copy the Slide Show to a hard disk or floppy disk.

IMPORTANT You can't copy a Slide Show by dragging its icon. The icon will be copied, but you won't be able to use it to view the Slide Show.

To copy the Slide Show:

1   Double-click the Slide Show icon to open it.

2   Choose Save a Copy from the File menu.

The Compression Settings dialog box appears.

3   Select the options you want.

You can copy either color or grayscale images. You can also specify a compression method and choose the quality of the copy.

4   Click OK.

A dialog box appears.

5   Choose a location and type a name for the copy, then click Save.

You can now open your disk copy to view the Slide Show.

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 & Telecommunications" or "Sharing Files" topic (depending on the version of system software you are using) of Macintosh Guide, available in the Guide (\%) menu.

Chapter 6   Troubleshooting

part

II
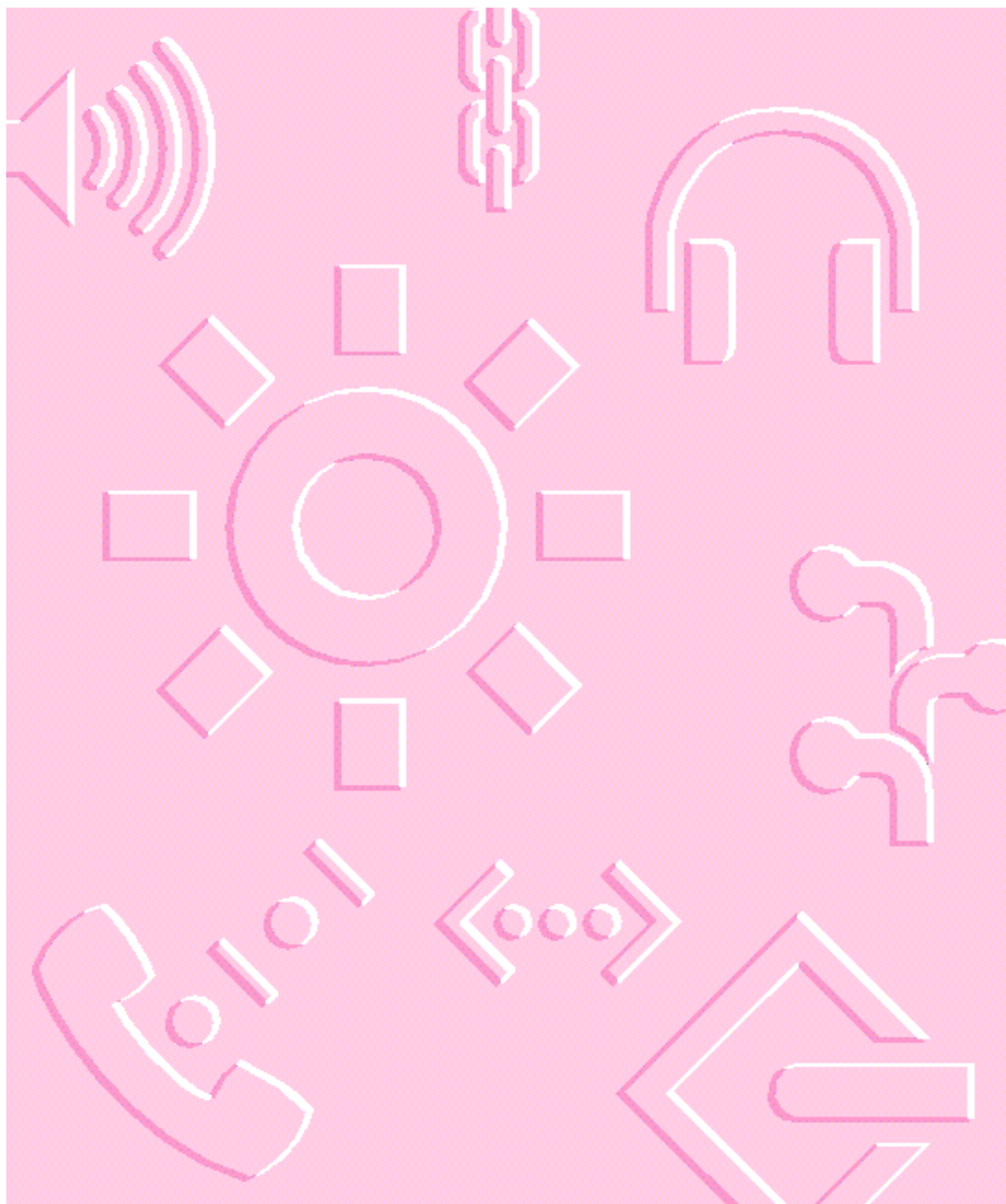
6 Troubleshooting

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.

```
┌─────────────────────────────────────────────────┐
│  💣    Sorry, a system error occurred.           │
│                                                   │
│                                                   │
│                                   ( Restart )     │
└─────────────────────────────────────────────────┘
```

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.

WARNING If you have a problem with your computer and nothing presented in this chapter solves it, 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 repair the computer yourself, any damage you may cause to the computer will not be covered by the limited warranty on your computer. Contact an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

Take your time

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

To help diagnose and correct the problem, 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 and its ID number (if any). Also list the programs you were using and the names of any items you know have been added to the System Folder since the system software was installed. This information will help a service person diagnose the problem. (It is helpful to keep a printed copy of the items in your System Folder. For instructions on printing the contents of a folder, see the information about printing in Macintosh Guide, available in the Guide [2] 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.

If you know that the problem is with a particular application program, contact the manufacturer of that software 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. (Be sure to restart the computer immediately after you save your documents—quitting a program using ⌘-Option-Esc may leave corrupted data in the computer's memory. This corrupted data is erased when you restart the computer.)

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 the 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 power switch, wait at least 10 seconds, and then turn it on again.**

4 **If the power switch 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

A process known as "rebuilding the desktop" helps your Macintosh keep track of data on your startup disks. (Although the hard disk in your computer is usually the startup disk, you can start up from any other disk that has system software installed.)

Rebuilding your desktop can solve a number of problems. For example, when application documents are no longer represented by application-specific icons (and are instead represented by generic icons on the desktop), rebuilding the desktop fixes the problem. Afterward, appropriate icons should appear for all documents.

Some extensions may interfere with rebuilding your desktop. To prevent problems, you'll need to turn off all extensions except Macintosh Easy Open before you rebuild your desktop. When you finish rebuilding the desktop, turn the extensions you normally use back on.

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

1 **Save your current set of extensions (those that are on, marked by checkmarks).**

a. Open the Extensions Manager control panel by choosing Extensions Manager from the Control Panels submenu of the Apple (🍎) menu.

b. From the Sets pop-up menu, choose Save Set.

c. In the Save Set dialog box, type a name for your set of selected extensions (for example, "My Extensions") and click OK. The name of your set is added to the Sets pop-up menu.

2 **Choose All Off from the Sets pop-up menu to turn off all extensions.**

3 **Turn on Macintosh Easy Open by clicking it in the list (under Control Panels) so that a checkmark appears beside it.**

4 **Restart your computer while holding down the Command (⌘) and Option keys.**

Hold down the ⌘ and Option keys until you see the dialog box that asks if you're sure you want to rebuild your desktop file. When the dialog box appears, you can release the keys.

5   **Click OK.**

The desktop is rebuilt.

IMPORTANT Do not stop the desktop-rebuilding process. Doing so could cause problems with your system software.

6   **Turn your original set of extensions back on.**

a. Open the Extensions Manager control panel by choosing Control Panels from the Apple (■) menu. When the Control Panels window appears, double-click the Extensions manager icon.

b. From the Sets pop-up menu, choose the name you gave your set of extensions in step 1.

7   **Restart your computer to activate the extensions.**

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 screen control buttons (☼) are not adjusted properly.

Turn up the screen's brightness if necessary.

■ The Macintosh is not getting power.

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.

The screen image is off center.

If the picture on your screen appears to be off center, use the centering controls on the back of the computer to adjust it. Use a small screwdriver to turn the controls.

Vertical centering control

Horizontal centering control

The computer's clock keeps time inaccurately.

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

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

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

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

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

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

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

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

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

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

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

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

A "sad Macintosh" icon appears and the computer won't start up.

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

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

The hard disk icon does not appear on the desktop.

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

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

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

- 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.

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 disk. For instructions, see "Rebuild Your Desktop" in the section "If You Have Trouble" earlier in this chapter.

If icons still 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 (②) menu.
- The disk may be damaged. See "Repairing a Damaged Disk" later in this chapter for information on testing and repairing disks.
- 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 using a DOS disk, for example, make sure the PC Exchange control panel exists in the Control Panels folder (in the System Folder) and that it is enabled. To enable PC Exchange, open the Extensions Manager control panel and click the PC Exchange item (under the "Control Panels" heading) to make a check mark appear before it.
- 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.

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.
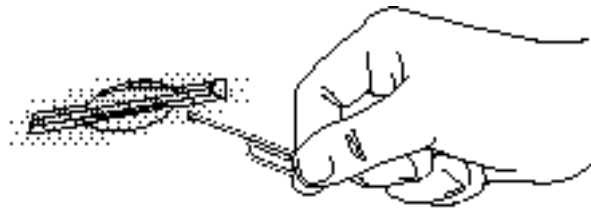
If none of these solutions works, take the computer or disk drive to your Apple-authorized service provider to have the disk removed.

A dialog box with a bomb appears.

Sorry, a system error occurred.
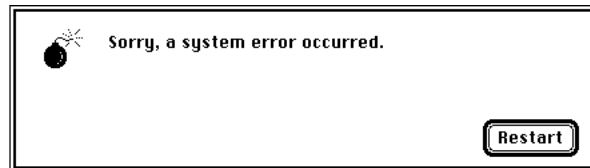
Restart

Your system has a software problem.

- Write down what you were doing when the message appeared, and write down the message's text and its number, if there is one.

- 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.

- 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.

- If the bomb only occurs in one application program, try reinstalling the program from the original disks. If reinstalling doesn't solve the problem, contact the manufacturer of the program.

- Sometimes incompatible system extensions or control panels can cause system software problems. Restart while holding down the Shift key to temporarily turn off all system extensions.

  If your computer works normally after you do this, use the Extensions Manager control panel to turn off individual extensions and control panels. For detailed instructions, see the "Setting Options" or "Customizing Your Macintosh" topic (depending on the version of system software you are using) of Macintosh Guide, available in the Guide (②) menu.

  If your computer performs better when a particular extension or control panel is turned off, contact the extension's or control panel's manufacturer for information or an upgrade.

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

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

One of the following situations is probably the cause:

- Your system has a software problem.

  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.

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

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

■ The mouse or keyboard is not connected properly.

Turn the computer off using the power switch, check that the mouse and keyboard cables are connected properly, and then restart the computer.

IMPORTANT Don't connect 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, "Health, Safety, and Maintenance Tips," of this book.

If you have another mouse or pointing device, try connecting and using it. (Turn off the computer before connecting it.) If the new device works, there is probably something wrong with the mouse you replaced.

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

Typing on the keyboard produces nothing on the screen.

One of the following is probably the cause:

■ Your system has a software problem.

Restart your Macintosh. For instructions, see "Start Over" in the section "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, try restarting the computer with system extensions turned off. (To turn system extensions off, hold down the Shift key while restarting the computer.) If that doesn't work, you may need to reinstall system software. See "Installing or Reinstalling System Software" later in this chapter for instructions.

- The computer beeps every time you press a key.

  Easy Access is probably turned on. Use the Extensions Manager control panel to turn off Easy Access. (To open the Extensions Manager control panel, choose Extensions Manager from the Control Panels submenu of the Apple [] Menu.)

- You haven't selected any text or set the insertion point (|).

  Make sure the program you want to type in is the active program. Then place the pointer (k) in the active window and click to set an insertion point (|) 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 power switch, 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 power switch 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.

- The keyboard is damaged.

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

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

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

One of the following is probably the cause:

■ The Macintosh ran out of memory.

Quit the programs that you have open and then open the program you want to use, or restart your Macintosh.

