

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

1

Getting Started



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

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

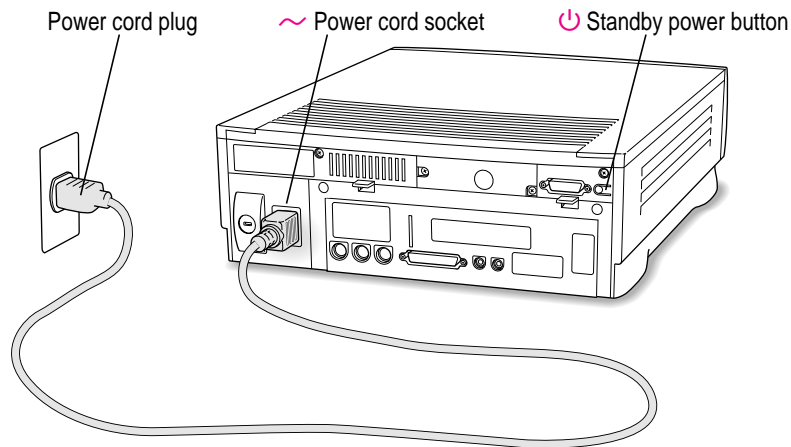
Plugging in the computer

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

When you are ready, follow these steps:

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

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



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!

If the computer starts up: If you hear a tone, the computer has started up. You need to turn it off before proceeding. To do so, press the power button (also called the standby power button), marked with the \cup symbol on the back of the computer.

Connecting a monitor

You can connect many types of monitors to your Macintosh. To connect a monitor, refer to the instructions that came with it in addition to the instructions here.

Connecting the monitor power cord

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

To connect the monitor power cord, follow these steps:

1 Place the monitor where you'll be using it.

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

- Allow 3 or more inches for air circulation around the sides of the computer and monitor.
- Position the monitor so the top of the screen is slightly below eye level when you sit at the keyboard.
- Position the monitor to minimize glare and reflections on the screen from overhead lights and windows.
- Consult “Arranging Your Office” in Appendix A for suggestions on positioning your computer equipment.

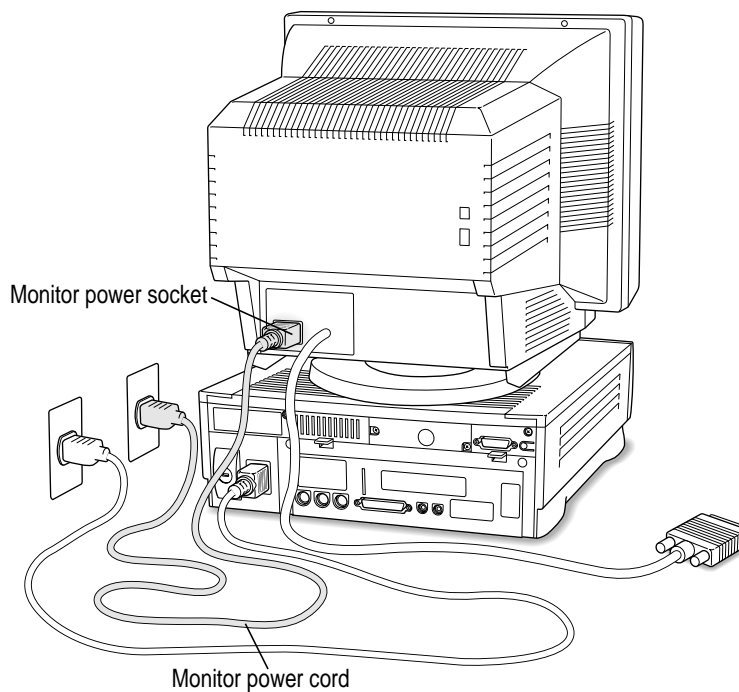
2 Connect the monitor power cord to the monitor.

On some monitors, the cord is already attached.

3 Plug in the monitor power cord.

Some monitor power cords are designed to plug into the back of your computer.

Some monitor power cords must be connected to a grounded electrical outlet, not to the computer. Check the information that came with the monitor.




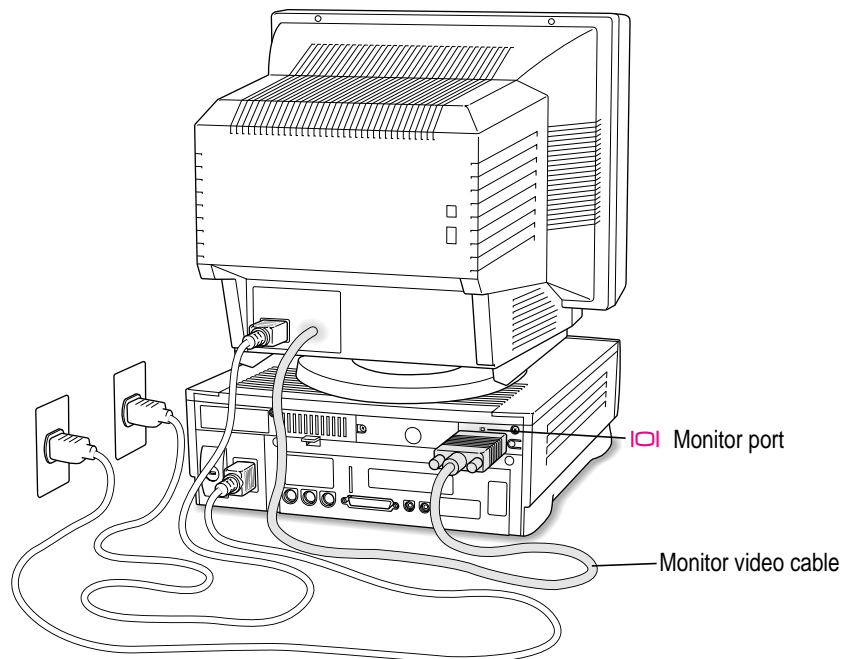
Connecting the monitor video cable

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

To connect the monitor video cable, follow these steps:

- 1 Attach the monitor video cable to the monitor.**
On some monitors, the cable is already attached.
- 2 Attach the monitor video cable to the monitor port on the back of the computer.**

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



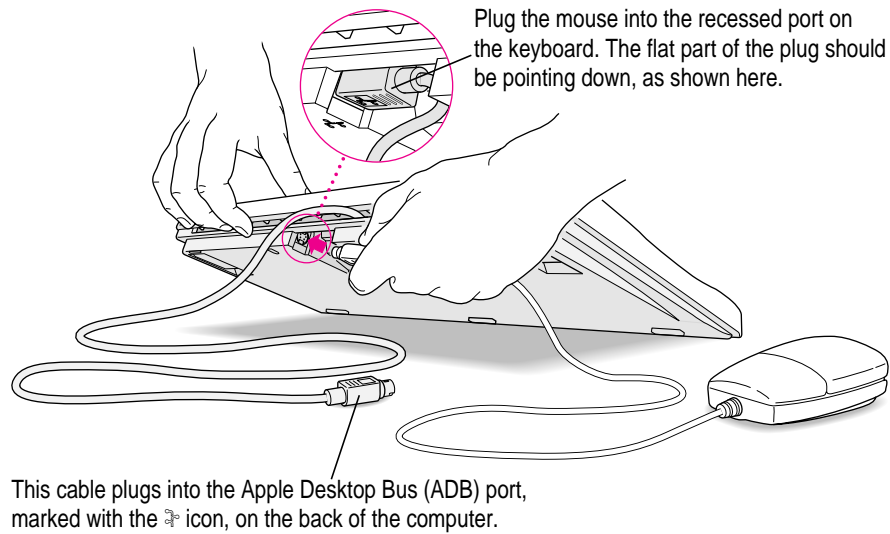
If your monitor has a microphone or speakers, you may need to connect additional cables. See the documentation that came with the monitor.

Connecting the mouse and keyboard

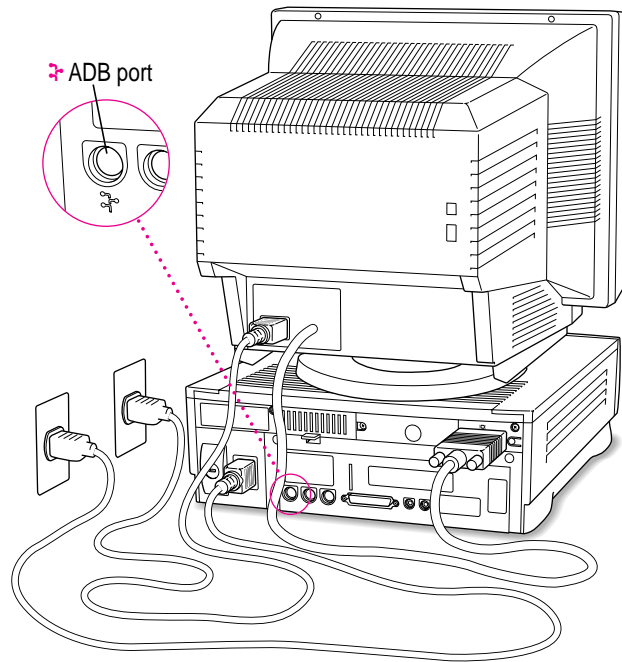
- 1 Plug the mouse cable into the recessed port on the back of the keyboard.

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

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

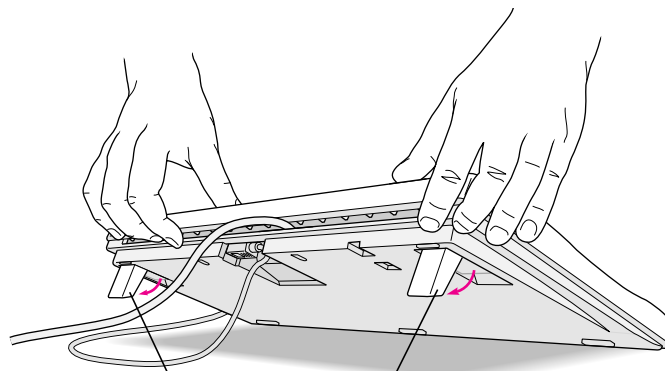


- 2 Plug the keyboard cable into the ADB port marked with the  icon on the back of the computer.



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

- 3 If you want to adjust the keyboard's angle, lower its feet.



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

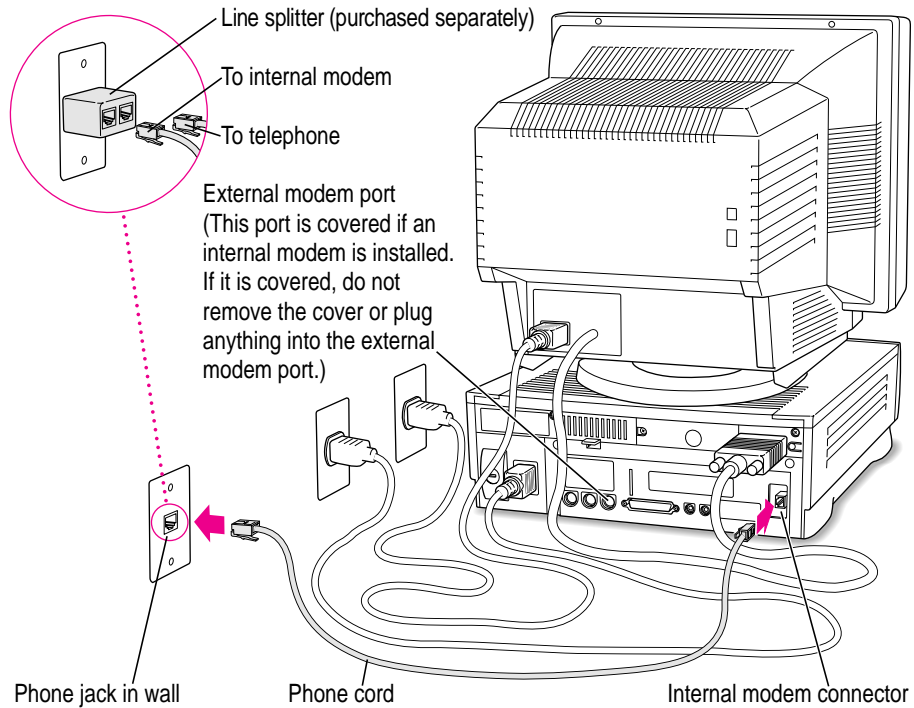
Connecting the modem

A modem is hardware that may already be installed inside your computer. The modem enables your computer to send and receive faxes and telephone calls, to connect to the Internet, to access online services, and to communicate with other computer users. (You use the modem through the appropriate software already installed on your Performa. See your modem documentation for further information.) You can confirm whether you have an internal modem by seeing if you have an internal modem connector on the back of your computer, as shown in the next illustration. (Also, a standard telephone cord will have come with your computer.)

Note: If your computer came with an Ethernet card installed instead of an internal modem and you want to connect now, skip to the section “Turning the Computer on for the First Time,” later in this chapter, and then see Chapter 3 for information on connecting to an Ethernet network.

If your computer came with an internal modem and you want to connect the modem now, follow the next illustration. If your computer came with an external modem, connect it to the external modem port and follow the instructions in the modem manuals that came with your computer or with the modem.

IMPORTANT When connecting a modem, make sure you connect to an analog phone line—the kind used typically in homes. (Connecting to a digital phone line could damage the modem.) If you’re connecting the modem at home, you probably have an analog phone line.



You can use any standard phone cord to connect your internal modem connector to a phone jack. If you have only one phone jack, consider purchasing a line splitter at an electronics supply store. A line splitter enables you to plug your phone and your modem into the same jack at the same time. Keep in mind that when your phone and your modem share a single phone line, you will not be able to use both pieces of equipment at the same time, even if they are attached to separate phone jacks. While you use your modem, outside callers will get a busy signal and you cannot call out. When your phone is in use, you cannot use the modem. (By the way, you can keep your answering machine connected to your phone, even if your phone and modem share the same telephone line.)