Make sure virtual memory is turned on in the Memory control panel. For more information on virtual memory, see the "Memory" topic area of Macintosh Guide, available in the Guide (②) 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 area of Macintosh Guide, available in the Guide (②) menu.

■ The program is a non-Power Macintosh application program running in emulation mode that requires a separate floating-point unit (FPU). It cannot use the built-in FPU on your computer's microprocessor.

Check the documentation that came with the program or contact the program's manufacturer to find out if the program requires the FPU found in a non-Power Macintosh chip. If it does, you may need to upgrade to a Power Macintosh version of the program, or install software that emulates a non-Power Macintosh FPU. (See your dealer for this software.)

■ Sometimes incompatible system extensions or control panels can cause software problems. Restart while holding down the Shift key to temporarily turn off all system extensions.

If your program works normally after you do this, use the Extensions Manager control panel to turn off individual extensions and control panels. For detailed instructions, see the "Setting Options" or "Customizing Your Macintosh" topic (depending on the version of system software you are using) of Macintosh Guide, available in the Guide (②) menu.

If your program performs better when a particular extension or control panel is turned off, contact the software's manufacturer for information or an upgrade.

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 (refer to "Rebuild Your Desktop" in the section "If You Have Trouble" earlier in this chapter).

- 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 information about using DOS files in Macintosh Guide, available in the Guide (2) menu.

You experience problems using a document from a DOS computer.

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

- Open the document from within the program by choosing Open in the program's File menu.

- Use the PC Exchange control panel to change the document's type to one that can be opened by the program.

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

- Your application program may have special procedures for opening and saving documents with different file formats. See the information that came with your program.

- Try opening the document in another program.

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

For more information about working with DOS documents on your Macintosh, see the information about using DOS files in Macintosh Guide, available in the Guide (⁇) menu.

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

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

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

You experience problems using an older Macintosh program.

Some older Macintosh programs are not completely compatible with Power Macintosh computers. Check with the program's manufacturer for compatibility and upgrade information.

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

Solutions to CD-ROM problems

Problems using the CD-ROM drive

The CD-ROM drive 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. (If your CD-ROM drive was installed in your computer at the factory, it has SCSI ID 3.)

Refer to the documentation that came with your SCSI devices if you need to reset SCSI ID numbers.

- If you installed a CD-ROM drive after you bought your computer, make sure the CD-ROM software that came with the drive is installed. See the manual that came with the CD-ROM drive for software installation instructions.

- If you reinstall the CD-ROM software, make sure to restart your computer after you reinstall the software.

- Make sure that the Apple CD-ROM extension is turned on in the Extensions Manager control panel.

You installed a CD-ROM drive after you bought your computer and your computer won't restart after you've copied software for your CD-ROM drive to the System Folder.

- If you attempt to install software for your CD-ROM drive without using the Installer, you may not be able to restart your computer. Restart the computer while holding down the Shift key (to turn off system extensions), and then remove any CD-ROM software files you copied by dragging them to the Trash. Reinstall the software according to the instructions that came with the drive.

  If this procedure doesn't solve the problem, restart your computer using the *Disk Tools* floppy disk. (For instructions on starting your computer using a floppy disk, see "Starting Up From a Floppy Disk" in the section "Initializing a Hard Disk" later in this chapter.)

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, press the CD-ROM drive's Open/Close button and choose Restart from the Special menu. Hold the Open/Close button down until the CD-ROM tray opens, then remove the CD-ROM disc and close the tray. Your computer finishes starting up and the desktop appears on the screen.

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 program 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 of 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 using 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.

- Try starting your computer from the CD-ROM disc that contains system software while holding the "c" key down. If only the hard drive icon appears on the desktop, then there may be a hardware problem with your CD-ROM drive. If the CD-ROM icon appears above the hard drive icon, try reinstalling your CD-ROM software following the instructions in "Installing or Reinstalling CD-ROM Software" later in this chapter.

- If you installed the CD-ROM drive after you bought your computer, make sure the CD-ROM software is installed. (Refer to the documentation that came with the CD-ROM drive.)

  CD-ROM software is already installed on Macintosh computers that come with CD-ROM drives. You can reinstall it by following the procedure in "Installing or Reinstalling CD-ROM Software" later in this chapter.

- Make sure that the Apple CD-ROM extension is turned on in the Extensions Manager control panel.

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.

- Make sure that the Foreign File Access and Audio CD Access CD-ROM extensions are installed in your Extensions Folder and are turned on. (If they are not turned on, use the Extensions Manager control panel to turn them on and then restart your computer.)

- Make sure the CD-ROM software is installed. (The CD-ROM software is already installed on Macintosh computers that come with CD-ROM drives.) If you installed a CD-ROM drive after buying your computer, see the manual that came with your 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 the section "Handling Your Computer Equipment" 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 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.

- 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.

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 filenames. 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, continuing to hold down the Option key until the disc is fully in the drive. The program you are using should now be able to locate filenames on that CD-ROM disc.

- Make sure that Foreign File Access, ISO 9660 File Access, and High Sierra File Access are present in the Extensions folder in your System Folder.

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.

- 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 area of Macintosh Guide, available in the Guide (②) 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.

- If your CD-ROM drive was installed after you bought your computer, make sure the audio cable is properly connected. See the documentation that came with the CD-ROM drive for more information.

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 area of Macintosh Guide, available in the Guide (②) menu.

Problems using Photo CDs

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

■ Reinstall the CD-ROM software (available through the "Multimedia Software" option in Custom Install when you reinstall system software).

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 area of Macintosh Guide, available in the Guide (②) 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. (For more information on managing memory, see the "Memory" topic area of Macintosh Guide, available in the Guide [②] menu.)

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 [②] 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 like a control panel, system extension, or custom utility, it may be because this software does not work well with Power Macintosh computers.

- To find out if a system extension or control panel is the problem, use the Extensions Manager control panel. Open the Extensions Manager control panel and select "System 7.5 Only" to turn off all system extensions and control panels that are not part of System 7.5. Restart your computer, then use the Extensions Manager control panel to turn the system extensions and control panels back on one at a time, restarting and checking your computer's performance each time until you identify the software that is causing problems. Contact the software's manufacturer for information or an upgrade.

- To find out if a custom utility you've added is the problem, drag it out of the System Folder. (This software may be in the Control Panels folder or elsewhere inside the System Folder.) Next, restart your computer and check its performance. If there's an improvement, the new software was probably the cause of the problem. Contact the software's manufacturer for information or an upgrade.

- Rebuild your desktop. For instructions on how to rebuild your desktop, see "Rebuild Your Desktop" in the section "If You Have Trouble" earlier in this chapter.

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

Solving printer problems

The following suggestions should work for all printers.

- Make sure that the printer driver for your printer is turned on in the Extensions Manager control panel. (The printer driver should appear in the Extensions list. To find out the name of the printer driver—for example, *LaserWriter*—refer to the documentation that came with your printer.)

- Check your printer settings in the Chooser, making sure you have selected the correct printer. Make sure that AppleTalk is on (if you are using a printer on your network) or that AppleTalk is off (if you are using a serial printer connected to your computer).

■ If you are using Apple Remote Access, check your network settings. If you have selected Remote Only, you will not be able to use a printer on your local network. (When you have a remote-only connection, however, you can use a serial printer connected directly to your computer.)

■ Next, turn off the computer and printer, and check the printer cable connections.

■ If none of these suggestions solves the problem, reinstall your printer driver. If your printer is an older model, do not use the driver that came with the printer. Instead, use the updated printer drivers provided on the system software CD-ROM disc that came with your Power Macintosh. These drivers are created especially for use with the Power Macintosh.

Obtaining online support and updated Apple software

Apple technical support information and software updates are available from many online services. Using these services, you can get troubleshooting and other important information. You can also get the latest versions of Apple software, including most printer drivers, system enablers, and updates to utilities, networking, and communication software.

IMPORTANT Be sure to read the posted Apple Software License Agreement before installing any software.

Currently, Apple's Customer Service Division (CSD) posts support information and Apple software updates to the following online services:

■ America Online

■ AppleLink

■ CompuServe

■ eWorld

■ Internet: FTP servers

■ Internet: Gopher server

■ Internet: World Wide Web sites

IMPORTANT Although specific paths for each service are provided in the sections that follow, online information is subject to change. If you have trouble finding Macintosh-related information online, see the service and support information that came with your computer.

America Online

Apple software updates are posted to the USA Apple SW Updates area, which is located in the Apple Computer, Inc. folder. You can use the keyword `applecomputer` to go directly to the Apple Computer, Inc. folder, or follow this path to find the software updates:

Computing window
    Company Connection window
        Technical Support window
            Hardware folder
                Hardware window
                    Apple Computer, Inc. folder
                        USA Apple SW Updates folder

AppleLink

Support information is posted to the Support area, located in the following path:

AppleLink Services (main window)
    Support

Apple software updates are posted to the Apple SW Updates board, located in the following path:

AppleLink Services (main window)
    Software Sampler
        Apple SW Updates

CompuServe

The MacPlanet (`GO MACPLANET`) area provides access to Macintosh-related information on CompuServe. From MacPlanet, go to the Apple Online (`GO APLNEW`) section for Apple product information, a database of technical support articles, a collection of popular software files, and software updates for U.S. and international customers.

The address for the Apple systems operator on CompuServe is 74431,1472 (via the Internet: 74431.1472@compuserve.com).

eWorld

Support information and Apple software updates are posted to the Apple Technical Support area. You can use the shortcut `support` to go directly to this area, or follow this path:

Computer Center
  Apple Customer Center
    Apple Technical Support

Internet: FTP servers

Support information and software updates are posted to two File Transfer Protocol (FTP) servers: ftp.info.apple.com and ftp.support.apple.com.

ftp.info.apple.com

- Host name: ftp.info.apple.com
- IP number: 204.96.16.4
- Path: ftp/Apple.Support.Area/Apple.SW.Updates

ftp.support.apple.com

- Host name: ftp.support.apple.com
- IP number: 130.43.6.3
- Path: /pub/Apple SW Updates

Internet: Gopher server

Support information and Apple software updates are posted to the Apple Computer Gopher Server, located in the following path:

Home Gopher Server
    Computer Information
        Apple Computer Gopher Server

■ Host name: gopher.info.apple.com

Apple recommends using TurboGopher client software to access the Apple Computer Gopher Server. TurboGopher client software is available via anonymous File Transfer Protocol (FTP) to boombox.micro.umn.edu in the /pub/gopher directory.

Internet: World Wide Web sites

Support information and Apple software updates are available via Apple's World Wide Web sites:

■ http://www.info.apple.com

■ http://www.support.apple.com

Initializing a hard disk

Before you can use a new disk, the disk must be prepared so that the computer knows where to store information on the disk. This preparation is called *initializing* (or *formatting*) the disk.

When do you need to initialize a hard disk?

The hard disk inside your computer was initialized at the factory, so you shouldn't need to initialize it. You need to initialize a hard disk only if one of the following is true:

■ You purchase a hard disk that has not been initialized at the factory.

■ Your hard disk is damaged.

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

If the hard disk you want to initialize is not the startup disk, you can use the Drive Setup program to initialize it. Drive Setup is located on the floppy disk labeled *Disk Tools* that came with your computer. If your computer came with a CD-ROM drive and you didn't receive floppy disks, you can find Drive Setup on the CD-ROM disc that contains system software. For instructions, start Drive Setup and choose Drive Setup Guide from the Guide (❷) menu.

If the hard disk you want to initialize is the startup disk, follow the instructions in this chapter. (First, start up from a CD-ROM disc or a floppy disk. Then follow the instructions in "How to Initialize a Hard Disk" later in this section.)

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

Starting up from a CD-ROM disc

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

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

1 Turn your computer on.

2 When you see the desktop on your screen, press the Open/Close button on your CD-ROM drive, and insert the CD-ROM disc containing system software into the drive.

3 Hold down the "c" key on your keyboard and restart your computer.

Continue to hold down the key until you see the "Welcome to Macintosh" message.

Starting up from a floppy disk

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

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

1   **Shut down your computer.**

2   **Insert the floppy disk into the disk drive.**

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

3   **Turn on your computer.**

How to initialize a hard disk

You initialize a hard disk by using a program called Drive Setup, which is on the CD-ROM disc that contains system software. If your computer did not come with a CD-ROM drive, Drive Setup is on the *Disk Tools* floppy disk that came with your computer. (To initialize a hard disk from another manufacturer, use the utility software that came with the hard disk.)

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

See "Starting Up From a CD-ROM Disc" or "Starting Up From a Floppy Disk" 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 initialize.**

```
 ═══════════════ Drive Setup ═══════════════
 List of Drives

 Volume Name(s)              Type  Bus ID LUN
 Macintosh HD                IDE    0  0   0   ⬆
 Karlina's                   SCSI   0  4   0
                                                ⬇
 ┌────────────────────────────────────────┐
 │ This disk can be initialized.           │
 └────────────────────────────────────────┘

                           [ Initialize... ]
```

— Click the drive you
want to initialize...

...then click Initialize.
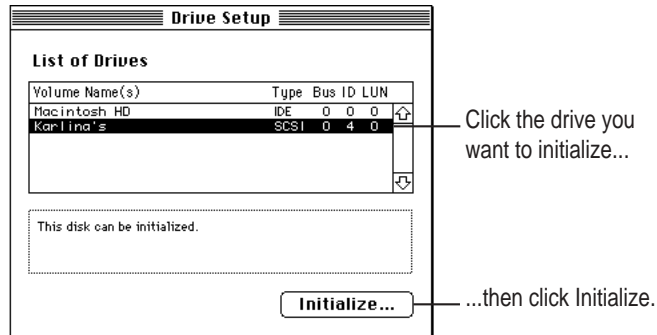
4   **Click Initialize to initialize the hard disk.**

5   **Click Quit when you see a message reporting that initialization was successful.**

If a message reports that initialization failed, try again. If initialization fails a second time, take your computer to your Apple-authorized service provider for repair. Consult the service and support information that came with your computer for information about the service options available for your computer.

Repairing a damaged disk

Disks can become damaged by repeated use and handling.

When do you need to repair a disk?

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

Try these suggestions first

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

- If the hard disk is internal, shut down your Macintosh, wait at least 10 seconds, and then turn it on again. If you still don't see the hard disk, shut down your Macintosh again and disconnect all external SCSI devices. If this solves the problem, check the ID numbers and termination of the SCSI devices as described in the next item before reattaching the devices to your computer.

- 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). 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 the hard disk is external, make sure that it is turned on and that its cable is connected firmly; then restart the Macintosh.

- If the hard disk is your startup disk, start up with a different startup disk. If the hard disk's icon appears on your desktop, reinstall system software on the hard disk (see "Installing or Reinstalling System Software" later in this chapter).

- Test the disk by following the instructions that come next.

How to test a hard disk

You can test a hard disk with the Drive Setup program, which is on the CD-ROM disc that contains system software. If your computer did not come with a CD-ROM drive, Drive Setup is on the *Disk Tools* floppy disk that came with your computer.

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

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

2 Open the 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.**

```
═══════════════ Drive Setup ═══════════════
List of Drives

┌─────────────────────────────────────────┐
│ Volume Name(s)           Type  Bus ID LUN │
│ Macintosh HD             IDE    0   0  0 ⬆│
│ Karlina's                SCSI   0   4  0  │
│                                           │
│                                        ⬇ │
└─────────────────────────────────────────┘
┌┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┐
┆ This disk can be initialized.            ┆
┆                                          ┆
└┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┄┘
                              ( Initialize... )
```
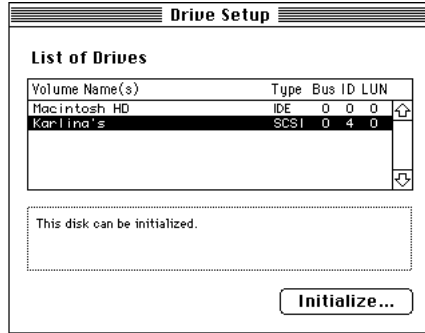
4   **Open the Functions menu and choose Test Disk.**

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

If the test reveals a problem, you may be able to correct it by using Disk First Aid or another disk repair program (see the instructions in the next section), or you may need to reinitialize the disk (see "Initializing a Hard Disk" earlier in this chapter). Consult an Apple-authorized service provider for assistance if necessary. (See the service and support information that came with your computer for information about the service options available for your computer.) 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 included either on the CD-ROM disc containing system software that came with your computer or on the *Disk Tools* floppy disk.

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

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

2 **Open the Disk First Aid icon.**

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

Disk First Aid

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

Disk icons appear in a box at the top of the Disk First Aid window.
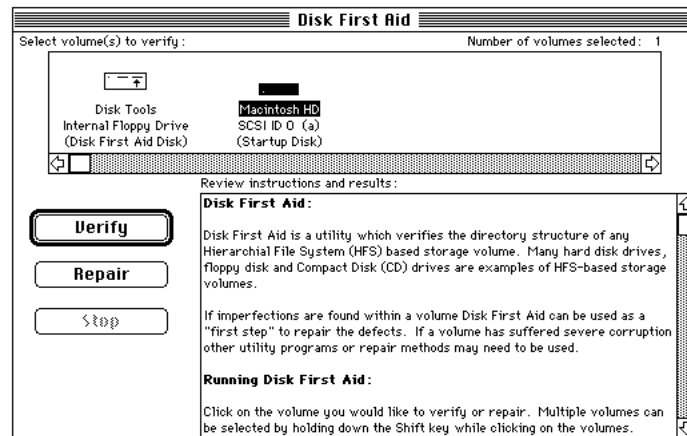
4   **Click Repair to begin testing and repairing the disk.**

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

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

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

If Disk First Aid cannot correct the problem

- Try repairing the disk again. Sometimes repeating the process corrects the problem.

- Use another disk repair or recovery program. Some disk repair programs let you recover information from a damaged disk.

- Consult a computer repair specialist for help.

- Once you have recovered all the information you can, erase (reinitialize) the disk. If initialization doesn't work, discard the damaged disk (if it's a floppy disk), or take it to your Apple-authorized service provider for repair (if it's a hard disk).

Installing or reinstalling system software

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

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

When should you install system software?

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

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

When should you reinstall system software?

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

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

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

Installing system software

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

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

To do a normal installation, follow these steps:

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

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

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

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

Disk First Aid

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

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

4   **Open the Drive Setup program.**

You use the Drive Setup program to update your hard disk.

5   **In the list of drives, click your startup disk.**

6   **Choose Update Driver from the Functions menu.**

7   **When the update process is finished, quit Drive Setup.**

8   **Shut down your computer.**

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

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

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

10 **Click Continue.**

The Easy Install dialog box appears.

Disk on which system software will be installed

Click here to install on a different disk.

Click here to install the software you need.

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

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

12 **Click Install.**

13 **Follow the instructions that appear on the screen.**

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

14 **When you see a message reporting that the installation was successful, click Restart (or "Quit," if you're installing from the CD-ROM disc).**

Don't forget to eject the CD-ROM disc or floppy disk containing system software. If a message reports that installation was not successful, try installing again. (Follow the instructions on the screen.)

Copying additional important files for System 7.5.1

If you are installing System 7.5.1, you need to install additional system extensions and control panels after you install the system software. You can copy these files from either the CD-ROM disc that contains system software or from the *Extras* disk in the set of system software floppy disks.

To copy these system extensions and control panels, follow these instructions:

1   Turn the computer on.

2   Insert into the CD-ROM disc drive the CD-ROM disc that contains system software (or insert the *Extras* disk into your floppy disk drive).

3   Open the Macintosh Software Updates folder on the CD-ROM disk (or open the *Extras* disk icon).

4   Select all the items in the Macintosh Software Updates folder (or in the *Extras* disk) except the About Software Updates document.

To select multiple items, hold down the Shift key while you click each item. Release the Shift key when you've selected all the items.

5   Copy the selected items by dragging them to your System Folder.

Click OK when the dialog box appears informing you that these items need to be stored inside the System Folder. Click OK if another message appears asking if you want to replace items with the ones you're moving.

6   Restart your computer.

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

Doing a clean installation of system software

The steps in this section outline what is commonly called a "clean" installation of system software. A clean installation allows you to discover which item in your System Folder is causing a problem. A clean installation creates a brand new System Folder and saves everything in your original System Folder in a different location. You can then follow the instructions in "Replacing Special Software," later in this chapter, to reinstall system extensions, control panels, and other special software one at a time from the old System Folder to the new System Folder. This procedure allows you to determine which item in the old System Folder was the source of the problem.

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

To do a clean installation, follow these steps:

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

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

2 Find and open the Disk First Aid icon.

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

Disk First Aid

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

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

4 **Open the Drive Setup icon.**

You use the Drive Setup program to update your hard disk.

5 **In the list of drives, click your startup disk.**

6 **Choose Update Driver from the Functions menu.**

7 **When the update process is finished, quit Drive Setup.**

8 **Shut down your computer.**

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

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

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

10 **Click Continue.**

The Easy Install dialog box appears.

Disk on which system software will be installed

If you need to install on a different disk, you click this button.

DO NOT click the Install button if you want a clean installation.

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

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

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

The following dialog box appears.

```
Select type of installation:
   ○ Update Existing System Folder
   ● Install New System Folder

      [  Cancel  ]  [     OK     ]
```

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

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

14 **Click Clean Install.**

```
≡≡≡≡≡≡≡≡ System 7.5 Installation ≡≡≡≡≡≡≡≡

[ Easy Install    ▼ ]                    [  Help  ]

┌─────────────────────────────────────────────────┐
│ Click the Install button to place System Software version 7.5 on │
│ the selected disk. This installation will include all of the     │
│ recommended System Software for this Macintosh.                  │
│                                                                  │
└─────────────────────────────────────────────────┘

┌ Destination Disk ─────────────────
                        [  Eject Disk  ]      [   Quit   ]

   [___]
   Macintosh HD          [ Switch Disk ]      [ Clean Install ]
```

Click here to install the software you need.
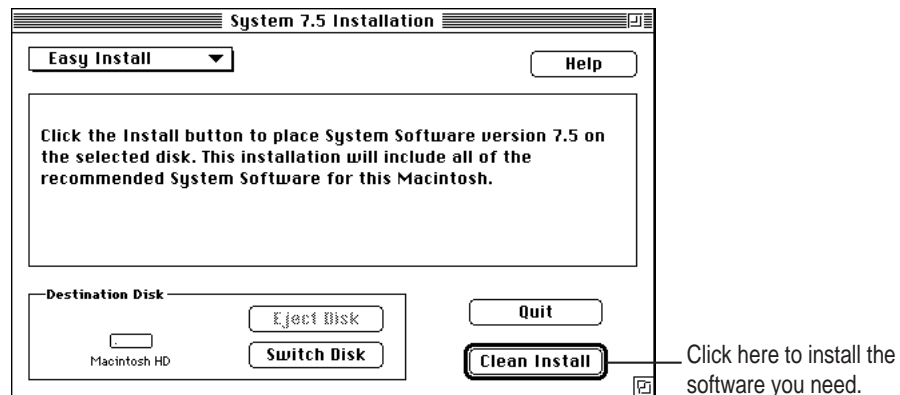
15 **Follow the instructions that appear on the screen.**

It takes a few minutes to complete the installation.

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

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

17   If you are installing System 7.5.1, copy additional system extensions and control panels to your new System Folder.

See "Copying Additional Important Files for System 7.5.1" in the section "Installing System Software" earlier in this chapter.

Replacing special software

Special software consists of items such as control panels, system extensions, custom utilities, fonts, or Apple menu items that you may have had in your old System Folder. To make sure that special software does not create any conflicts with other programs on your computer, follow this procedure to safely replace these items in your new System Folder:

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

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

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

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

Doing a custom installation

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

To install customized system software, follow these steps:

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

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

The Installer's Welcome screen may appear or you may have to double-click the System Software Installer icon to open the Installer program.

2   Click OK.

The Easy Install dialog box appears.