IMPORTANT During lightning storms, disconnect your modem by unplugging the phone cord from the phone jack to prevent voltage overload.

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, see the instructions in Chapter 3.

Turning the computer on for the first time

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

1 Turn on your monitor.

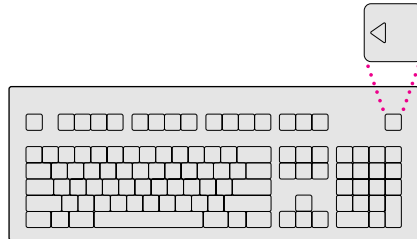
See the information that came with your monitor for the location of the power switch. On newer Apple monitors, the power switch is located on the front of the unit.

Note: You may not see the monitor power come on until you turn on the computer in the next step. Also, larger monitors can take several seconds to turn on if you have extra DRAM (dynamic random-access memory) installed in your computer. (The screen remains black.)

By the way: Depending on the type of monitor you have, you may only need to turn it on once. Some monitors turn off automatically when you shut down the computer, and turn on automatically when you start up the computer. Other monitors have to be turned on separately each time you turn on the computer.

2 Press and hold down the Power key for about 2 seconds.

The Power key is marked with a triangle on your keyboard.

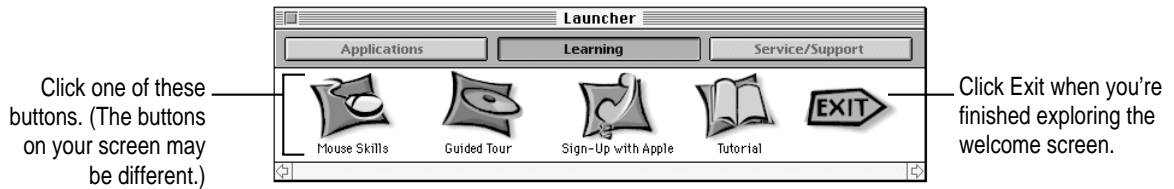


You hear a tone from the computer as it starts up.

3 Follow the instructions on your screen.

You will see a “welcome screen” with a Launcher (shown below) that you use to choose what you want to do next.

- If you don’t know how to use a mouse, press the letter M on your keyboard for an on-screen program that teaches you how to use it.
- If you’re new to the Macintosh but familiar with how to use a mouse, click the Tutorial button to go through the Performa Tutorial, a program that teaches you how to use your computer.
- If you want to learn more about the capabilities of your Macintosh (not *how* you can use the Macintosh but more about *what* the Macintosh can do), click one of the other buttons on your screen.



Note: If you see a blinking question mark or nothing at all, see the next section, “Problems Turning On Your Computer?”

- 4 When you're finished exploring the items on your screen, click **Exit**.

You'll see the Macintosh desktop as pictured below. (*Note:* Most computer screens have a slight black border around them.)

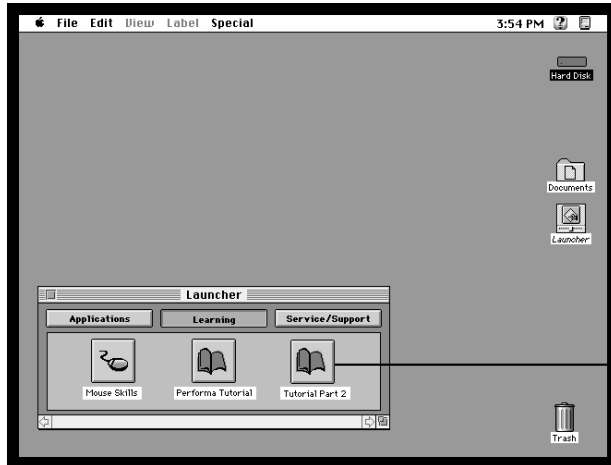
Your Launcher has more—and perhaps different—items in it than are shown in this illustration.



Hard disk icon

Macintosh desktop, after you exit the welcome screen



- 5 Take **Tutorial Part 2** or skip to the section “What’s Next?” later in this chapter.



Click the Tutorial Part 2 button to continue learning the basics of your computer.

Problems turning on your computer?

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

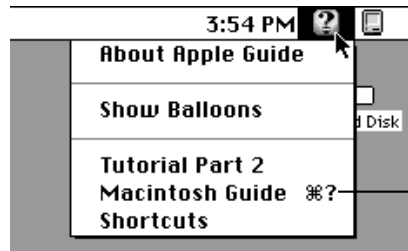
- Is the computer plugged into a power source? If it is plugged into a power strip, is the power strip turned on?
- Is the computer turned on? The power-on light on the front panel should be on. If it isn't, press the standby power button (marked with the symbol ) on the back of the computer.
- Are the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

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

What's next?

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

- If you are new to the Macintosh, see the next section, “Learning the Basics in the Performa Tutorials.”
- If you are an experienced Macintosh user, turn to Chapter 2, “Getting Help,” to learn about Macintosh Guide. Or select Macintosh Guide from the Guide menu (⌘?) in the upper-right corner of your screen and explore it yourself.



What you can't find in this manual you can find in Macintosh Guide, your main source of information when working with your computer.

- If you want to connect your computer to other equipment, such as a printer, see Chapter 3, “Expanding Your Computer and Using Its Special Features.”
- If you want to install application software on your computer, see Chapter 4, “Using Application Programs and Backing Up Disks.” The chapter contains information on setting up your programs and managing memory. You'll need this information to properly set up any programs specifically designed for computers with PowerPC microprocessors.
- If you want to turn off your computer, see “Turning the Computer Off,” later in this chapter.

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.

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

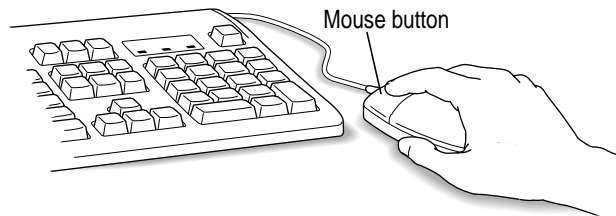
Learning the basics in the Performa tutorials

Read this section if you haven't already gone through Mouse Skills or the Performa Tutorial that appeared on your screen when you first turned on your computer, or if you want to go on to Performa Tutorial Part 2. These programs teach you the basic skills you'll need to use your computer.

To start the Performa Tutorial, Tutorial Part 2, or Mouse Skills once you are past the introductory "welcome screens," follow these steps:

1 Slide your mouse along your mouse pad or desk.

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



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

- 2 Move the mouse so that the arrow (↔) is over the picture of the particular tutorial you want to take.



If you don't see the Performa Tutorial, Tutorial Part 2, or Mouse Skills pictures on your screen, put the arrow on the word "Learning" and click (quickly press and release) the mouse button.

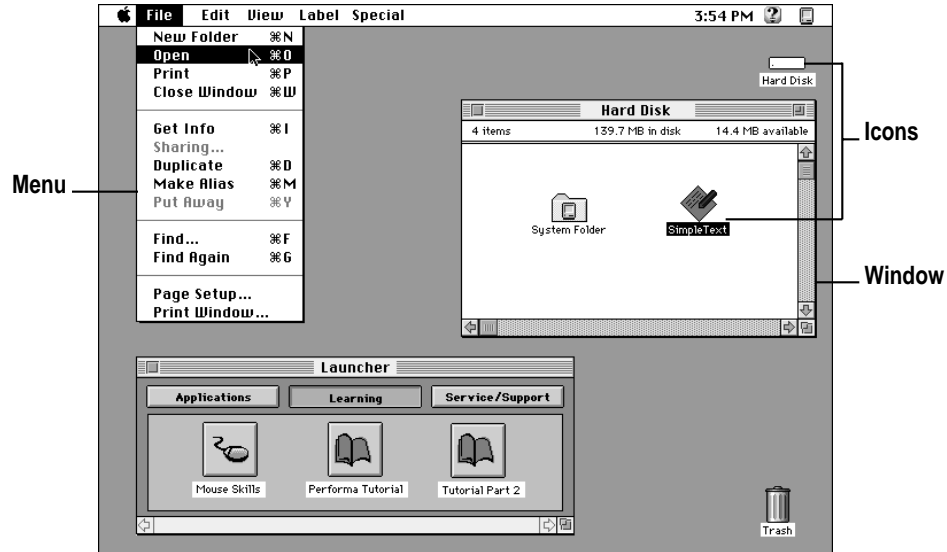
If you run out of room on your mouse pad or desk while moving the mouse, pick up the mouse and place it where there's more room. (The arrow on the screen moves only when the mouse is in contact with the mouse pad or desk.)

- 3 Click the mouse button on the picture of the tutorial you want to take.

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

Reviewing the basics

Use the following illustrations to review the elements on your screen with which you work on your computer.



Menus

The strip across the top of the screen is called the menu bar. The symbols and words in it represent “menus” (lists) 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.



Application menu

You can have several applications open at once. To see which program is active or to switch from one program to another, use this 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.



Hard Disk

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 represent folders. A folder contains other icons.

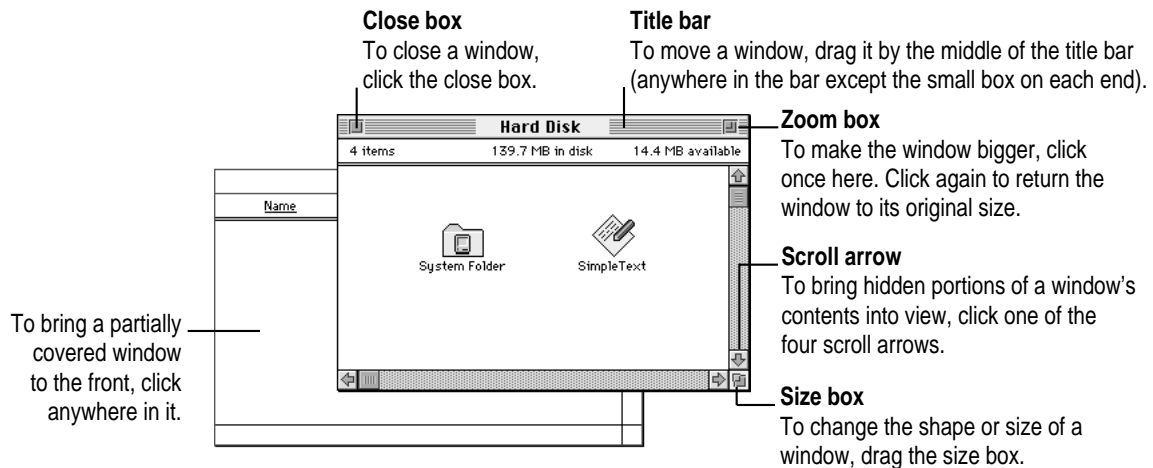


Trash

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, and icons. To change the shape or position of a window, or to close the window, use the elements shown here.



Turning the computer off

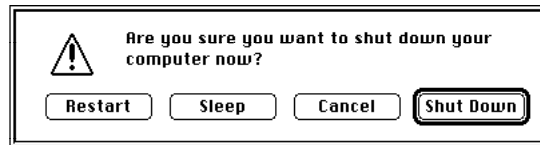
There are two ways to turn off your computer: with the Power key on the keyboard or with the Shut Down command in the Special menu.

Using the Power key

To turn the computer off using the Power key, follow these instructions:

- 1 If the computer is in sleep mode (the monitor is on but the screen is dark), press any key except Caps Lock to wake it.
- 2 Press and hold the Power key (marked with a \triangleleft) on the keyboard for about 2 seconds.

The following dialog box appears on the screen:



- 3 Press the Return key or click the Shut Down button in the dialog box.

Using the Shut Down command

You can also turn off your computer by choosing Shut Down from the Special menu. Detailed instructions follow.

Note: If you are still in the welcome screens (the introductory screens that appeared when you turned on your computer for the first time), use the Power key to turn off your computer, as described above.

- 1 If the computer is in sleep mode (the monitor is on but the screen is dark), press any key except Caps Lock to wake it.
- 2 Move the tip of the arrow (\blacktriangleright) to the Special menu at the top of the screen.

If the word “Special” does not appear in the menu bar at the top of the screen, you’re not working in the Finder, the application you need to be in when you shut down your computer. Choose Finder from the Application menu (at the far right of the menu bar). Then try step 2 again.

- 3 With the tip of the arrow on the word “Special,” press and hold down the mouse button.
- 4 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.



To turn the computer on again, just press the Power key for about 2 seconds.

If you can't shut down your computer

If a problem with the computer prevents you from using the Power key or choosing Shut Down—for example, if the computer “freezes” so that the pointer does not respond to the mouse—you can turn off the computer by pressing the standby power button on the back of the computer.

IMPORTANT You could lose unsaved work if you use the standby power button to turn the computer off. Only use the standby power button when there is a problem that prevents the computer from being turned off with the Power key or the Shut Down command. To make sure your work is saved, use the Power key on the keyboard or the Shut Down command.

Turning the computer on

To turn on the computer after you've shut it down:

- Press and hold the Power key (marked with a $\langle \rangle$) on the keyboard for about 2 seconds.


Note: Your monitor may have to be turned on separately each time you turn on the computer. If you have trouble turning on your computer, see the section, “Problems Turning On Your Computer?” earlier in this chapter.

Where to find answers

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



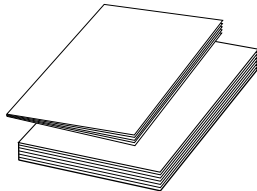
In the Guide menu

The Guide menu (marked with the  icon) contains online help and information about the Macintosh. If you can't find the information you need in this book, you can find it in the Guide menu. To learn how to get different kinds of help from the Guide menu, see Chapter 2 in this book.



In this book

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



In other manuals

Some of the programs that already came installed on your computer have separate manuals. Most of these manuals came in the box with your computer. Some come stored on your computer's hard disk. (You can find them as clickable buttons in the Applications section of the Launcher, next to their application buttons.) For answers to questions about other equipment or about application programs you have purchased, see the manuals that came with the equipment or programs.



About Apple Extras

From the Read Me files in the Apple Extras folder

The Apple Extras folder (in your System Folder) on your hard disk contains a SimpleText document, called About Apple Extras, with important information about some of the application programs included with your computer. Similar files called Read Me files can also be found inside application folders and in the Documents folder on your desktop.



From Apple's customer support hotline

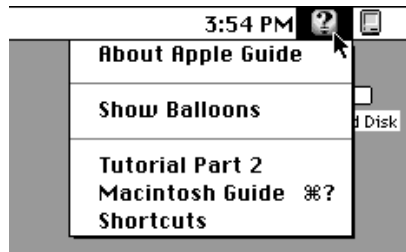
If you can't find an answer in any of the materials provided, call the customer support hotline. The phone number for the hotline is in the service and support information that came with your computer.

Note: If you have problems with an application program not published by Apple, call the program's publisher. Click the Phone Numbers button in the Service/Support area of the Launcher to get a software publisher's phone number.

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

2 Getting Help

The Guide menu contains online help and information. It is your main source of information when 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.

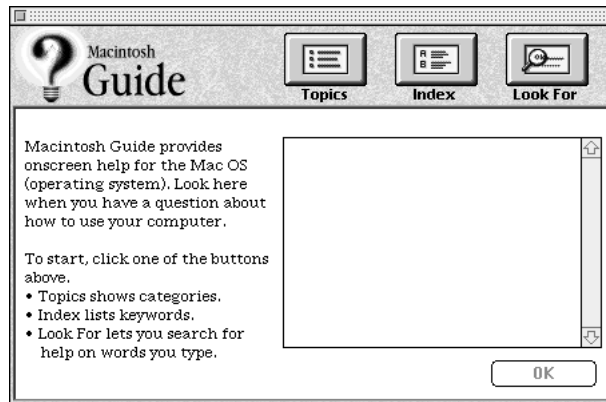


A checkmark in the menu indicates that the Finder is the active program.

- 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.

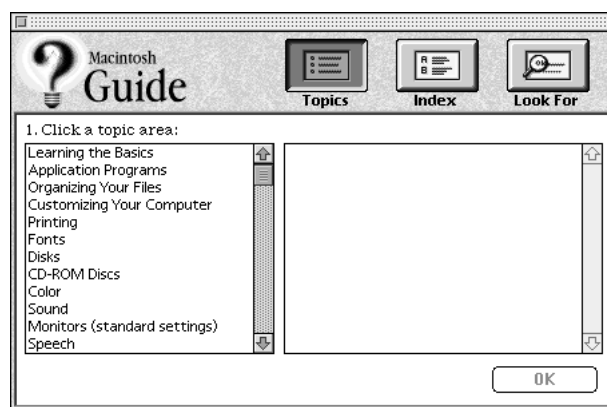
In the following sections you will practice using each method.

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

Getting answers with the Topics button

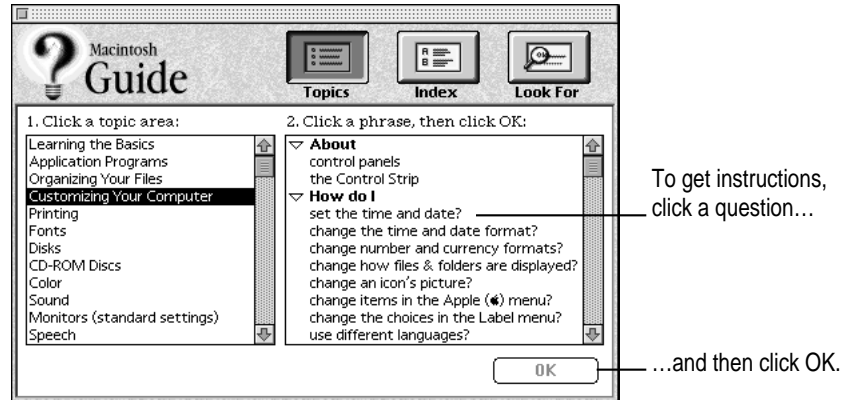
- 1 In the Macintosh Guide window, click the **Topics** button.

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 In the list of topics, click “Customizing Your Computer.”

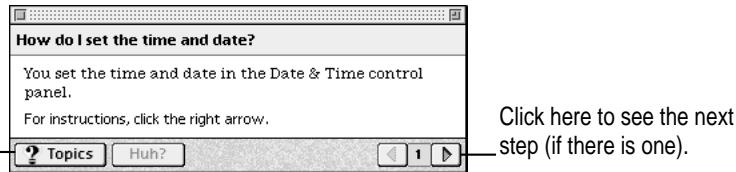
When you click any topic area, a list of related questions appears on the right side of the Macintosh Guide window.



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

A small window appears with instructions for you to follow.

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



4 Read and follow the instructions in this window.

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

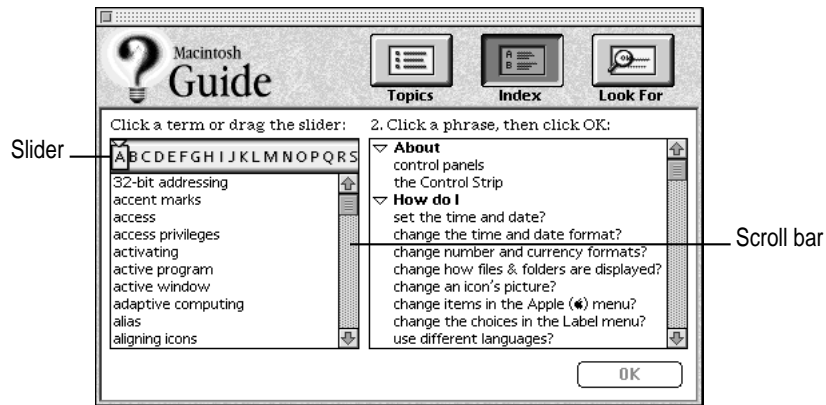
5 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Index button

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

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

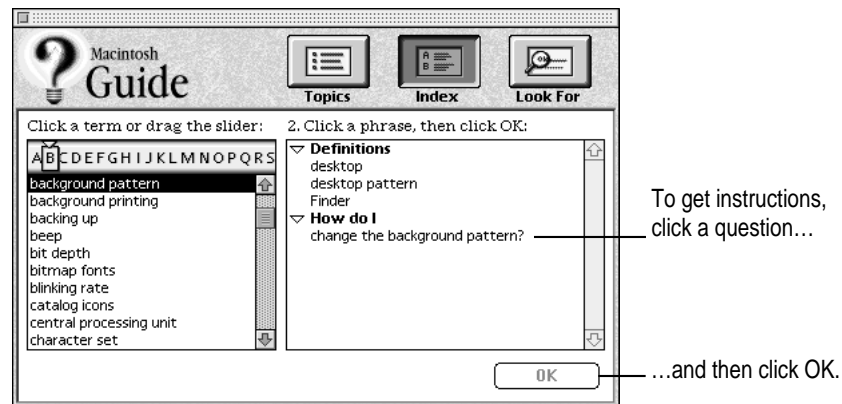


- 2 Scroll through the alphabetical list until the phrase “background pattern” is visible.

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

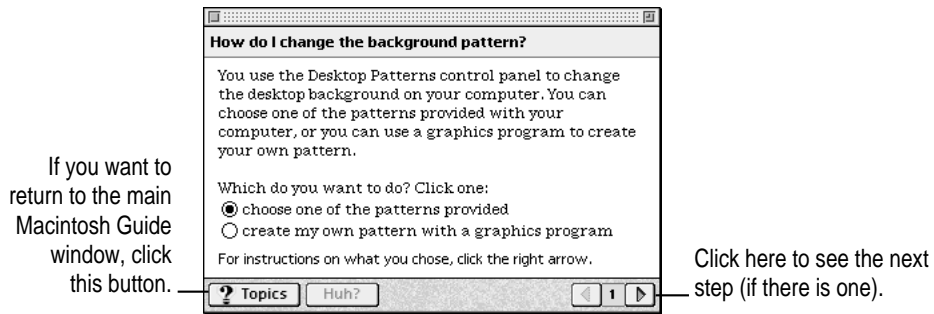
- 3 Click the phrase “background pattern” in the alphabetical list.

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



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

A small window appears with instructions for you to follow.



- 5 Read and follow the instructions in the window.

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

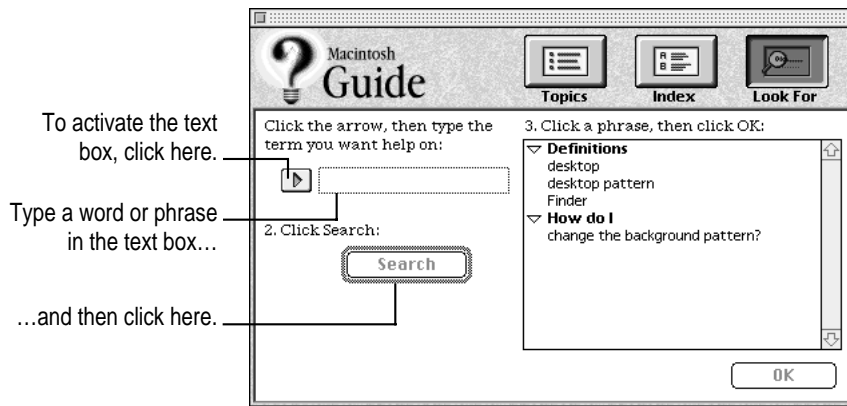
- 6 When you have completed all the steps, click the Topics button in the lower-left corner to return to the main Macintosh Guide window.

Now continue with the next section.

Getting answers with the Look For button

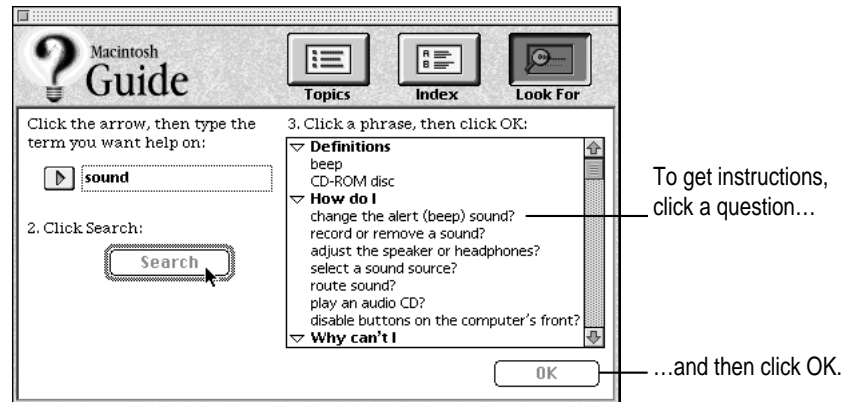
- 1 In the Macintosh Guide window, click the Look For button.

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



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

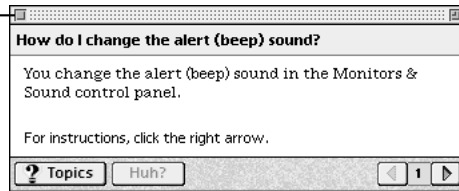
When you click Search, a list of questions related to the word or phrase you typed appears on the right side of the Macintosh Guide window.



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

A small window appears with instructions for you to follow.

If you want to close
Macintosh Guide,
click here.



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

- 5 Read and follow the instructions in the window.

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

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

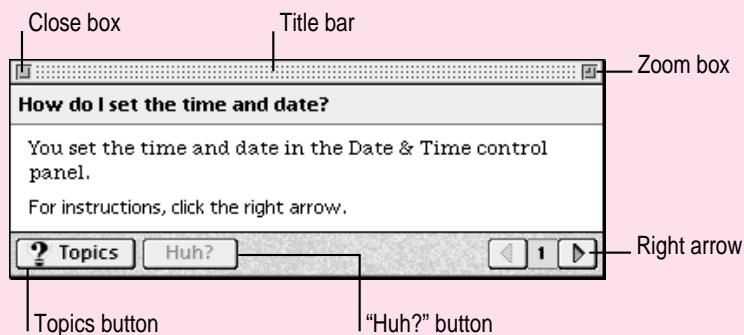
Tips for using Macintosh Guide

Here are a few tips for using Macintosh Guide effectively:

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

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

- If you need more information about an instruction or a term, click the button labeled “Huh?” to get a 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.



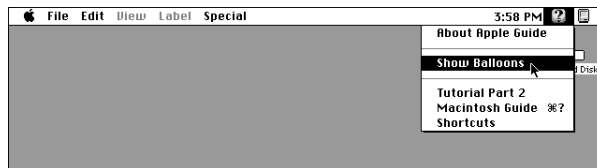
Identifying what's on your computer screen

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.

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

Follow these steps to use Balloon Help:

- 1 Pull down the Guide menu (marked with the ) 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, pull down the Guide menu again and choose Hide Balloons.

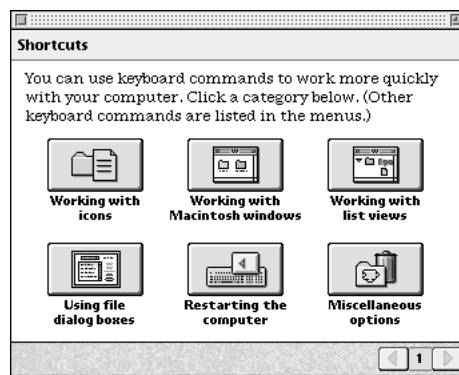
Learning useful shortcuts

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

Follow these steps to learn keyboard and mouse shortcuts:

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

The main Macintosh Shortcuts window appears.



- 2 **Click one of the category buttons.**

Another window appears, describing shortcuts for that category.



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

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

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

Read this chapter for information on connecting equipment to your computer and using some of its special features, such as sound capabilities.