3   Choose Custom Install from the pop-up menu.
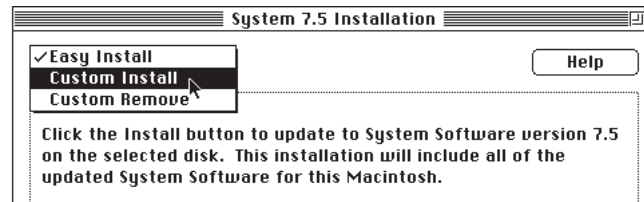
The Custom Install dialog box appears, listing all available system software components.
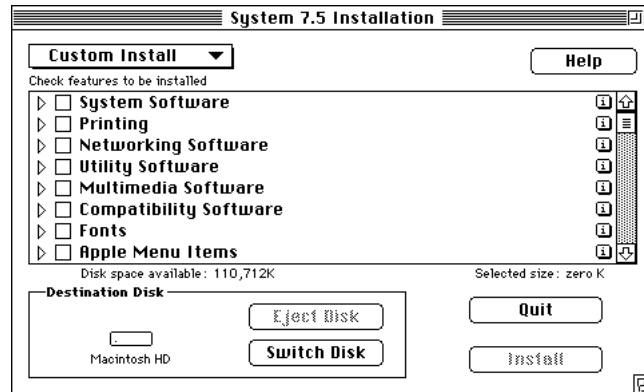
4   **Scroll through the list of components, clicking the checkbox next to each component you want to install.**

You can see and select individual items within each component by clicking the arrow to the left of the component, then clicking the item you want to install. To get additional information about each component listed, click the box with the letter *i* in it to the right of the component.

5   **Click Install.**

6   **Follow the instructions that appear on the screen.**

7   **When you see a message reporting that the installation was successful, click Quit.**

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

8   **Restart your Macintosh.**

Don't forget to eject the CD-ROM disc or floppy disk containing system software when you are finished.

9   **Copy additional system extensions and control panels to your new System Folder.**

See "Copying Additional Important Files for System 7.5.1" in the section "Installing System Software" earlier in this chapter.

Installing or reinstalling CD-ROM software

CD-ROM software is a set of programs and files that allow your CD-ROM drive to work correctly with your computer and allow it to play different kinds of CDs, like Photo CDs or audio CDs. If your computer came with a CD-ROM drive installed, the CD-ROM software is part of system software and was preinstalled for you on your computer's hard disk. (It is also available on floppy disks and a CD-ROM disc that came with your Macintosh.)

If you added a CD-ROM drive after you bought your computer, the CD-ROM software is probably on floppy disks that came with the drive.

When should you install or reinstall CD-ROM software?

If your Macintosh came with the CD-ROM drive already installed, you don't need to install the CD-ROM software unless you encounter problems. (See "Solutions to CD-ROM Problems" earlier in this chapter for descriptions of the kinds of problems you might encounter.)

If you added a CD-ROM drive after you bought your computer, you should install the CD-ROM software before you attempt to use the CD-ROM drive.

Installing or reinstalling CD-ROM software

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

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

The Installer's Welcome screen may appear. Or, you may have to double-click the System Software Installer icon to open the Installer program.

2 **Click OK.**

The Easy Install dialog box appears.

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

```
≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡≡ System 7.5
  ✓Easy Install
   Custom Install
   Custom Remove
```

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

```
≡≡≡≡≡≡≡≡≡≡ System 7.5.2 Installation ≡≡≡≡≡≡≡≡≡
   Custom Install    ▼                        Help
  Check features to be installed
  ▷ ☐ System Software                          ⓘ ⇧
  ▷ ☐ Printing                                 ⓘ ≡
  ▷ ☐ Networking Software                      ⓘ
  ▷ ☐ Utility Software                         ⓘ
  ▷ ☐ Multimedia Software                      ⓘ
  ▷ ☐ Compatibility Software                   ⓘ
  ▷ ☐ Fonts                                    ⓘ
  ▷ ☐ Apple Menu Items                         ⓘ ⇩
      Disk space available: 38,259K    Selected size: zero K
  ┌─Destination Disk────────────────────────────
  │                         Eject Disk         Quit
  │        ┌──┐
  │        └──┘             Switch Disk        Install
  │        Hard Disk
```
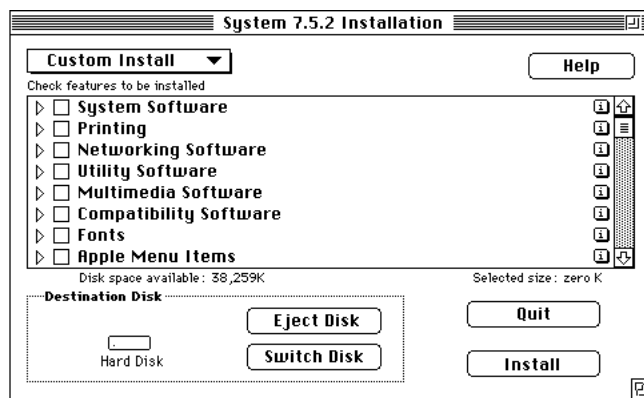
4 **Select Multimedia Software by clicking the checkbox next to it.**

You can see and select individual items within each component by clicking the arrow to the left of the component, then clicking the item you want to install. To get additional information about each component listed, click the box with the letter *i* in it to the right of the component.

5 **Click Install.**

6 **Follow the instructions that appear on the screen.**

7 **When you see a message reporting that the installation was successful, click Quit.**

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

8 **Restart your Macintosh.**

The CD-ROM software is reinstalled and your computer is ready to use. Don't forget to eject the CD-ROM disc or floppy disk containing system software when you are finished.

III

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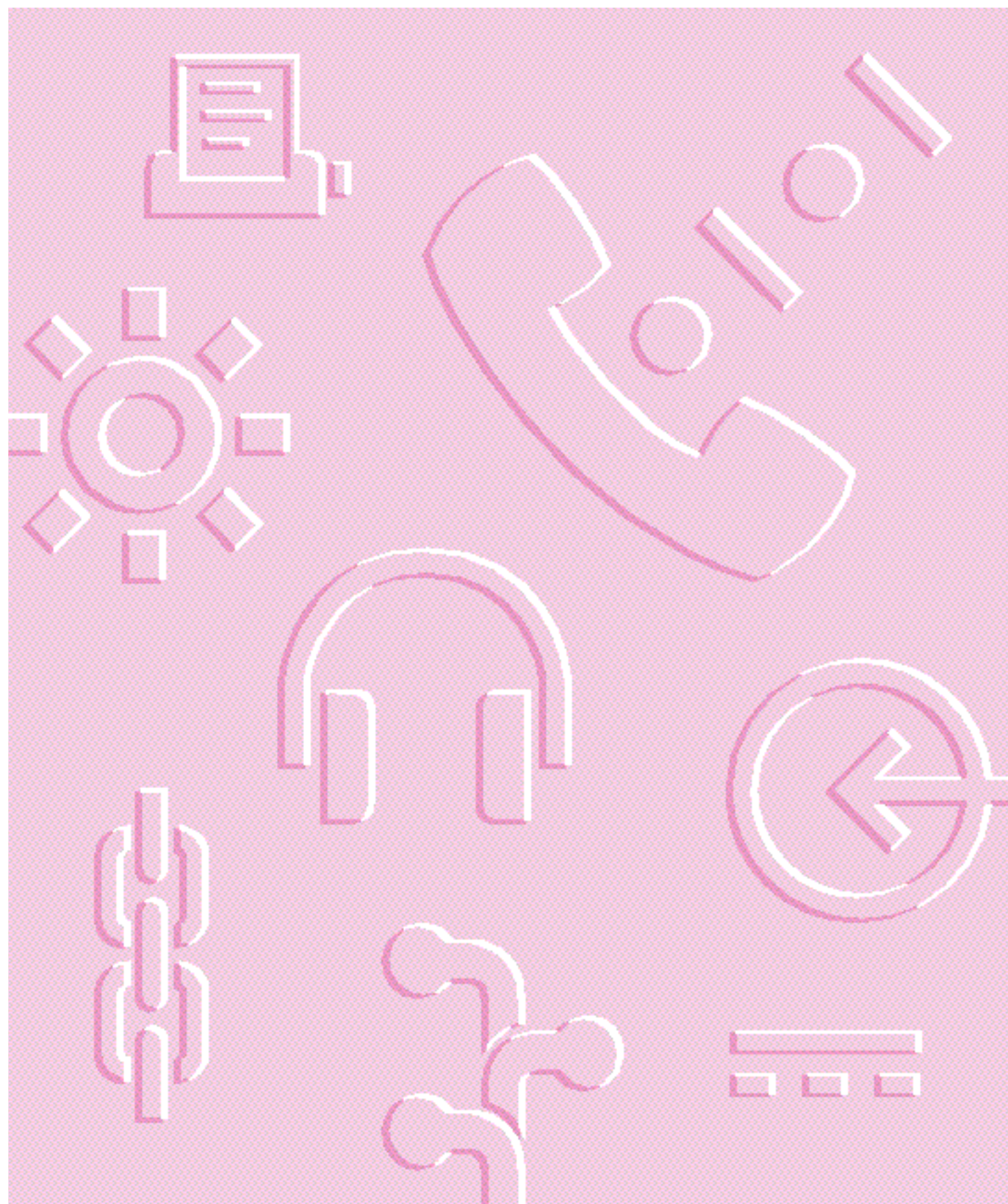
Read this appendix for important
health and safety instructions,
as well as tips on keeping your
computer in good working order.

Appendix A
Health, Safety, and Maintenance Tips

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

Health-related information about computer use

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

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

117

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 work space 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 computer to minimize glare and reflections on the screen from overhead lights and windows.
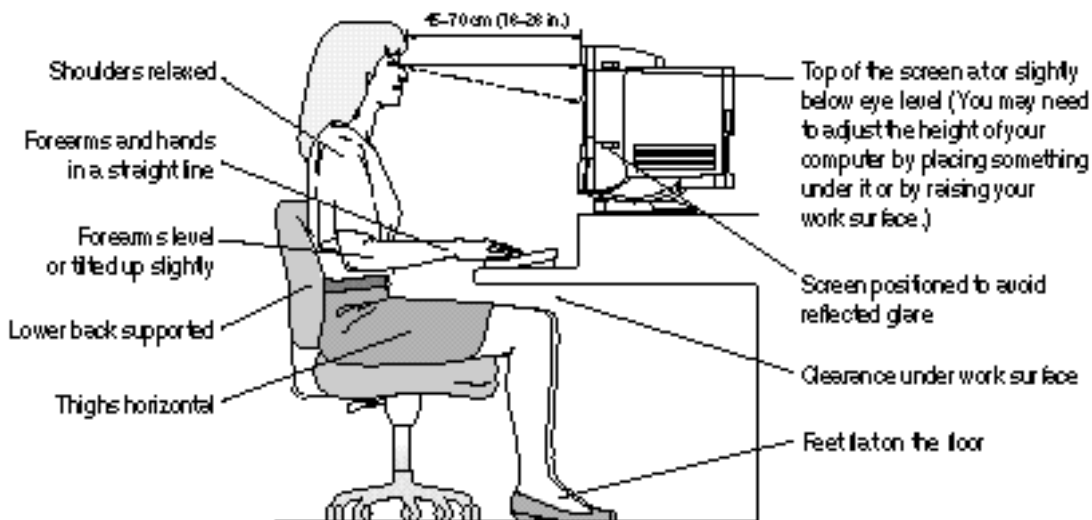
Avoiding fatigue

■ 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 workspace 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 built-in monitor

Follow these procedures for handling the built-in 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.

■ 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 your Apple-authorized service provider for repair.

■ If you spill liquid that is greasy, sweet, or sticky, unplug the keyboard and take it to your Apple-authorized service provider for repair.

Handling floppy disks

Store disks at
temperatures
between 50° F
and 125° F.
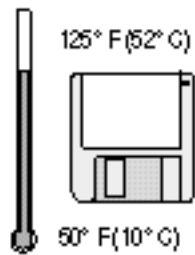
Do not use a
pencil or an
eraser on a disk
or disk label.

Keep disks dry.

125° F (52° C)

50° F (10° C)
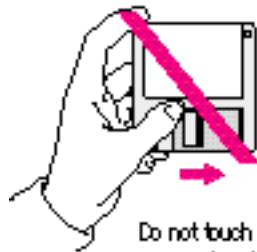
Do not touch the
exposed part of the
disk behind the
metal shutter.
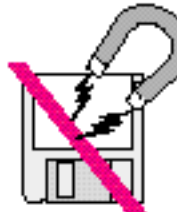
Keep disks away
from magnets.

Avoid exposing
disks to extremely
hot temperatures.

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 drive.

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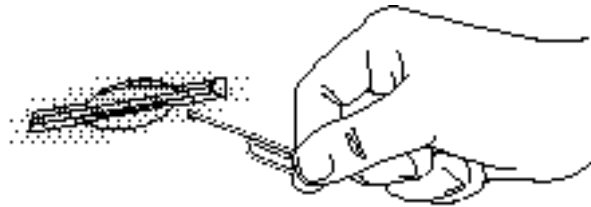
If nothing works, take the computer or disk drive to your Apple-authorized service provider to have the disk removed.

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.**

If you have an older mouse, you may need to press the plastic ring (rather than turn it) to disengage it.

If the mouse is locked, see the next section, "Locking and Unlocking the Mouse," for instructions on how to unlock it.

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.

Insert a straightened paper clip into this hole.

(The hole may be located here on your mouse.)
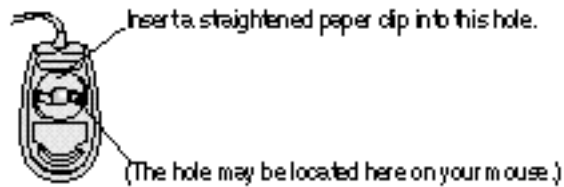
2   Press down on the paper clip while you turn the ring clockwise.

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.
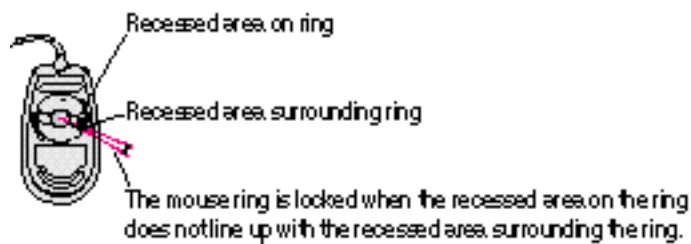
Recessed area on ring

Recessed area surrounding ring

The mouse ring is locked when the recessed area on the ring does not line up with the recessed area surrounding the ring.

To unlock the mouse, follow these steps:

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

Insert a straightened paper clip into this hole.

(The hole may be located here on your mouse.)
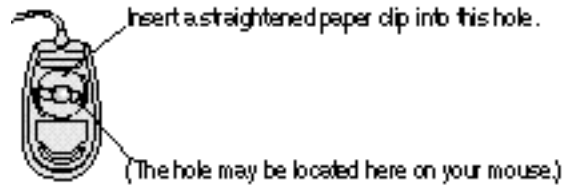
2 Press down on the paper clip while you turn the ring counterclockwise.

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.

Recessed area on ring

Recessed area surrounding ring

The mouse ring is unlocked when the recessed area on the ring lines up with the recessed area surrounding the ring.
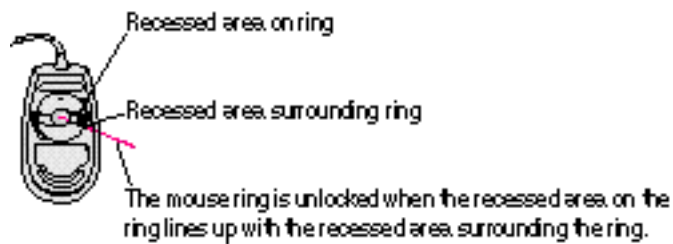
**Read this appendix for
instructions on installing an
expansion card in your computer.**

Appendix B
Installing Expansion Cards and Adding Memory

This appendix provides instructions for installing LC-PDS (LC-processor-direct slot) and communication expansion cards in your computer. It also provides instructions for adding memory (including an optional memory cache) to your computer.

Installing an expansion card or additional memory involves three steps:

- opening the computer

- inserting the card or memory module into a specific slot or socket

- closing the computer

About expansion cards and other options for your Macintosh

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 slots available for three different kinds of expansion cards:

- an LC-processor-direct slot (LC-PDS) for most expansion cards

- a communication slot for an internal modem or Ethernet card

- a video-in slot for a card that brings signals into the computer from a videocassette recorder (VCR), laserdisc player, video camera, or similar device

You can also install the following additional options in your Macintosh:

- an Apple External Video Connector kit that allows video mirroring on an external monitor
- a TV tuner card that allows you to watch TV on your Macintosh
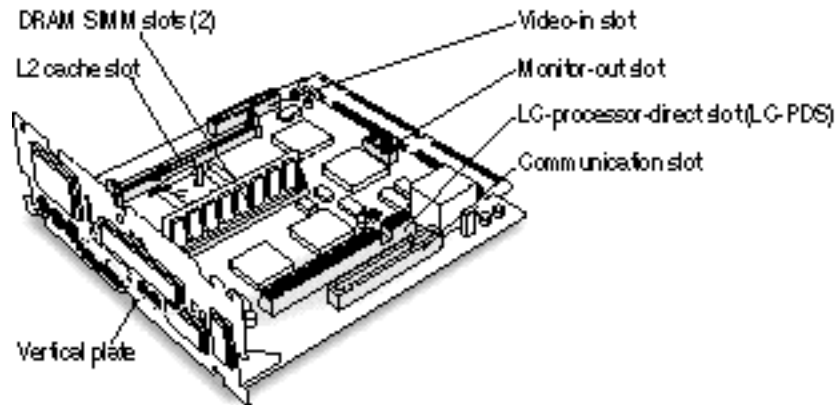
To install a video input card, an Apple External Video Connector kit, or a TV tuner card, follow the instructions that came with the kit or card.

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 your 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.

About memory

You can have memory—dynamic random-access memory (DRAM)—added to your computer in packages called Single Inline Memory Modules, or SIMMs. You can also upgrade your computer's memory by installing a Level 2 (L2) cache card.

DRAM configurations

Your computer can use any DRAM configuration with SIMMs of these sizes: 1, 2, 4, 8, 16, or 32 megabytes (MB). The exact configuration depends on the density of the DRAM chips that are mounted on the SIMMs. (The SIMMs support both 2K and 4K refresh rates.)

IMPORTANT The SIMMs should be 32-bit-wide, 72-pin fast-paged mode, with 70-nanosecond (ns) RAM access time or faster. SIMMs from older Macintosh computers are not compatible with your computer and should not be used.

If you decide to have additional DRAM installed in your computer, the SIMMs can be installed one-at-a-time in any order in either of the memory slots.

Cache configurations

A memory cache provides an overall increase in your computer's performance. You can add a cache by installing a 256K Level 2 (L2) cache card on the main logic board of your computer.

WARNING Although instructions for installing SIMMs are provided in this manual, Apple Computer strongly recommends that you have an Apple-certified technician install additional DRAM or cache. 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 install additional SIMMs yourself, you risk damaging your equipment, and this damage is not covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

Opening the computer

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 or memory and closed the computer. Additionally, move the logic board as little as possible while it is outside the computer case.

1 Shut down your computer by choosing Shut Down from the Special menu or the Apple (¤) menu.

You can also press the Power key on the keyboard.

2 Turn the computer completely off by pressing the power switch at the back of the computer.

Press the side of the switch marked with the ○ symbol.

3 Unplug all cables connected to your computer except the power cable.

4 Remove the screws on the computer's back panel with a screwdriver.

Remove these screws.
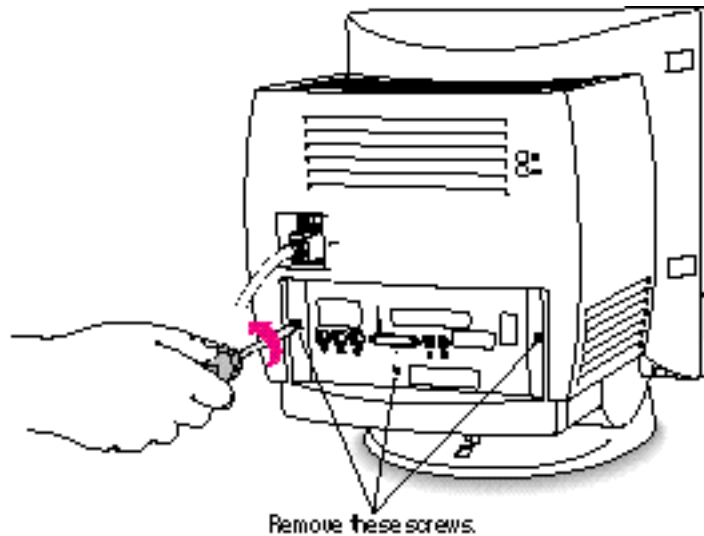
5 With your fingertips, find the two latches on the underside of the computer's case.

Locate the two latches on the underside of the computer's case with your fingertips.
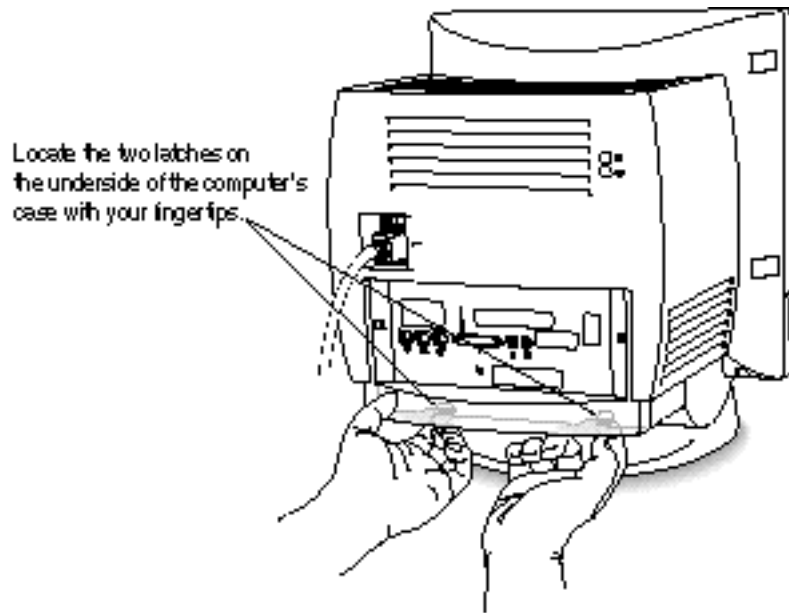
6 **Pull gently on the latches.**

7 **Swing the panel up and slip it out.**

Set the panel aside.

Pulling gently, swing the
panel up, and slip it out.
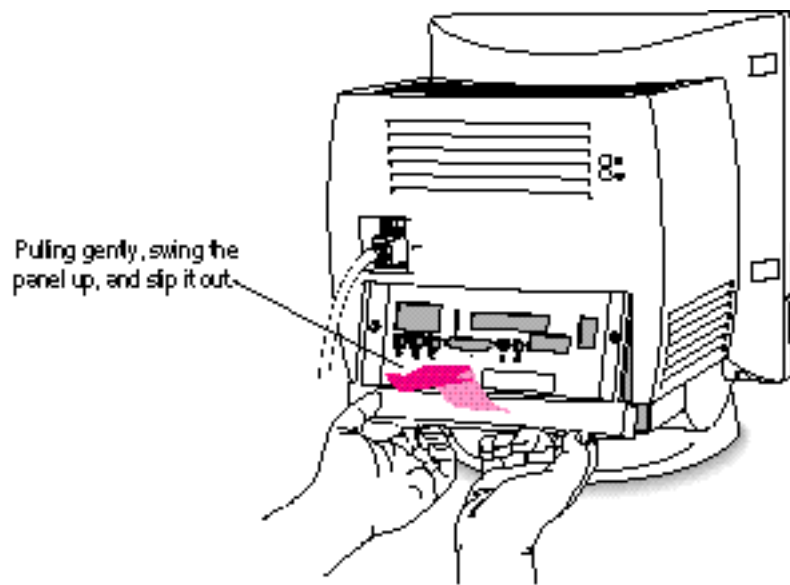
8 **Gently pull down on the wire handle and swing it out to unlock it from its storage position. Then grasp the handle and pull the logic board out of the computer.**

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 stable, clean, flat surface.