3

Expanding Your Computer and Using Its Special Features

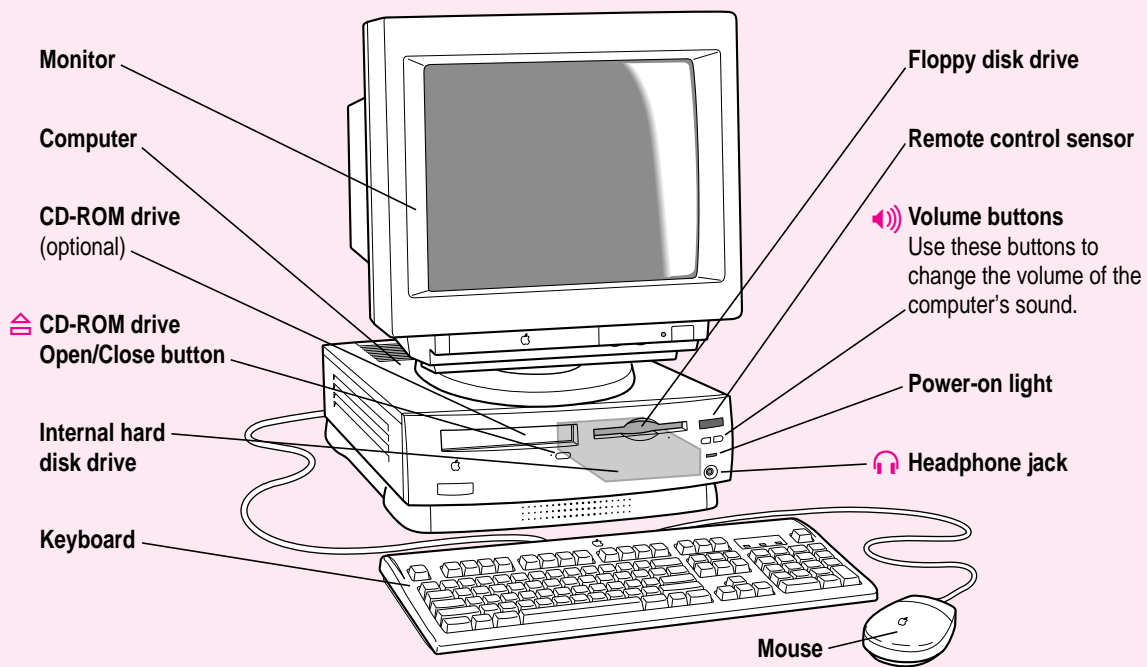


The illustration on the next page shows the basic computer system you now have. So that you can expand your system's capabilities, your computer has both external ports and internal slots to which you can connect additional hardware. Audio devices such as headphones and other sound equipment, as well as a printer or scanner, all connect to appropriate external ports.

Also, devices that go inside the computer's cover can increase its capabilities and performance. Among these items are additional dynamic random-access memory Dual Inline Memory Modules (DIMMs), a High Performance Module (256K level 2 cache), and different kinds of expansion cards. Instructions for installing these internal accessories are provided in Chapter 8, "Installing Expansion Cards or Additional Memory."

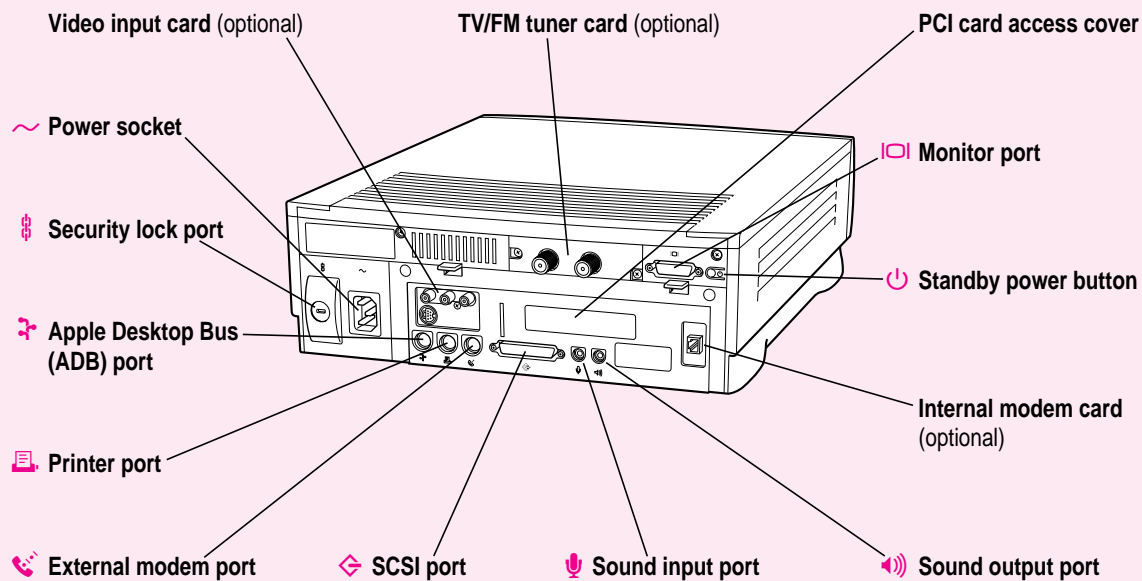
In addition, you can expand your computer by connecting it to a network.

WARNING Before you connect any equipment to your computer, make sure that your computer is plugged in (in order to ground it) and turned off. If you connect equipment with the computer turned on, you can damage your computer and your equipment.



Ports and connectors on the back of your computer

Video input card (optional)		Connects your Macintosh to a video camera, VCR, or other video equipment. (The card is called the Apple Video System.)
Security lock port	🔒	Enables you to attach a security lock to your Macintosh. See your computer products retailer for security lock devices that work with your computer.
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 device.
External modem port	📞	Connects an external modem or GeoPort adapter to your Macintosh. (<i>Note:</i> If your computer has an internal modem, this port is covered. Don't remove the cover or connect anything to this port if you have an internal modem.)
SCSI port	🔌	Connects your Macintosh to SCSI equipment, such as external hard disk drives and scanners.
Sound input port	🎤	Connects your Macintosh to another audio source, such as a microphone, compact disc, or audio cassette player.



TV/FM tuner card
(optional)

Connects your Macintosh to an external TV antenna or cable TV service and to an FM radio antenna. (If don't have the card installed and want to install one, purchase the Apple TV/FM Radio System from an Apple-authorized dealer.)

PCI card access cover

Covers port for an optional 6.88-inch PCI (peripheral component interconnect) slot expansion card (such as a video editing card).

Monitor port



Connects your monitor to your Macintosh.

Standby power button



Turns your computer on or off when you can't use the Power key on the keyboard or the Shut Down command.

Internal modem card
(optional)

Connects your computer to a phone line if you have an internal modem card installed or to an Ethernet network if you have an Ethernet card installed.

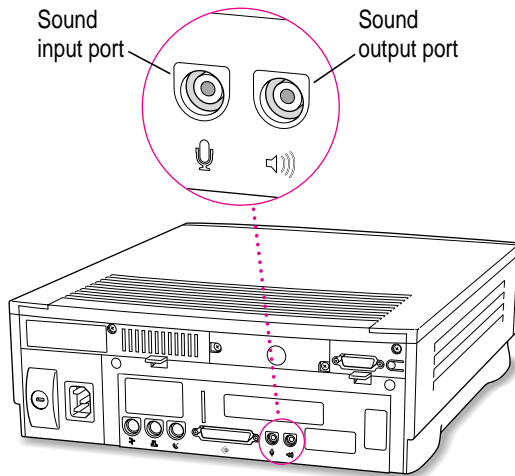
Sound output port



Connects your Macintosh to sound output equipment, such as externally powered (amplified) speakers.

Using your computer's sound features

Your Macintosh can play and record stereo sound from a variety of sources. By connecting audio equipment to the sound input and sound output ports on the computer, you can listen to or reproduce stereo sound. If it has an internal CD-ROM player, your computer can also play and record sound from audio compact discs (CDs).




For information on using Macintosh system software to choose audio input and output options, record an alert sound, or play audio CDs, see the “Sound” topic of Macintosh Guide, available in the Guide (Ⓜ) menu.

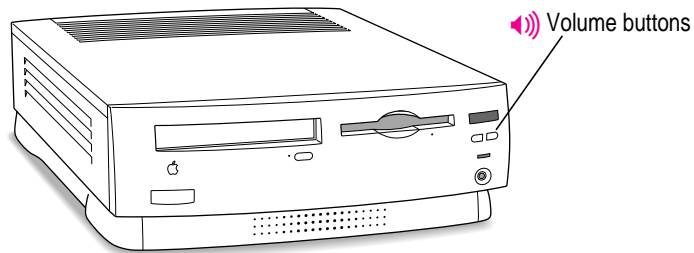
The following table summarizes your computer's sound ports and features.

If you want to do the following:	Use this sound port or control:
Adjust the volume	volume buttons
Connect a microphone	sound input port (🎤)
Connect headphones	headphone jack (🎧)
Connect external speakers	sound output port (🔊)

Adjusting volume and sound

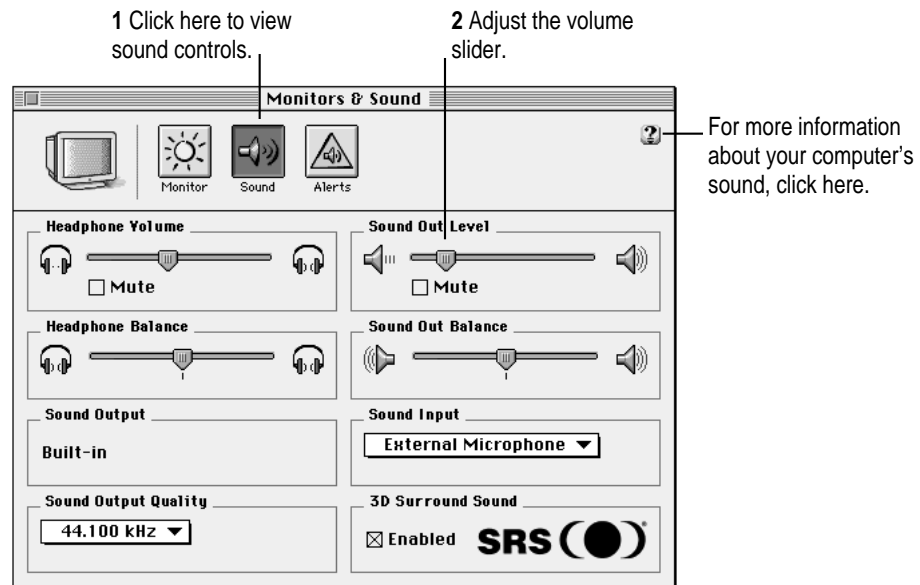
There are several ways to adjust the volume on your computer:

- Use the volume buttons on the front of the computer (marked with the  icon).



- Use the volume controls on the front of your monitor if your monitor has them.
- Use the volume control slider in the AppleCD Audio Player if you are playing an audio CD. The AppleCD Audio Player can be found in the Apple (🍏) menu. (The volume set in the Monitors & Sound control panel also affects the volume of the audio CD.)

- Use the volume control sliders in the Monitors & Sound control panel. The Monitors & Sound control panel can be found in the Control Panels folder in the Apple () menu.



Note: Some monitors also place a “Monitor Sound” icon at the top of the Monitors & Sound control panel.

Tip: You may prefer to set the Sound Out Level slider to about the middle of the slider bar. This way, when you adjust the volume later in other ways—through the AppleCD Audio Player or through the volume controls on the computer or monitor—you can hear your adjustments better because the computer itself is set to about the middle of its volume range.

For more information about sound, see the “Sound” topic of Macintosh Guide, available in the Guide (🔍) menu.

Listening with 3D Surround Sound

The **SRS** (●) 3D Surround Sound technology broadens the sound you hear if you attach external speakers or if your monitor has built-in speakers. 3D Surround Sound makes the speakers sound as if they are set wider apart, and you can hear many “points” of sound around you.

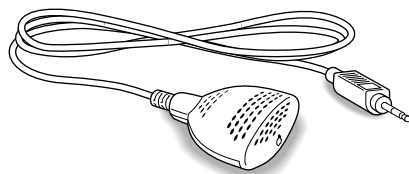
3D Surround Sound is always enabled on your computer unless you disable it. It does not affect your computer’s sound performance or compatibility. Enabling or disabling 3D Surround Sound is a matter of personal preference. If you want to disable it, click to remove the checkbox next to “Enabled” in the Monitors & Sound control panel.

Note: 3D Surround Sound may not work well through headphones. If you’re listening through headphones, you may want to disable 3D Surround Sound in the Monitors & Sound control panel.

Connecting the Apple PlainTalk microphone

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

Note: The sound input port does not support the Apple Omni microphone (the round microphone shipped with some earlier models of Macintosh) or the attenuated RCA adapter provided with some models of Macintosh.

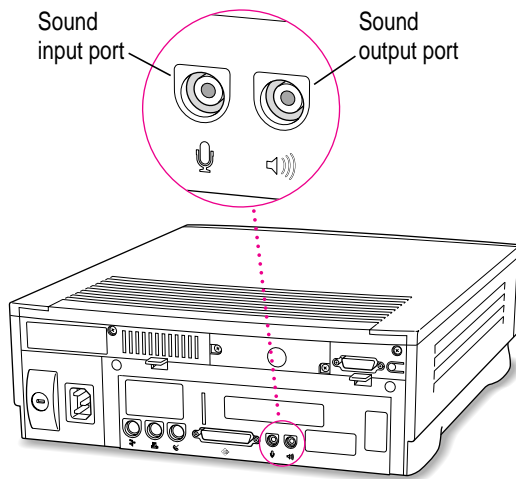


Apple PlainTalk Microphone

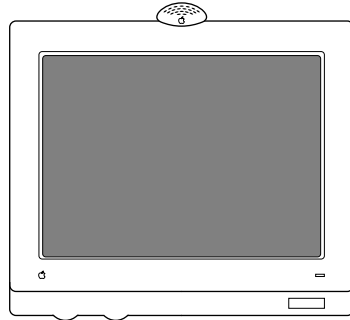
To connect and position the external microphone, follow the steps below.