Wire handle
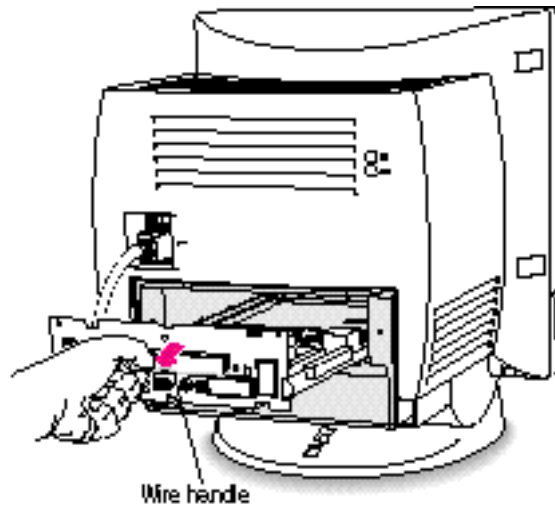
Installing an LC-PDS card

1   Remove the plastic access cover from the vertical plate.

Squeeze the two plastic tabs together and pull off the
metal retainer so the access cover can come off.

Metal retainer

Vertical plate

LC-processor-direct slot (LC-PDS)
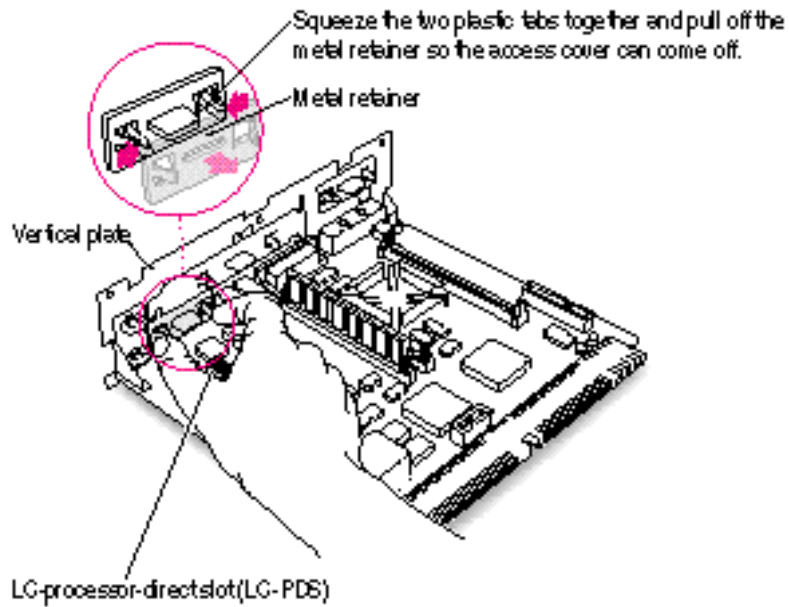
2   Remove the LC-PDS expansion card from its static-proof bag.

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

3   Align the card over the LC-processor-direct slot.

Vertical plate

LC-PDS access port

LC-processor-direct slot (LC-PDS)
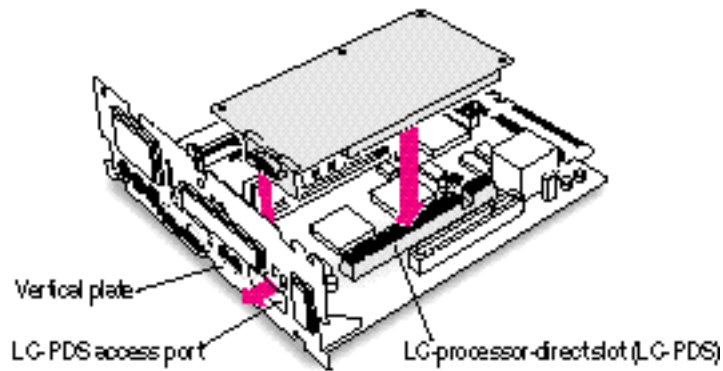
4 **Press down on the card until the connector is solidly in place.**

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.

5 **If you have a communication card, memory SIMM(s), or a cache card to install, proceed to those instructions in this appendix. If you are finished installing items in your computer, proceed to "Closing the Computer" later in this appendix.**

Installing a communication card

Some communication cards designed for other Macintosh computers may not be compatible with your computer and cannot be installed in your computer's communication slot. You can tell by examining the placement of the notches on the communication card. Use the following illustration as a guide if you're not sure you have the correct type of card for the slot.
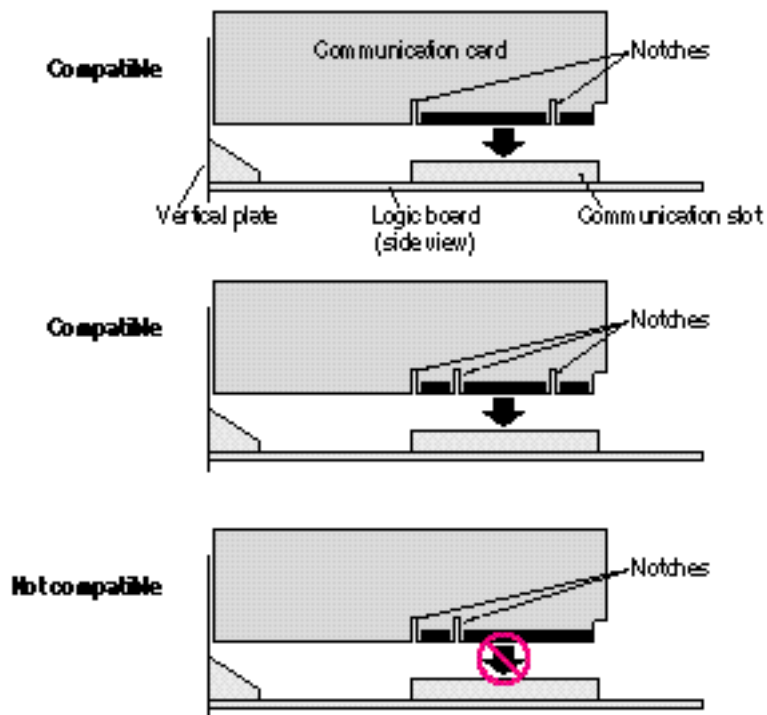
To install a communication card, follow these steps:

1   **Remove the plastic access cover from the vertical plate.**

Push the two plastic tabs apart and pull off the metal retainer so the access cover can come off.

Metal retainer

Vertical plate

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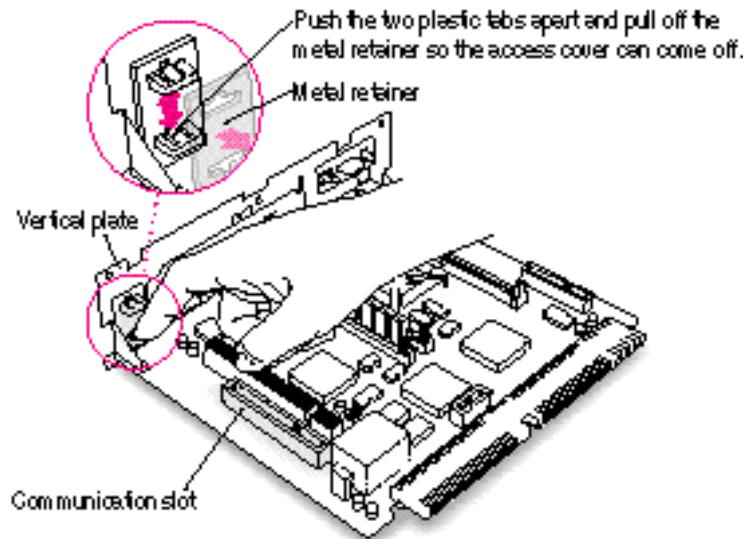
2   **Remove the communication card from its static-proof bag.**

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

3   **Align the card over the communication slot.**

The communication slot is the rightmost slot on the logic board as you face the vertical plate.

Vertical plate

Communication card access hole

Communication slot
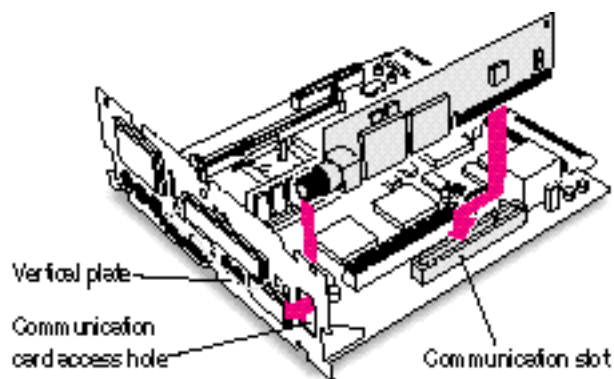
4 **Pass the external connector through the hole in the vertical plate, then insert the card into the communication slot. Press down on the card until the connector is solidly in place.**

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.

5 **If you have memory SIMM(s) or a cache card to install, proceed to those instructions in this appendix. If you are finished installing items in your computer, proceed to "Closing the Computer" later in this appendix.**

Installing memory (DRAM SIMMs)

Your computer has two slots for DRAM SIMMs. You can install 1, 2, 4, 8, 16, and 32 MB (70 nanosecond) DRAM SIMMs in any combination.

Note: At least one SIMM slot will already be filled. Depending on the exact memory configuration you desire, you may want to remove one or both existing SIMMs before installing new SIMMs. Instructions for removing SIMMs appear in the next section, "Removing Memory (DRAM SIMMs)."

WARNING Although instructions for installing SIMMs are provided in this manual, Apple Computer strongly recommends that you have an Apple-certified technician install additional DRAM or cache. 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 install additional SIMMs yourself, you risk damaging your equipment, and this damage is not covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

1 If you need to remove a previously installed SIMM before installing a new one, follow the instructions in the next section, "Removing Memory (DRAM SIMMs)."

2 Align the SIMM you're installing in the SIMM slot as pictured.

IMPORTANT Do not touch the SIMM's connectors. Handle the SIMM only by its edges.

Insert the SIMM into the SIMM slot (Insert the SMM at a slight angle.)

The SMM fits into the slot only one way. Make sure the notch on the SMM is on this side.

Connectors

DRAM SIMM slot (1 of 2)

Vertical plate
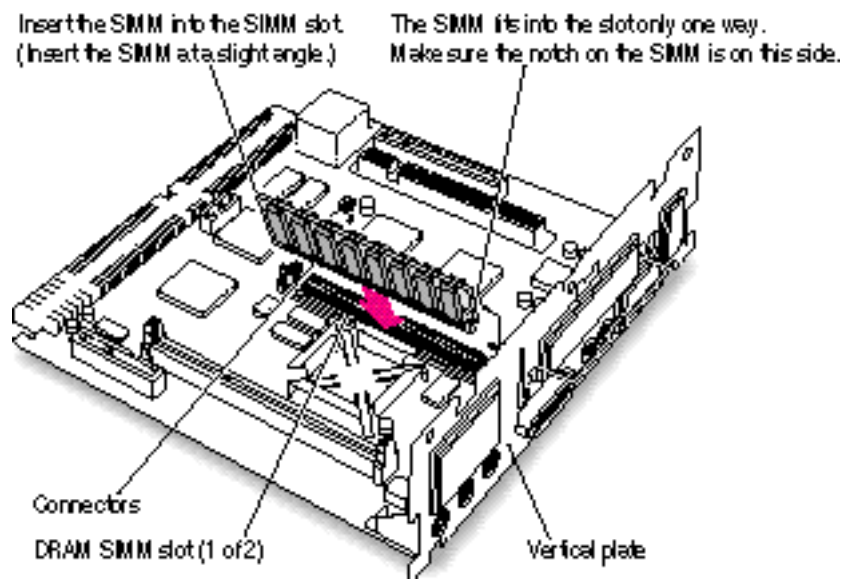
3   Snap the SIMM into place.

Rotate the SIMM back
until it snaps into place.

The plastic pin on the SIMM slot
should engage the hole in the SIMM .