Note: If you want to record sound using a microphone built in to a monitor, see the “Sound” topic of Macintosh Guide, available in the Guide (📖) menu. Then select the subtopic, “How do I record or remove a sound?”

- 1 Shut down the Macintosh.**
- 2 Plug the microphone’s connector into the sound input port (🎤) on the back of the computer.**



- 3 Place the microphone at the top center of the monitor, so that the microphone's Apple (🍏) icon is facing you.**

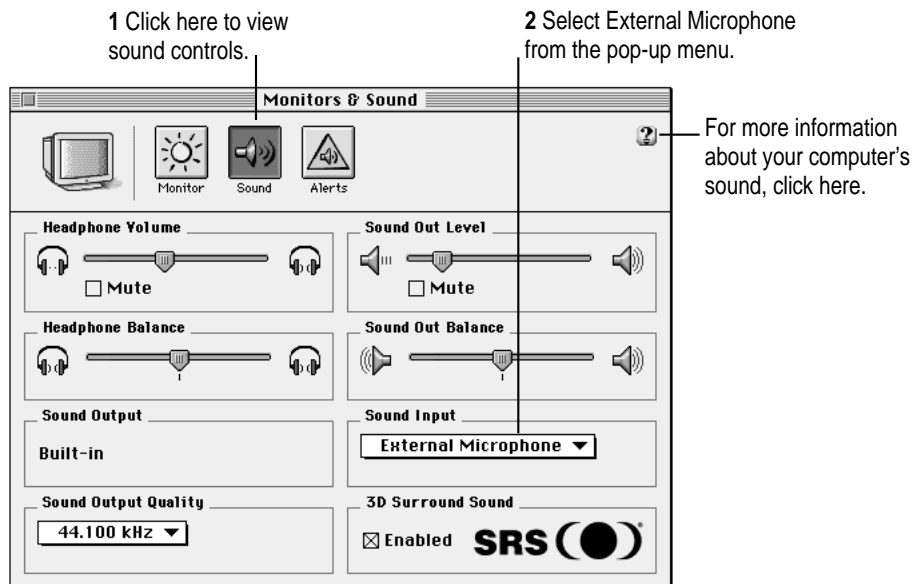


If you can't place the microphone on top of the monitor, position the microphone according to these guidelines:

- The microphone should be between 1 and 3 feet away from you.
 - The microphone should be directly in front of you to minimize the effect of background noise.
- 4 Turn on the computer.**

Next, you need to make sure the Sound Input source in your computer is set to "External Microphone."

- 5 Open the Monitors & Sound control panel in the Apple (🍏) menu and click the Sound icon.
- 6 Click the Sound Input pop-up menu and select “External Microphone.”



- 7 Click the close box in the upper-left corner of the Monitors & Sound control panel to close it. (The control panel does not have to remain open while you're recording.)

You're now ready to begin using your microphone.

See the “Sound” topic of Macintosh Guide, available in the Guide (📖) menu, for instructions on recording.

Connecting external stereo speakers

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

1 Assemble the speakers and the cable you need.

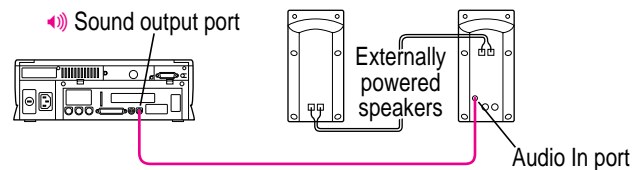
You need a cable with a stereo miniplug at one end to connect one or both speakers to the computer.



Stereo miniplug

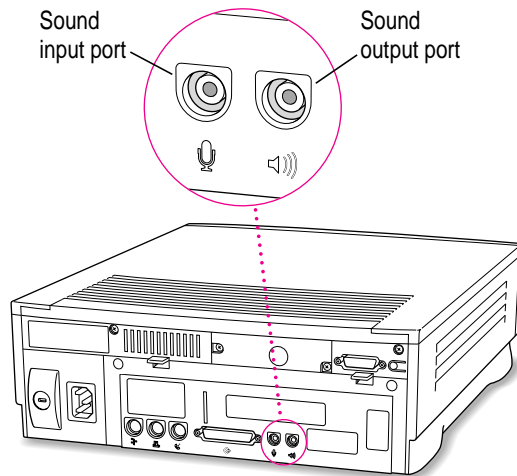
Some speakers require a dual-plug adapter, which has two plugs on its end, to plug into Audio In ports on both speakers. Others, like those shown below, accept a single stereo miniplug and are joined by standard speaker wires. See the documentation that came with your speakers for more information.

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



2 Turn off the Macintosh.

- 3 Plug the end of the cable with the stereo miniplug into the sound output port (🔊) on the Macintosh.**



- 4 Plug the other end of the cable into the speakers' Audio In port or ports.**

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

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

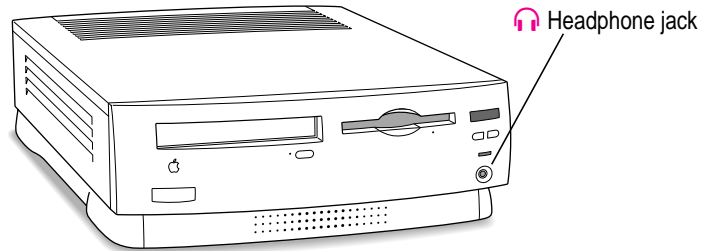
Now you're ready to hear full-range stereo sound coming from the speakers.

Note: To adjust the overall volume, use the sound control buttons on the front of the computer or the volume controls in the Monitors & Sound control panel. (For more information, see “Adjusting Volume and Sound,” in the section, “Using Your Computer’s Sound Features,” earlier in this chapter.)

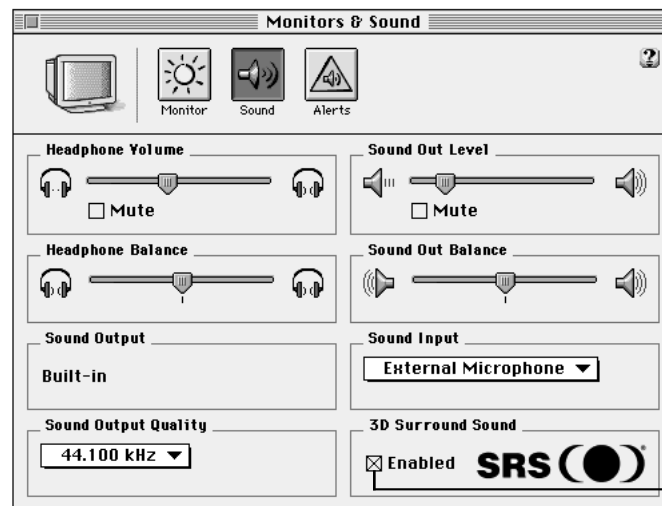
For more information about using speakers attached to your computer, see the “Sound” topic of Macintosh Guide, available in the Guide (🔍) menu.

Connecting headphones

You connect headphones to the headphone jack (🎧) on the front of the computer or to your monitor if it has a headphone jack.



Note: **SRS** (●) 3D Surround Sound may not work well through headphones. To disable 3D Surround Sound, open the Monitors & Sound control panel in the Control Panels folder in the Apple (🍏) menu; then click the checkbox to remove the checkmark next to “Enabled.”

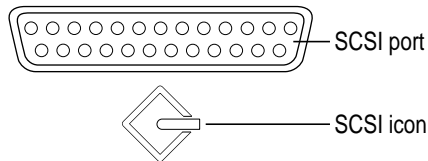


You may need to disable 3D Surround Sound when listening through headphones.

For more information about listening with headphones, see the “Sound” topic of Macintosh Guide, available in the Guide (🔍) menu.

Connecting external SCSI devices, such as a scanner or external hard disk

Your computer has a port for connecting devices that use the Small Computer System Interface (SCSI, pronounced “skuh-zee”). SCSI devices commonly used with the Macintosh include hard disk drives, CD-ROM drives, scanners, tape or cartridge backup drives, and some printers. 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 connect SCSI devices to the SCSI port in a chainlike way. The first device in the chain plugs into the SCSI port; the second device plugs into the first device, and so on. You can attach up to six external SCSI devices to the SCSI port. All SCSI devices connected to this chain must have their own unique ID number (no two devices can use the same ID number). If your computer came with a CD-ROM drive installed, this drive is also part of the SCSI chain and uses SCSI ID number 3. The computer itself (the main logic board inside it) uses SCSI ID number 7.

IMPORTANT The material that follows—“Before You Connect a Device” and “Connecting a SCSI Device”—contains general instructions for attaching SCSI devices to your computer. Make sure you also follow the specific instructions that came with the SCSI device you are connecting to your Macintosh.

Before you connect a device

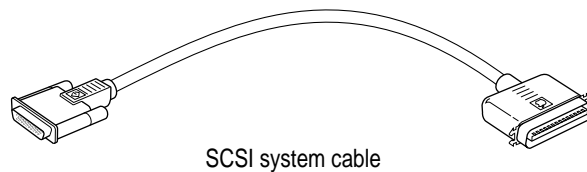
Before you connect a SCSI device to your Macintosh, complete these tasks:

- Make sure each SCSI device connected to your Macintosh has its own unique ID number from 0 to 6. The computer itself (the main logic board inside it) has the ID number 7 and the internal CD-ROM drive has the ID number 3, making the ID numbers 0, 1, 2, 4, 5, and 6 available. Make sure other SCSI devices you add to the chain do not use ID numbers 3 or 7. See the instructions that came with each device for information on checking and setting its ID number.

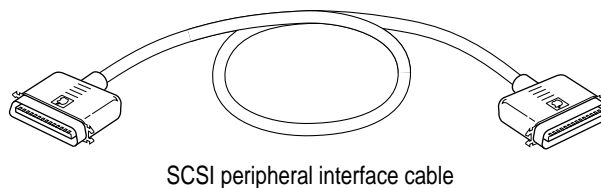
IMPORTANT If you use two or more devices attached to the SCSI interface with the same ID number, your equipment could malfunction and you could lose data.

- 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:



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

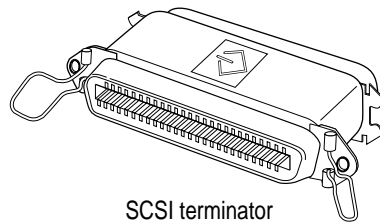


IMPORTANT The total length of the cables in a SCSI chain should not exceed 6 meters (about 20 feet). SCSI cables must have a 110-ohm impedance. For best results, use SCSI cables manufactured by Apple Computer.

- 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 computer's main logic board, 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 purchase and 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 have your Apple-authorized service provider remove the terminator. You can attach or remove external terminators yourself.

Connecting a SCSI device

Be sure to read the previous section, “Before You Connect a Device,” before following the instructions in this one.

Use these general instructions in conjunction with those 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 in the chain.**

IMPORTANT Make sure that the last (or only) device in the SCSI chain has a terminator and that no other external SCSI device has a terminator. Otherwise, the computer may not be able to start up.

- 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 it may not be able to start up.

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

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

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

Expanding memory

For information on increasing your computer's memory, see Chapter 8, "Installing Expansion Cards or Additional Memory."

Installing PCI and other expansion cards

You can expand your computer's capabilities by installing expansion cards inside the computer cover. Your Macintosh has slots available for three different kinds of expansion cards: a PCI (peripheral component interconnect) slot for a 6.88-inch PCI card, such as a video-editing card; a communication slot for an internal modem or Ethernet card; and a video-in slot for a video input card, which brings signals into the computer from a videocassette recorder (VCR) or other video input equipment. You can also install a TV/FM tuner card that brings signals into the computer from a TV antenna or cable TV service and an FM antenna. (Some computers come with one or more of these cards already installed. See the opening illustration in this chapter and match it with your computer to see if you have these cards installed.)

Instructions for installing expansion cards are provided in Chapter 8, "Installing Expansion Cards or Additional Memory."

Replacing or adding internal storage devices

Your Macintosh comes with at least two internal storage devices—a floppy disk drive and a hard disk drive (several capacities are available). Most computer models also have a CD-ROM (compact disc read-only memory) drive installed. If you want to replace any of these internal drives, see your Apple-authorized dealer.

Connecting to a network

This section contains information only for people whose computers are connected to other computers through a local area network. A local area network (LAN) lets computers communicate with each other—for example, in businesses, it is what enables more than one computer to share a printer and access documents on a central, shared server.

Note: Using a modem is not the same as being connected to a local area network. If you have an internal modem and *also* want to connect to a local area network, then continue reading the information in this section.

About Macintosh networking

Your Macintosh can connect to a network that consists of as few as two computers or as many as thousands or even millions of computers and other devices. The network allows you and the other people connected to it to share information, access remote services, and share computing resources such as printers and modems.

A network extends the features of your Macintosh by extending your reach to the services and resources provided on a network. For example, your computer alone lets you store, retrieve, and modify information on floppy disks, hard disks, and CD-ROM discs. On a network, however, you can also store and retrieve information on the hard disks and CD-ROM discs of other computers, access information that other people have stored for you, and use electronic mail or other network services.

Your computer can be connected to several kinds of networks including the following:

- **LocalTalk** To connect to a LocalTalk network, you connect a LocalTalk cable to either the modem port or the printer port on your computer. Through that cable, you can both print on a printer shared by other computers and access a central server.
- **Ethernet** To connect to an Ethernet network, you need to install an Ethernet card in the communication or PCI (peripheral component interconnect) slot in your computer. If your computer came with an internal modem, it is already installed in the communication slot, so you must purchase an Ethernet card that fits in the PCI slot.
- **Alternative networks such as TokenRing, ISDN, or FDDI** To connect to any of these networks, you need to install a PCI card in one of the PCI slots in your computer.