Be sure that the clips on both sides
of the SIMM slot snap into place.
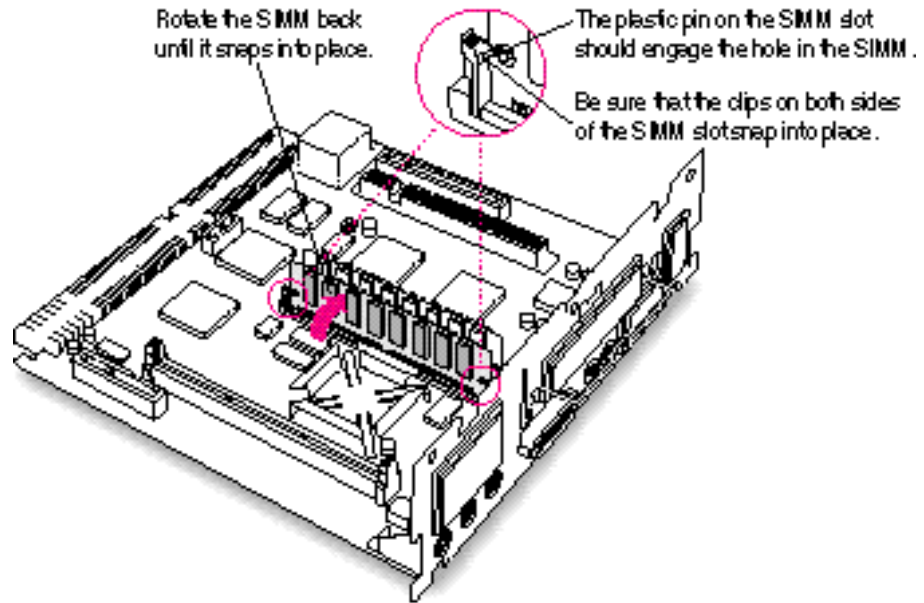
4   If you have a cache card to install, proceed to "Installing a Level 2 (L2) Cache Card" later in this appendix. If you are finished installing items in your computer, proceed to "Closing the Computer" later in this appendix.

Removing memory (DRAM SIMMs)

To remove a SIMM, follow these steps:

1 **Pull the clips holding the SIMM in place away from the SIMM's ends and slant the SIMM from its vertical position to disengage it from the SIMM slot.**

IMPORTANT Do not touch the SIMM's connectors. Handle the SIMM only by its edges.
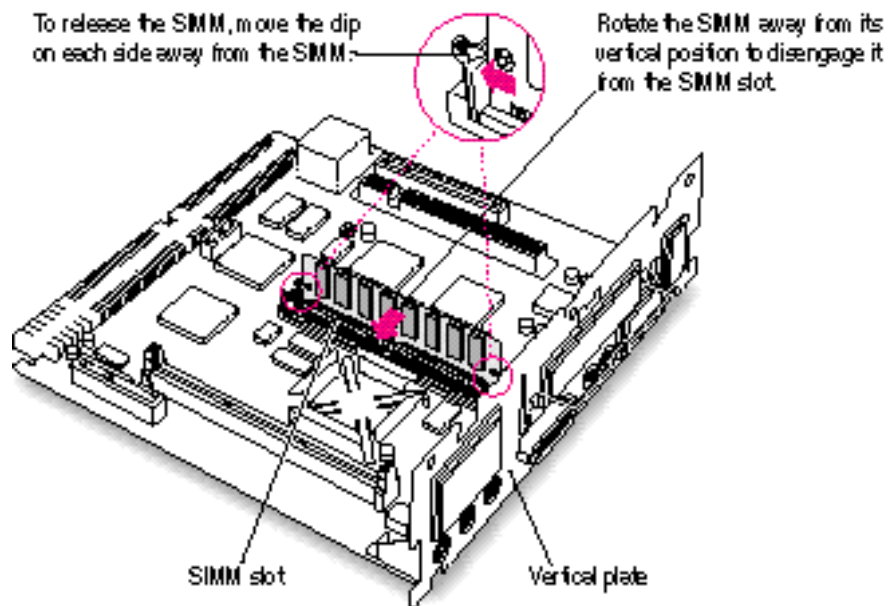
2 **Gently pull the SIMM from the slot.**

Pull the SIMM from the SIMM slot.
(It comes out at a slight angle.)

Handle the SIMM by the sides only, so that you
don't touch the connectors along the bottom edge.
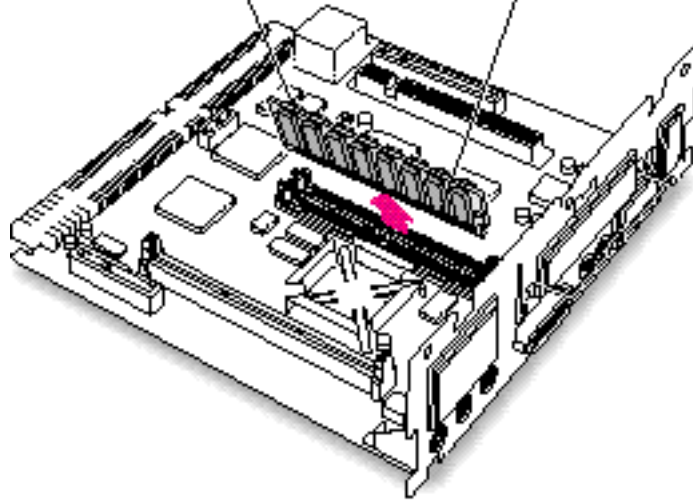
Installing a Level 2 (L2) cache card

1   **Insert the card as pictured.**

IMPORTANT Do not touch the cache card's connectors. Handle the cache card only by its edges.

The cache card is designed to fit into the slot only one way. Be sure to align the notches in the card with the small ribs inside the slot.

L2 cache card (Your card's shape, and the number of components and their arrangement on your card may vary.)

Notches

Connectors

L2 cache slot

Ribs (inside slot)
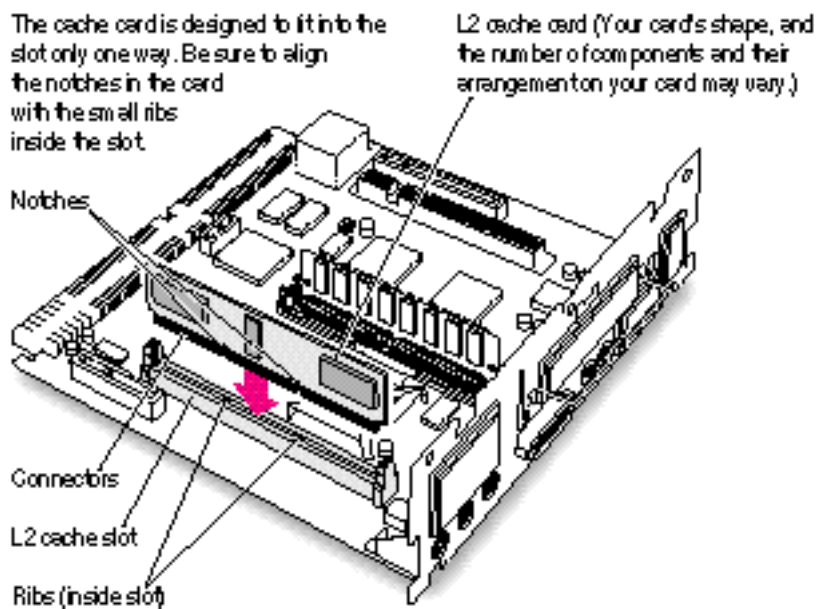
2   **If you are finished installing items in your computer, proceed to the next section, "Closing the Computer."**

Closing the computer

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

Make sure the logic board slides into the guides that are on both sides of the computer's interior.

Swing the handle up, into its storage position.
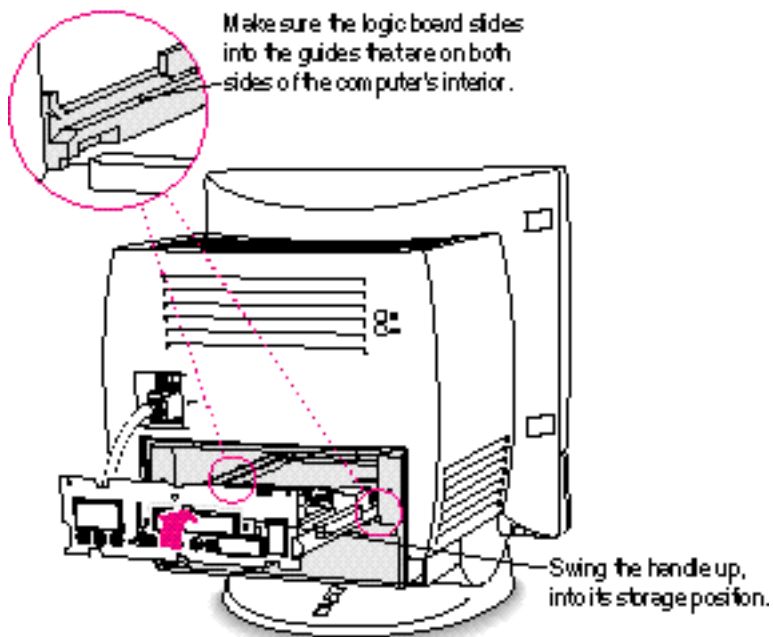
2 **Press the reset button on the logic board and then slide the logic board back into the computer.**

1 Press the reset button.

2 Gently but firmly push on the vertical plate until the logic board is solidly back in place.
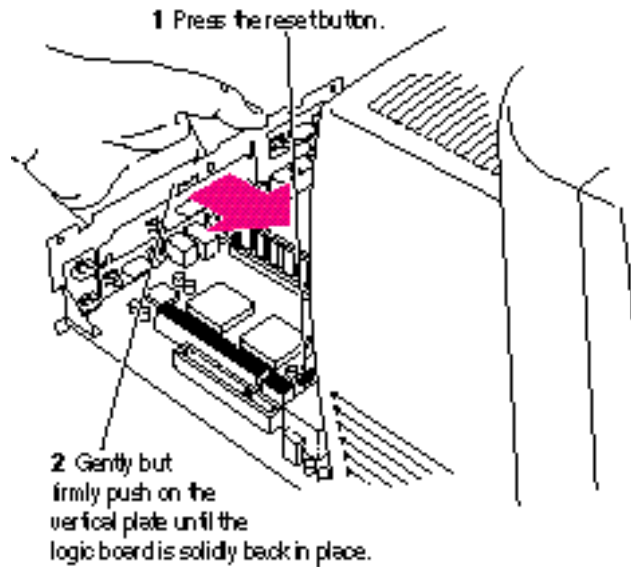
Note: When you press the reset button, some of your computer's software settings will change. You may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see the "Setting Options" topic area of Macintosh Guide, available in the Guide (⍰) menu.

3 Slip the three tabs at the top of the back panel into the grooves in the computer's case.

Slip the three tabs on the
back panel into the grooves
in the computer case.
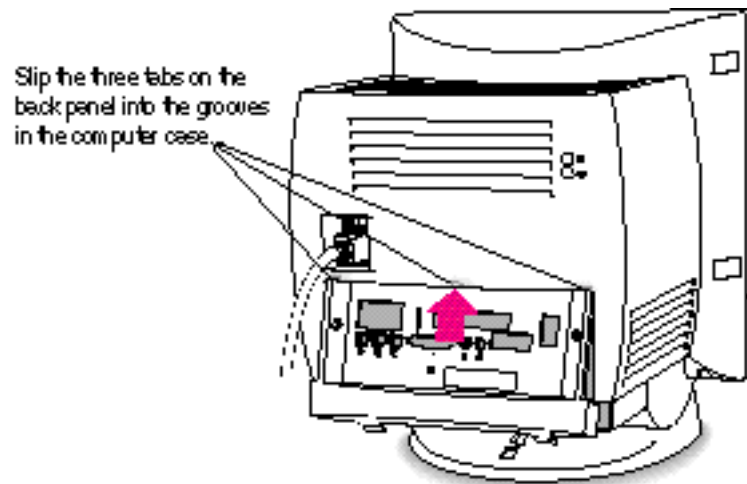
4 Snap the base of the back panel into place.