More detailed information about connecting to LocalTalk and Ethernet networks follows.

Connecting to a LocalTalk network

You can connect to a LocalTalk network through the printer port on your computer. To connect to a LocalTalk network, you need LocalTalk cables and a LocalTalk adapter. The Apple LocalTalk Connector Kit DIN-8 is available from Apple-authorized dealers.

After you connect to a LocalTalk network, you need to open the Network control panel in the Control Panels folder in the Apple () menu, and make sure the LocalTalk icon is selected. Then, from the Apple () menu, choose Chooser and make sure AppleTalk is set to Active.

For further instructions on how to select a network connection and other information about using your Macintosh on a network, see the “Networks” topic of Macintosh Guide, available in the Guide (🔍) menu.

Connecting to an Ethernet network

To connect to a high-speed Ethernet network, you need to buy and install an Ethernet card. Some Ethernet cards use the communication slot in your computer; however, so do internal modem cards. If your computer came with an internal modem and you want to connect to an Ethernet network, buy and install an Ethernet card that uses the computer’s PCI (peripheral component interconnect) slot.

- If you buy an Ethernet card that uses a PCI slot, follow the instructions in “Installing a PCI Card” in the section “Installing an Expansion Card” in Chapter 8.
- If you buy an Ethernet card that uses the communication slot, follow the instructions in “Installing a Communication Card” in the section “Installing an Expansion Card” in Chapter 8.

If you buy and install an Ethernet card, you can connect your Macintosh to an existing high-speed Ethernet network by using cables compatible with the particular network: thin coaxial cables, 10Base-T twisted pair cables, thick coaxial cables, or other standard cables.

Depending on the type of cables used in the Ethernet network you're connecting to and the type of card you purchased, you may also need to purchase an Apple Ethernet media adapter or other compatible media adapter. (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" topic of Macintosh Guide, available in the Guide (⌘) menu.

IMPORTANT Your Macintosh supports EtherTalk Phase 2 (AppleTalk Phase 2 Protocols for Ethernet networks) and TCP/IP (via the TCP/IP protocol) but not EtherTalk Phase 1 (AppleTalk Phase 1 protocols for Ethernet networks). To use TCP/IP, you must set up the MacTCP control panel. (See the "Networks" topic of Macintosh Guide, available in the Guide [⌘] menu, for instructions on how to make a TCP connection.) Non-Apple products that you can use to communicate over Ethernet using protocols are also available.

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

Connecting and setting up your network configuration

To connect your computer to a network you need to do two things:

- Connect your computer to the network using the appropriate cable.
- Set up your network configuration in either the AppleTalk control panel or the TCP/IP control panel, or both. (If you install an Ethernet card later on, you'll first need to install the software that comes with it.)

To set up your network configuration, open the AppleTalk control panel to choose the physical network interface you are using. (The AppleTalk control panel also contains zone information—a default zone is chosen for you.) If you plan to use TCP/IP on your Macintosh, you also need to choose settings in the TCP/IP control panel. You can set up your connection in two ways: manually, by entering a static Internet address, or automatically by using a network service to connect with a dynamic Internet address. To learn more about setting up network configurations, see the information on networking in Macintosh Guide, available in the Guide (🔍) menu.

If you're using a static Internet address, you'll need the following information before configuring your system (your network administrator or Internet access provider can provide this information):

- **Internet (IP) address** For example, 192.3.232.55
- **Domain name and domain name server address** A domain connects an Internet address to a name for your site, for example, acme.com. Enter your Domain name or type a period (.).
- **Gateway address** This address provides the path information will take through your network site to reach the Internet.
- **Subnet mask** A subnet mask further defines the location of your machine. You don't need to change the default unless instructed to do so by your network administrator.

If you're using a server on the network that will be issuing you an Internet address using a technique called bootstrapping, then you need to decide what protocol you will use: BOOTP (BOOTstrap Protocol) or DHCP (Dynamic Host Configuration Protocol). Your network administrator will tell you which to choose.

If you see an error message after configuring your AppleTalk and TCP/IP control panels, such as, "Unable to locate host," or "Could not create a socket," this could indicate a problem in the TCP/IP configuration. Contact your network administrator for additional assistance.

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

4

Using Application Programs and Backing Up Disks



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

The Apple Extras folder on your hard disk also contains some programs. Two of these are the Apple Video Player program and Apple FM Radio program. With Apple Video Player and a video input card, you can watch video on your computer. With Apple Video Player, Apple FM Radio, a video input card, and a TV/FM tuner card, you can watch video and TV and listen to FM radio on your computer. Some computers come with a video input card already installed, or with both video input and TV/FM tuner cards installed. (Your computer has these cards installed if you find the Apple video or TV/FM manuals in the box containing your computer. If you don't have these cards installed, you can purchase the Apple Video System and Apple TV/FM Radio System from an Apple-authorized dealer.)

Backup copies of all your computer's preinstalled application programs exist on the CD-ROM disc *Macintosh Performa CD: Performa Software* included with your computer. If you ever need to restore one or more of the preinstalled programs, see the section "Copying Files From the *Performa Software* CD-ROM Disc to Your Hard Disk" in Chapter 7. If you ever need to restore all of the preinstalled programs, start at the beginning of that chapter.

Installing application programs

You may want to buy and install additional application programs. See the manuals you receive with these programs for instructions on installing and using them.

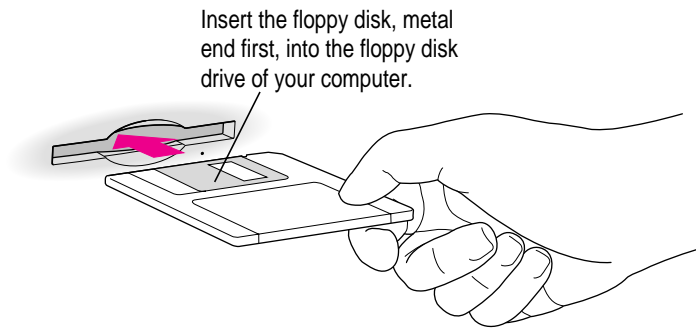
To use your programs most effectively, follow these guidelines:

- Read the manuals you received with the program if you have a problem.
- 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.
- If a program malfunctions consistently, try installing a fresh copy. If that doesn't help, find out from the software manufacturer whether your version of the program is compatible with your computer model and your system software.

Note: You may want to put your application programs in the Launcher. This way they are easier to find than when they are stored in the Applications folder on your hard disk and they can be accessed by a simple click of a Launcher button. To put a program in the Launcher, drag the program's icon (or its alias) into the Launcher window or onto the Applications category button in the Launcher. (If you need detailed instructions, see the "Tips & Features" topic of Macintosh Guide, available in the Guide [🔍] menu, and select "How do I use the Launcher?")

Installing programs from a floppy disk

In most cases, you install application programs on your internal hard disk from floppy disks. The following illustration shows how to insert a floppy disk into your computer's floppy disk drive.



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

Installing programs from a CD-ROM disc

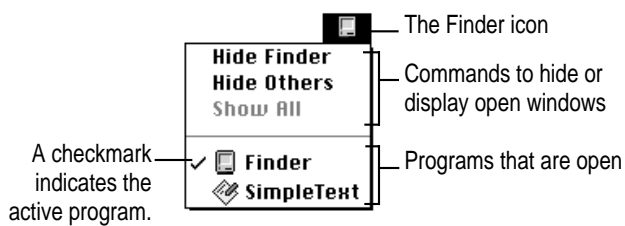
Sometimes you'll install an application program on your internal hard disk from a CD-ROM disc that contains the program. (For instructions on using a CD-ROM disc, see “Inserting a CD-ROM Disc” and “Ejecting a CD-ROM Disc” in Chapter 5.)

IMPORTANT Never copy an entire CD-ROM disc to your hard disk. (Don't drag the CD-ROM disc's icon to your hard disk.) When you open programs on some of the CD-ROM discs that came with your computer, you may get a message telling you to copy or install the program onto your hard disk. If you get this message, double-click the CD-ROM disc's icon to open it, and then copy the CD-ROM disc's program to your hard disk. Look for any “Read Me” or “information” files on the CD-ROM disc for instructions. Copying the CD-ROM disc itself can take up all or most of the memory on your hard disk.

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. You can find out which program is active and which other programs are open by pulling down the Application menu. 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.



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 Application menu, that means its windows are hidden. You can still choose the program from the menu, however, to display the program's windows.

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

Hiding and showing windows on the desktop

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

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, open the Application menu and choose Show All.

Increasing memory available to run applications

A computer function called *virtual memory* allows you to open several applications and windows at the same time by creating extra random-access memory (RAM) on your computer's hard disk. Virtual memory, however, can also result in slightly slower performance. See the "Memory" topic of Macintosh Guide, available in the Guide (🔗) menu, for more information. Also see the document titled "About Virtual Memory" in the Documents folder on your desktop.

IMPORTANT Your computer comes with virtual memory turned off. You shouldn't use virtual memory unless you need to keep several applications open at once, and you should turn it off when you no longer need it. (Virtual memory may keep some applications from running at their best speed.) You can turn virtual memory on or off by using the Memory control panel in the Control Panels folder in the Apple (🍏) menu.

Note: If you turn on both virtual memory and RAM disk in the Memory control panel, don't set both of them at or near their maximum values. Doing so can result in unpredictable or reduced performance by your computer. (RAM disk uses random-access memory, or RAM, as if it were a hard disk.)

Protecting the information on a disk

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

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

Making backup copies of your documents

Follow these tips for making backup copies of the documents on your computer:

- *Regularly* make copies of the documents you create.
- You can back up files stored on your hard disk by copying them to floppy disks.
- You can back up an entire floppy disk by copying it to another floppy disk of the same capacity or larger, or by copying it to a hard disk.
- If a file is too large to fit onto a single floppy disk, you 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 may be able to back up files by copying them to a shared disk on the network.

A helpful tip: A good way to remember which documents you have stored where is to print a copy of the items you've stored in a folder. For instructions on printing the contents of a folder, see the "Printing" topic of Macintosh Guide, available in the Guide (🔗) menu.

Restoring the information on your hard disk

Your computer's hard disk comes with valuable information already stored on it, including system software and some application programs. If information on your hard disk becomes damaged or lost, you can restore it if you have a backup copy of the information. The *Macintosh Performa CD: Performa Software* contains copies of all the system software and application programs that came with your computer. See Chapter 7, "Reinstalling Your Computer's Software," for instructions on using the *Macintosh Performa CD: Performa Software* to reinstall software.

It is also helpful to keep a printed copy of the items in your System Folder. For instructions on printing the contents of a folder, see the "Printing" topic of Macintosh Guide, available in the Guide (🔗) menu.

Using application programs designed for the PowerPC microprocessor

Your Macintosh is compatible with most application programs intended for use with Macintosh computers, but certain programs are designed especially for computers that have the PowerPC microprocessor. These programs are sometimes called “native” applications and they take best advantage of your computer’s speed.

Special memory requirements

Some native applications may be slightly larger than other programs and may take up more memory. If you find that you are running out of memory when you use one of these programs, you can use space on your computer’s hard disk as additional memory, which is called virtual memory. For instructions on how to use virtual memory, see “Increasing Memory Available to Run Applications” in the section “Working With Several Programs at a Time” earlier in this chapter and the “Memory” topic of Macintosh Guide, available in the Guide (Ⓜ) menu.

You can also add more memory to your computer, as described in Chapter 8, “Installing Expansion Cards or Additional Memory.”

Using older Macintosh programs

If you experience problems using an older Macintosh program, it may be incompatible with your computer’s PowerPC microprocessor. You may be able to use your older program if you turn off Modern Memory Manager. To do this, pull down the Apple (Ⓜ) menu, open the Control Panels submenu, and select the Memory control panel. Then turn off Modern Memory Manager.

Read this chapter for information about your computer's built-in CD-ROM drive, if your computer came with one.

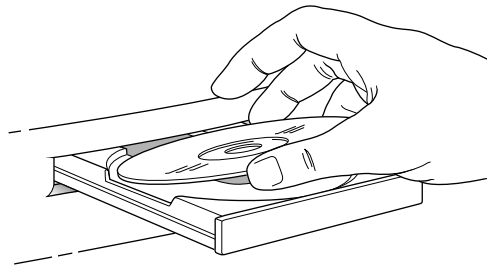
5

Using the Built-in CD-ROM Drive



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

With your internal CD-ROM (compact disc read-only memory) drive, you have access to large amounts of information. The CD-ROM drive can read the contents of CD-ROM discs, standard audio compact discs (CDs), and single-session or multisession Photo CDs. However, you cannot use the drive to save information on CD-ROM discs. ROM stands for *read-only memory*, meaning that the drive cannot “write” information onto CD-ROM discs.



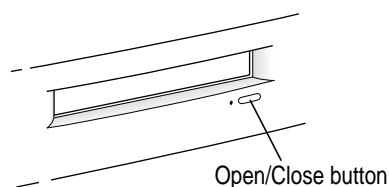
A wide selection of CD-ROM discs is available for entertainment, education, and business. A typical disc can hold over 650 megabytes (MB) of information—the equivalent of 270,000 pages of text, up to 8 hours of speech or music (depending on the sound quality), hundreds of high-resolution images, or any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

Inserting a CD-ROM disc

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

IMPORTANT Some CD-ROM disc labels have artwork on them that can cause the disc to be slightly off-center when it rotates in the drive. This may make the computer vibrate. See the next section, “If Your CD-ROM Disc Vibrates in the CD-ROM Drive,” for more information.

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

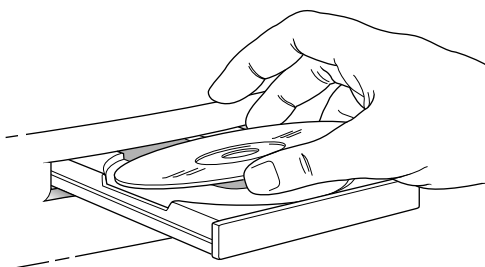


The tray opens.

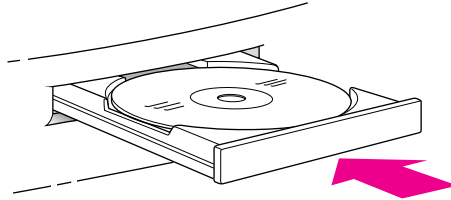
- 3 **Place a CD-ROM disc in the tray, with the disc label facing up.**

Make sure the disc is lying flat and centered in the tray.

If you are using a small (8 cm) disc, make sure the disc is centered within the inside ring on the tray.



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



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

If your CD-ROM disc vibrates in the CD-ROM drive

Some CD-ROM disc labels have artwork that is noticeably thicker on one side than the other and can cause the disc's weight to be slightly off-center. This uneven distribution of weight coupled with the high rotation speed of your CD-ROM drive can cause some discs to wobble in the drive and make your computer vibrate. Although this occurs infrequently, you should be aware of it in case it does. The vibration damages neither the CD-ROM disc nor the computer. If you can feel or hear that the CD-ROM disc is vibrating in the computer, you don't need to do anything special; continue to use the CD-ROM disc as you normally would.

Note: If you use a CD-ROM disc with a removable (sticky) label, remove the label before inserting the disc.

Ejecting a CD-ROM disc

Follow these instructions to open the tray and eject a CD-ROM disc from your computer. If you have problems ejecting a CD-ROM disc, see “Problems Using the CD-ROM Drive” in the section, “Solutions to CD-ROM Problems” in Chapter 6.

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 it to the Trash. (You won't lose information on the CD-ROM disc by dragging its icon to the Trash.)

IMPORTANT Don't select the disc icon and then choose Eject Disk from the Special menu. If you do this, the computer keeps the CD-ROM disc in its memory and continually asks you to reinsert it.

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

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

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

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

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

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

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

Using the CD-ROM discs that came with your computer

Some of the CD-ROM discs that came with your computer—and some CD-ROM discs in general—require you to copy one or several items from the disc to your hard disk before you can view them. Other CD-ROM discs let you view their content directly from the disc itself. If a CD-ROM disc requires you to copy some items to your hard disk, a message tells you so when you try to open a program on it.

IMPORTANT Never copy an entire CD-ROM disc to your hard disk. (Don't drag the CD-ROM disc's icon to your hard disk.) Copying the CD-ROM disc itself will take up too much memory on your hard disk. If you get a message telling you to copy or install certain items from the CD-ROM disc to your hard disk, double-click the CD-ROM icon to open it and copy only those items to your hard disk. Look for any “Read Me” or “information” files on the CD-ROM disc for instructions.

Types of compact discs you can use

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

Standard file formats

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

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

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

Other CD-ROM formats

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

Audio CDs

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

Photo CDs

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

For more information on Photo CDs, see the "CD-ROM Discs" topic of Macintosh Guide, available in the Guide (🔍) menu.

Playing audio CDs

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

To start, stop, and otherwise control audio discs, use the AppleCD Audio Player program, available in the Apple (🍏) menu. Your audio CD software will only play tracks that contain audio information. With the AppleCD Audio Player program, you can listen to an audio CD or audio tracks while doing other work on your computer. For more information, see the "CD-ROM Discs" topic of Macintosh Guide, available in the Guide (🔍) menu.

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.
- View the images 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 “CD-ROM Discs” topic of Macintosh Guide, available in the Guide (📖) menu.

Obtaining Photo CDs

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

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

Before viewing the contents of a Photo CD

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

A note about resolution

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

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

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

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

Sharing a CD-ROM disc over a network

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

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

Consult this chapter if you experience problems using your computer.

6

Troubleshooting



When you have questions

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

If you have trouble

While you're using your computer, you may occasionally see a bomb icon or an error message, or the pointer (⏏) may “freeze” on the screen. If you have trouble with your computer, take a few minutes to read the information in this chapter. If your problem is related to a particular procedure, 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 will not be covered by the limited warranty. 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 (or Restart) button or turn off the Macintosh.

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

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



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

If you know the problem is with a program not published by Apple, call the program's publisher. Click the Phone Numbers button in the Service/Support area of the Launcher to get a software publisher's phone number (if you're screen isn't currently "frozen").

Start over by restarting your computer

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 your 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. 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.

Note: Use this key combination to force a program to quit only when you can't choose Quit from the File menu.

To restart your Macintosh, try the following steps:

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

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

- 2 If you can't choose Restart, press the Power key (marked with a ⏻) on the keyboard.**

Click Restart in the dialog box that appears.

- 3 If the Power key doesn't work, hold down the ⌘ and Control keys while you press the Power key (⏻).**

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

- 4 If your computer still doesn't restart, press the standby power button (⏻) on the back of the computer to turn it off, wait at least 10 seconds, and turn it on again.**

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.) It's a good idea to rebuild your desktop once a month or so.

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.

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 Open the Extensions Manager control panel by choosing Extensions Manager from the Control Panels submenu of the Apple () menu.**
- 2 From the Sets pop-up menu, choose Save Set.**

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

This saves your current set of extensions.

- 4 Choose All Off from the Sets pop-up menu to turn off all extensions.**
- 5 Turn on Macintosh Easy Open by clicking it in the list so that a checkmark appears beside it.**

You can find Macintosh Easy Open by scrolling down the list of extensions. Macintosh Easy Open appears under the heading “Control Panels.”

- 6 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.

- 7 Click OK.**

The computer rebuilds the desktop. This can take several minutes.

IMPORTANT Do not stop the desktop-rebuilding process. Doing so could damage your system files.

- 8 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.**
- 9 From the Sets pop-up menu, choose the name you gave your set of extensions in step 3.**

This turns your original set of extensions back on.
- 10 Restart your computer to activate the extensions.**

Solutions to common problems with your computer

This section contains descriptions of problems you might experience with your computer. Some problems may be caused by your CD-ROM drive, so if you don't find your problem included 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 of time.
Press a key or move the mouse to turn off the screen saver.
- Your computer has gone to sleep due to inactivity. "Wake it up" by pressing the Power key (marked with a \triangleleft) on the keyboard.
- The monitor's brightness control (\odot) is not adjusted properly.
Check the monitor's brightness control and turn it up if necessary.
- The Macintosh or the monitor is not getting power.
Check that the computer's power cord is firmly connected to the computer and plugged into a grounded electrical outlet, and that the outlet has power. Check that the monitor is plugged in and turned on, and that the monitor cable is firmly connected to both the computer and the monitor.

If you are displaying video from your computer on a television screen, it is normal for your computer monitor to be dark.

The computer's clock keeps time inaccurately.

If your clock begins to keep time inaccurately, have an Apple-authorized service provider replace the battery. 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.

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

You inadvertently delete a program from your computer's hard disk.

- You can replace any of the software that came with your computer by dragging it from the *Macintosh Performa CD: Performa Software* to your hard disk. See the section “Copying Files From the *Performa Software CD-ROM Disc to Your Hard Disk*” in Chapter 7.

When you start up, a disk icon with a blinking question mark appears in the middle of the screen and stays there for longer than 15 seconds.



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

- Your computer may be having a problem recognizing external SCSI (Small Computer System Interface) equipment, such as hard disks, CD-ROM drives, and scanners that you may have connected.

Shut down your computer, turn off all external SCSI equipment, and disconnect the first SCSI device in the chain from your computer's SCSI port (marked with the ⚡ icon). Then restart the computer. If the computer starts up after you disconnect your SCSI equipment, refer both to the manuals that came with the equipment and Chapter 3 of this manual, which has information on the proper way to connect SCSI equipment and assign SCSI ID numbers.

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

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

Start up your computer using the *Macintosh Performa CD: Performa Software*. Do this by inserting the CD-ROM disc into the CD-ROM drive and holding down the C key while you restart the computer. (See the section “Starting Up From the *Macintosh Performa CD: Performa Software*” later in this chapter if you need more help.) 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 Chapter 7, “Reinstalling Your Computer’s Software,” to reinstall system software on your startup hard disk.

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



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

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

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



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

Eject any floppy disks by turning off the computer and then holding down the mouse button while you turn the computer on again. Try starting up with the *Macintosh Performa CD: Performa Software*. Do this by inserting the CD-ROM disc into the CD-ROM drive and holding down the C key while you restart the computer. (See the section “Starting Up From the *Macintosh Performa CD: Performa Software*” later in this chapter if you need more help.) If the “sad Macintosh” icon appears again, consult the service and support information that came with your computer for information on contacting an Apple-authorized service provider or Apple for assistance.

The hard disk icon does not appear on the desktop.

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

- Use the Drive Setup program to make the disk available. Drive Setup is on the *Macintosh Performa CD: Performa Software* that came with your computer. For instructions on using Drive Setup, follow the instructions in “Checking for Damage on Your Hard Disk” in the section “Repairing a Damaged Disk” later in this chapter.
- 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 (anything connected to the SCSI port [⌘]) connected to your computer. Each SCSI device must have its own unique ID number. If your computer came with the optional CD-ROM drive installed, it has SCSI ID number 3, and the computer itself has SCSI ID number 7. Therefore, any SCSI equipment you connect should not use ID numbers 3 or 7. See the manuals that came with your SCSI equipment, in conjunction with Chapter 3 in this manual, for information on setting SCSI ID numbers.
- If the hard disk is your startup disk, start your computer with the *Macintosh Performa CD: Performa Software*. Do this by inserting the CD-ROM disc into the CD-ROM drive and holding down the C key while you restart the computer. (See the section “Starting Up From the *Macintosh Performa CD: Performa Software*” later in this chapter if you need more help.) 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 Chapter 7, “Reinstalling Your Computer's Software,” to reinstall system software on your startup hard disk.

Icons do not appear correctly on your screen.

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

If icons do not appear correctly after you rebuild the desktop, try rebuilding a second time.

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—that is, prepare it for use. For instructions, see the “Disks” topic of *Macintosh Guide*, available in the Guide (⌘) menu.
- The disk may be damaged. See “Repairing a Damaged Disk” later in this chapter for information on testing and repairing disks.

- The disk may have been formatted for use on another kind of computer. You may be able to use a program that lets you work with such disks on your Macintosh.

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

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

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

- Make sure the PC Exchange control panel is in the Control Panels folder (in the Apple [🍏] menu) 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 checkmark appear. Then restart your computer.

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 software installation instructions in this manual.

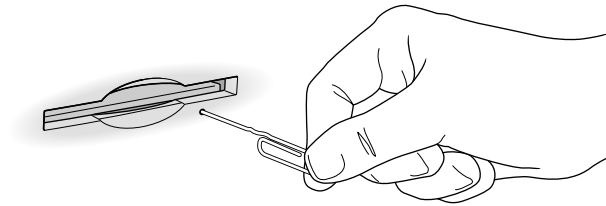
To return to the Macintosh desktop, choose Shut Down from the Special menu. After your computer has shut down, restart it and then immediately press the Open/Close button of your CD-ROM drive to open the tray. Remove the CD-ROM disc and gently close the tray. Your computer finishes starting up.

Note: 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.

You can't eject a floppy disk.

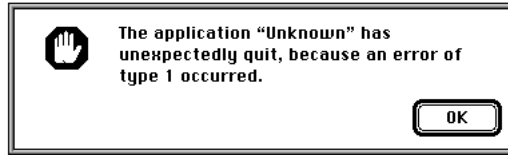
If you can't eject a floppy disk in the usual way, by selecting the disk's icon and choosing Eject Disk from the Special menu or by dragging the disk's icon to the trash, try the following in order:

- Hold down the ⌘ and Shift keys and press the number 1 key on your keyboard.
- 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.

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



One of the following is probably the cause:

- The Macintosh ran out of memory.

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

Use the Memory control panel to turn on virtual memory. For more information on virtual memory, see both “Increasing Memory Available to Run Applications” in the section “Working With Several Programs at a Time” in Chapter 4 and the “Memory” topic of Macintosh Guide, available in the Guide (🔗) menu.

- The program needs more memory.

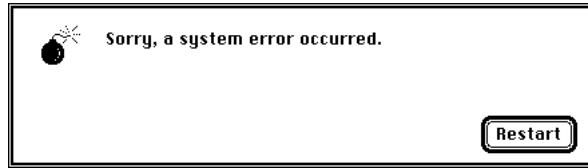
Use the program's Info window to give it more memory. (Select the program's icon and choose Get Info from the File menu.) For more information on increasing a program's memory, see the “Memory” topic of Macintosh Guide, available in the Guide (🔗) menu.

- 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 (in the Control Panels folder in the Apple [🍏] menu) to turn on individual extensions and control panels. Restart after you turn on each extension. This procedure should identify incompatible extensions and control panels. (If you just added new software to your computer, its system extension is the most probable cause of the problem.) For detailed instructions, see the information about managing system extensions in the “Customizing Your Computer” topic of Macintosh Guide, available in the Guide (🔗) 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.

A dialog box with a bomb appears.



There is a software problem.

- Write down what you were doing when the message appeared, and write down the text of the message.
- Restart your Macintosh. (See “Start Over by Restarting Your Computer” in the section “If You Have Trouble” earlier in this chapter.) Most software problems are temporary, and restarting usually corrects the problem.
- If the problem recurs, check the startup disk and application program you were using when the dialog box appeared. Make sure that all programs, desk accessories, and system extensions you’re using are compatible with the system software (as described in the next paragraph). Reinstalling the system software may correct the problem. See Chapter 7, “Reinstalling Your Computer’s Software.”
- Sometimes incompatible system extensions or control panels can cause system software problems. Restart while holding down the Shift key; this temporarily turns off all system extensions. If your computer works normally after you do this, use the Extensions Manager control panel (in the Control Panels folder in the Apple [🍏] menu) to turn on extensions and control panels one at a time. Restart after you turn on each extension. This procedure should identify incompatible extensions and control panels. (If you just added new software to your computer, its system extension is the most probable cause of the problem.) For detailed instructions, see the information about managing system extensions in the “Customizing Your Computer” topic of Macintosh Guide, available in the Guide (🔍) menu.