Snap the plastic back panel into place.
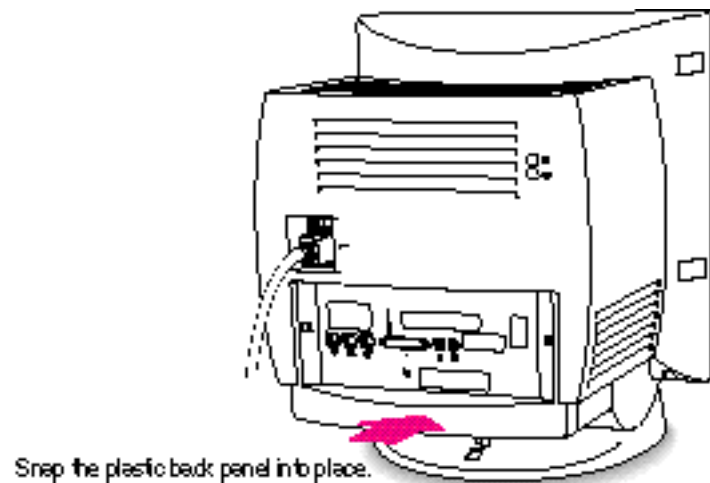
5 **Reinsert the screws.**

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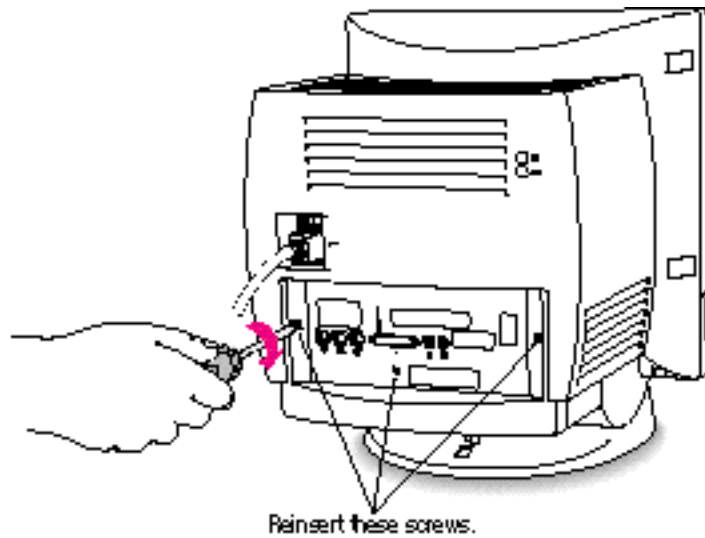
WARNING Never turn on your computer unless all of its internal and external parts are in place. Operating the computer when it is open or missing parts can be dangerous, and can damage your computer.

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

Appendix C
Special Keys on Your Keyboard

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

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

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

153

Special keys on Apple keyboards *(continued)*

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

Typing special characters and symbols

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

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

Characters appear here when you press keys on the keyboard or click them in the window.

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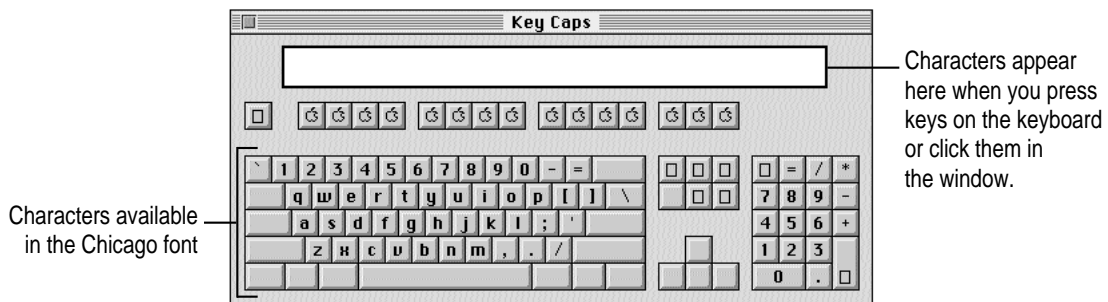
To have Key Caps show more options for special characters, press each of these keys or key combinations: Option, Shift, Shift-Option, Shift-⌘, and Option-⌘.

Characters available in the Chicago font when the Option key is pressed

The highlighted key represents the key held down on the keyboard—in this case, the Option key.
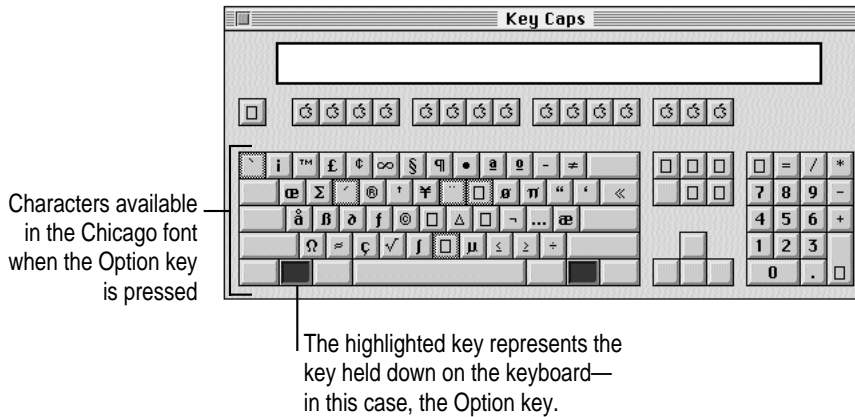
If you press the Option key, Key Caps outlines lightly the keys that you can use in combination with letter keys to type letters with accents or other diacritical marks.

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 key

Here are other key combinations you may find useful:

To do this...	...press this key combination
Start a "debugging" program used by software programmers*	⌘-Power key
Start the computer from a CD-ROM disc	C key (at startup)
Ignore SCSI ID 0 (zero)	⌘-Option-Shift-Delete
Turn off system extensions	Shift key (while starting up)
Rebuild the desktop	Option-⌘ (while starting up)

*If you do not have a debugging program installed, your screen displays a caret prompt (>). To return to the desktop, type "G."

Appendix D
Technical Information

Main unit

Processor

- PowerPC™ 603e processor @ 100-megahertz (MHz) clock frequency

Memory

- a minimum of 8 MB of dynamic random-access memory (DRAM), installed in one SIMM socket

- two 72-pin DRAM Single Inline Memory Module (SIMM) sockets; RAM can be expanded to 64 MB (70 nanoseconds)

- 4 MB ROM

- 1 MB DRAM frame buffer on board (for video support)

- one Level 2 (L2) cache slot capable of supporting a 256K L2 cache card

> **WARNING** Although instructions for installing SIMMs are provided in this manual, Apple Computer recommends that you have an Apple-certified technician install additional DRAM or cache. 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 SIMMs yourself, you risk damaging your equipment, and this damage would not be covered by the limited warranty on your computer. See an Apple-authorized dealer or service provider for additional information about this or any other warranty question.

Disk drives

- Apple SuperDrive 1.4 MB high-density floppy disk drive
- Internal IDE hard disk drive (1/3-height)
- Internal CD-ROM player (optional)
- A combination of up to six internal and external SCSI devices can be used.

CD-ROM specifications

■ Disc diameter	120 millimeters (4.7 inches)
■ Scanning velocity	1.2–1.4 meters per second
■ Rotation speed	Varies over radius
Normal speed	~530 to 230 rpm
Double speed	~1060 to 460 rpm
Quadruple speed	~2120 to 920 rpm
■ Latency (average)	Varies over radius
Normal speed	~55 to 130 milliseconds (ms)
Double speed	~27.5 to 65 ms
Quadruple speed	~13.75 to 32.5 ms
■ Blocks per rotation	~8.4 to 19.5 variable

- Average access time (typical)

Normal speed	380 ms
Double speed	270 ms
Quadruple speed	200 ms

Data

- Data capacity   656 megabytes (MB), Mode 1
  748 MB, Mode 2

- Number of blocks per disc   336,150

- Data per block   2048 bytes, Mode 1
  2336 bytes, Mode 2

- Address description   Minutes, seconds, blocks

Audio capacity

- Playing time   74 minutes, 42 seconds

Modes supported

- Audio CD

- CD-ROM   Modes 1 and 2

- CD-ROM XA   Mode 2, Forms 1 and 2

- CD-I   Mode 2, Forms 1 and 2

- Photo CD   Single session and multisession

- Video CD

Data streaming and transfer rates

- Blocks per second

Normal speed	75
Double speed	150
Quadruple speed	300

- User kilobytes (K) per second

Normal speed	150K, Mode 1 171.1K, Mode 2
Double speed	300K, Mode 1 342.2K, Mode 2
Quadruple speed	600K, Mode 1 684.4K, Mode 2

- SCSI bus burst rate (typical)

Asynchronous	5.0 MB per second
Synchronous	5.0 MB per second

Power consumption (typical)

+ 5 V DC	360 milliamperes (mA)
+12 V DC	620 mA

Laser (in CD-ROM drive)

- Type: Semiconductor GaAlAs laser
- Wavelength: 790 ± 25 nanometers
- Output power: 0.2 to 0.6 milliwatts
- Beam divergence: $55°$

Video resolution

- 640-by-480 resolution with 16-bit color

With the optional Apple External Video Connector kit, your computer supports video mirroring on the following external monitors at 640-by-480 resolution:

- Macintosh 13" Color Display
- Apple Color Plus 14" Display
- Macintosh Color Display
- Apple Performa Plus Display
- Apple Multiple Scan 14 Display

- Apple Multiple Scan 15 Display
- Apple Multiple Scan 17 Display
- Apple Multiple Scan 20 Display
- AppleVision 1710AV Display
- Apple Multiple Scan 1705 Display
- VGA monitors (a plug adapter may be required)

Sound

- 16-bit monophonic sound input
- 16-bit stereophonic sound output (16-bit CD stereophonic playback)
- Integrated microphone for monaural sound input
- Sound input port for microphone or line input (port accepts stereophonic input, but sound is combined into monophonic sound for play-through or recording)
- Two stereophonic sound output ports, level nominally 0.5 volts RMS into 39 ohms
- Internal stereo speakers, muted whenever a plug is inserted into either sound output port

Clock/calendar

- CMOS custom chip with battery

WARNING If the clock begins to lose accuracy, see your Apple-authorized dealer or service provider for a battery replacement. Do not attempt to replace the clock battery yourself.

Keyboard

- Supports all Apple Desktop Bus (ADB) keyboards

Additional interfaces

- ADB port for keyboard, mouse, and other input devices using a low-speed, synchronous serial bus

- Two serial ports for printers, modems, and other serial devices

- High-performance SCSI port for a chain of up to six hard disk drives, scanners, printers, and other devices

- LC-compatible 68030 processor-direct slot (96/114-pin)

- Communication slot for optional internal modem or Ethernet card (112-pin)

- Video-in slot for optional expansion card providing real-time video display, video capture, and overlay (60-pin)

- Port for optional internal TV tuner card

- Monitor-out port for video mirroring using optional Apple External Video Connector kit

Additional features

- Support for optional infrared remote control

- Front panel push-button controls for volume

- Front panel stereo headphone jack

- Power on and off from keyboard and optional remote control

Environment

Operating temperature

- 10° C to 40° C (50° F to 104° F)

Storage temperature

- –40° C to 47° C (–40° F to 116.6° F)

Relative humidity

- 5% to 95% noncondensing

Altitude

- Works below 3048 m (10,000 ft.)

Weight

- 21.15 kg (47 lbs)

Dimensions

- 445 mm x 383 mm x 406 mm (17.5" x 15.1" x 16")

Apple Desktop Bus power requirements

- Maximum current draw for all ADB devices is 500 milliamperes (mA)

- Mouse draws up to 10 mA

- Keyboard draws 25–80 mA (varies with model)

Note: The maximum number of ADB devices recommended in a daisy chain connected to the ADB port is three.

AC line input

- Line voltage: 100–240 volts AC, RMS, single phase, nominal

- Frequency: 50–60 hertz (Hz)

- Maximum power consumption: 125 watts

Index