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

- If the problem recurs, you may need to reinstall system software. See Chapter 7, “Reinstalling Your Computer’s Software,” for instructions.
- 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.

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

One of the following situations is probably the cause.

- There is a software problem. Try the following:
Press ⌘-Option-Esc to quit the application program in use when the problem occurred. If this works, you can save the documents open in other programs before restarting.
Restart your Macintosh. For instructions, see “Start Over by Restarting Your Computer” in the section “If You Have Trouble” earlier in this chapter.
- Follow the suggestions in the previous entry, “A Dialog Box With a Bomb Appears.”
- The mouse or keyboard is not connected properly.
Turn off the computer by pressing the Power key (⏻) and then press return to choose Shut Down. If that doesn’t work, press the standby power button (⏻) on the back of the computer. With the computer off, check that the mouse and keyboard cables are connected properly. Then restart the computer.

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

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

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

Typing on the keyboard produces nothing on the screen.

One of the following is probably the cause:

- You haven't selected any text or set the insertion point (I).
Make sure the program you want to type in is the active program. Then place the pointer (␣) in the active window and click to set an insertion point (I) or drag to select text (if you want to replace the text with your typing).
- If the computer beeps every time you press a key, Easy Access is probably turned on. Open the Extensions Manager control panel in the Control Panels folder in the Apple (🍏) menu. Click the checkmark next to Easy Access to remove the checkmark and to turn it off. Then restart your computer.
- The keyboard is not connected properly.
Turn off the computer by pressing the standby power button (⏻) on the back of the computer. With the computer off, check that the keyboard cable is connected properly at both ends.
- Some system software features are turned on that affect the way the keyboard works.
Open Easy Access from the control panels listed under the Apple (🍏) menu and turn off Sticky Keys, Slow Keys, and Mouse Keys.
- There is a software problem.
Restart your Macintosh. For instructions, see “Start Over by Restarting Your Computer” 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. To check that the programs and the system extensions you're using are compatible with the system software, restart while holding down the Shift key; this temporarily turns off all system extensions. If your computer works normally after you do this, use the Extensions Manager control panel to turn on extensions and control panels one at a time. Restart after you turn on each extension. This procedure should identify incompatible extensions and control panels that may be causing the problem. (If you just added new software to your computer, its system extension is the most probable cause of the problem.) For detailed instructions, see the information about managing system extensions in the "Customizing Your Computer" topic of Macintosh Guide, available in the Guide (Ⓜ) menu.

If the problem recurs, you may need to reinstall system software. See Chapter 7, "Reinstalling Your Computer's Software," for instructions.

- The keyboard is damaged.

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

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

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

- Some documents can be opened by more than one application program. Try starting a program that you think might be able to open the document; then choose Open from the program's File menu to 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. Follow the instructions in "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 (in the Control Panels folder in the Apple [🍏] menu) to specify which Macintosh program will open the document. For information about working with DOS documents on your Macintosh, see the information about DOS in Macintosh Guide, available in the Guide (🔍) menu.

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.

You experience problems using a document from a DOS or Windows 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 (in the Control Panels folder in the Apple [🍏] menu) to specify which Macintosh program will open the document.

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

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

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

For more information about working with DOS documents on your Macintosh, see the information about using DOS 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.

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

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

You experience problems using an older Macintosh program.

Some older Macintosh programs are not completely compatible with Macintosh computers that have the PowerPC microprocessor.

- Open the Memory control panel (in the Control Panels folder in the Apple [⌘] menu) and turn off Modern Memory Manager.
- If that doesn't work, contact the program's publisher to see if an upgrade is available.

You're listening through headphones, and the sound is odd.

You may have **SRS (●)** 3D Surround Sound enabled. 3D Surround Sound doesn't always work properly through headphones. To disable 3D Surround Sound, open the Monitors & Sound control panel, which can be found in the Apple (⌘) menu, and click the Sound icon. Then click the checkbox to remove the checkmark next to "Enabled."

You can't record sound using an external microphone or the microphone built in to your monitor.

- Any time you want to record sound, you need to make sure your sound input source is set to “External Microphone.” Open the Monitors & Sound control panel in the Apple () menu, click the Sound icon, and choose “External Microphone” from the Sound Input pop-up menu.
- If you're using your monitor's built-in microphone to record, use the Monitors & Sound control panel to make the monitor's speakers mute. In the same control panel, make sure that the sound input is set to the monitor's built-in microphone.

For additional help, see the “Sound” topic of Macintosh Guide, available in the Guide (🔍) menu in the upper-right corner of your screen.

You can't quit (get out of) one of the programs you opened in the Launcher.

Some programs in the Learning section of the Launcher (when you press the Learning category button) are self-running demonstrations. If you can't get out of one of the programs or demonstrations, try the following:

- Look again to see if you can find a quit button or other quitting option.
- Hold down the ⌘ key on your keyboard, and then, while keeping this key held down, press the period key.
- While holding down the ⌘ key on your keyboard, press the letter Q.
- Press the Power key (marked with a ⏻) on your keyboard to shut down.
- Restart your computer by holding down the ⌘ and Control keys while you press the Power key (marked with a ⏻).

Your screen displays a right-angle bracket prompt (>).

Your computer has tried to launch a “debugging” application, but could not find one on your hard disk. Debugging applications are programs that software developers use to locate and fix problems in computer code. If you do not have a debugging application installed, your screen displays a right-angle bracket prompt (>). To return to the desktop, type G and then press Return.

Solutions to CD-ROM problems

Problems using the CD-ROM drive

The CD-ROM drive icon does not appear on the screen.

- If you have SCSI devices (anything connected to the SCSI port [⌘]) attached to your computer, make sure that each device has a unique SCSI ID number (your CD-ROM drive has SCSI ID 3). Refer to the documentation that came with your SCSI devices if you need to reset SCSI ID numbers.
- If you reinstalled the CD-ROM software, make sure to restart your computer afterward.
- Make sure that the Apple CD-ROM extension is turned on in the Extensions Manager control panel. Open the Extensions Manager control panel in the Control Panels folder in the Apple (🍏) menu. Click to put a checkmark next to “Apple CD-ROM.” Then restart your computer.
- 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. (The CD-ROM software is already installed on Macintosh computers that come with CD-ROM drives.)

The computer keeps asking you to reinsert a CD-ROM disc after you’ve ejected it.

- You may be running an application program from the CD-ROM disc, or an application program from the CD-ROM disc is still open and “looking for” the disc. Go to the Application menu in the upper-right corner of your screen and make sure that the Finder is the only application listed. If not, select one of the other application programs and then choose Quit from the File menu. Do this for any other applications listed in the Application menu. When you have quit all open application programs, eject the CD-ROM disc by selecting its icon and choosing Put Away from the File menu or by dragging the CD-ROM disc’s icon to the Trash. (You won’t lose information on the CD-ROM disc by dragging its icon to the trash.)

- You may not have properly ejected the CD-ROM disc. The right way to eject a CD-ROM disc is either to select the CD-ROM disc and choose Put Away from the File menu or to drag the CD-ROM disc's icon to the trash. If you select the CD-ROM disc and choose Eject Disk from the Special menu, the computer keeps the CD-ROM disc in its memory and continually asks you to reinsert it. Reinsert the CD-ROM disc, then drag its icon to the trash. (You won't lose information on the CD-ROM disc by dragging its icon to the trash.)

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 software installation instructions in this manual.

To return to the Macintosh desktop, choose Shut Down from the Special menu. After your computer has shut down, restart it and then immediately press the Open/Close button of your CD-ROM drive to open the tray. Remove the CD-ROM disc and gently close the tray. Your computer finishes starting up.

Note: To avoid having the computer start up from a CD-ROM disc, remember to remove any disc from 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. (*Note:* You won't lose information on the CD-ROM disc by dragging its icon to the Trash. *Don't* select the disc icon and then choose Eject Disk from the Special menu.)

If the AppleCD Audio Player is active, choose Eject CD from the File menu or click the eject button in the AppleCD Audio Player controller.

If you see a message that a disc can't be put away because it is being shared, turn off file sharing in the Sharing Setup control panel in the Apple () menu; 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 then do the following: 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, and 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.

Your CD-ROM disc is vibrating in the CD-ROM drive.

- Some CD-ROM disc labels have artwork that is noticeably thicker on one side than the other and can cause the disc's weight to be slightly off-center. This uneven distribution of weight coupled with the high rotation speed of your CD-ROM drive can cause some discs to wobble in the drive and make your computer vibrate. The vibration damages neither the CD-ROM disc nor the computer and affects very few CD-ROM discs. If you can feel or hear that the CD-ROM disc is vibrating in the computer, you don't need to do anything special; continue to use the CD-ROM disc as you normally would.

Note: If you use a CD-ROM disc with a removable (sticky) label, remove the label before inserting the disc.

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 are using a small (8 cm) disc, make sure your computer is as level as possible and the disc is centered within the inside ring on the tray.
- Make sure the tray is closed all the way.
- Try restarting your computer.
- Try starting your computer from the *Macintosh Performa CD: Performa Software* while holding down the C key. (See the section “Starting Up From the *Macintosh Performa CD: Performa Software*” later in this chapter.) If only the hard disk icon appears on the desktop, then there may be a hardware problem with your CD-ROM drive. If the CD-ROM disc icon appears above the hard disk icon, reinstall your CD-ROM software. The easiest way to do this is by reinstalling your system software, following the instructions in Chapter 7, “Reinstalling Your Computer’s Software.”

CD-ROM software is already installed on Macintosh computers that come with CD-ROM drives. You can reinstall it by reinstalling your system software, following the instructions in Chapter 7, “Reinstalling Your Computer’s Software.”

- Make sure that the Apple CD-ROM extension is turned on in the Extensions Manager control panel. Open the Extensions Manager control panel in the Control Panels folder in the Apple (🍏) menu. Click to put a checkmark next to “Apple CD-ROM;” then restart your computer.
- If you installed the CD-ROM drive after you bought your computer, make sure the CD-ROM software that came with it is installed. Refer to the documentation that came with the CD-ROM drive. (The CD-ROM software is already installed on Macintosh computers that come with CD-ROM drives.)

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 and turned on. You can find them in the Extensions folder in the System Folder on your hard disk. If they are not turned on, use the Extensions Manager control panel in the Control Panels folder in the Apple (🍏) menu to turn them on. Click to put checkmarks beside them to turn them on; 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 the drive.
- The disc may use a format that the Macintosh cannot recognize. Ask the disc’s manufacturer for a disc that a Macintosh can recognize.

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

- Make sure the disc is lying flat in the tray and the disc label is facing up.

IMPORTANT If you’re using a small (8 cm) disc, make sure it’s centered within the tray’s inner ring and the computer is absolutely level. An improperly seated small disc in your computer may result in damage to the disc, the CD-ROM drive, or both.

- 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-ROM disc polishing kit (available from your audio CD dealer). If the scratches can’t be removed, you need to replace the disc.
- The disc may be damaged. Try another disc in the drive, and try the original disc in another drive. If the original drive reads other discs or if the original disc also doesn’t work in another drive, the disc is probably damaged. You need to replace it.

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 before using the disc.

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

- A CD-ROM disc 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.

Your CD-ROM disc is vibrating in the CD-ROM drive.

- Some CD-ROM disc labels have artwork that is noticeably thicker on one side than the other and can cause the disc's weight to be slightly off-center. This uneven distribution of weight coupled with the high rotation speed of your CD-ROM drive can cause some discs to wobble in the drive and make your computer vibrate. The vibration damages neither the CD-ROM disc nor the computer and affects very few CD-ROM discs. If you can feel or hear that the CD-ROM disc is vibrating in the computer, you don't need to do anything special; continue to use the CD-ROM disc as you normally would.

Note: If you use a CD-ROM disc with a removable (sticky) label, remove the label before inserting the disc.

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 formats have version numbers attached to file names. Some application programs need these version numbers in order to work with files. To make the version numbers available to programs on your computer, follow these instructions:

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

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, make sure they are firmly connected. Make sure the volume control on your headphones or speakers is not turned down too low.
- If you do not have headphones or speakers connected to the computer, make sure that nothing else is plugged into the computer's sound output port (🔊).
- 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 program open, drag the volume control slider up, use the volume controls on your computer, 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.

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 it at the same time.

You are unable to record sound from an audio CD.

- You may need to reset the sound options in the Monitors & Sound control panel. Refer to the "Sound" topic of Macintosh Guide, available in the Guide (📖) menu.

Problems using Photo CDs

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

- Reinstall the CD-ROM and QuickTime software. The easiest way to do this is by reinstalling your system software, following the instructions in Chapter 7, “Reinstalling Your Computer’s 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 of Macintosh Guide, available in the Guide (⌘) menu, for more information on managing memory.

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

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

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

- Restart your Macintosh. (If you need help restarting your computer, see “Start Over by Restarting Your Computer” in the section “If You Have Trouble” at the beginning of this chapter.) 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 current program. See the “Memory” topic of Macintosh Guide, available in the Guide (⌘) menu, for more information on managing memory.

If your computer's performance decreases

If you notice a decrease in your computer's speed and general performance after you install special software (a control panel, system extension, or custom utility), it may be because the software is not compatible with Macintosh computers built with the PowerPC microprocessor.

- To find out if a system extension or control panel is the problem, hold down the Shift key while you restart the computer. This temporarily turns off control panels and extensions. If the computer performs better without these software items, one of them is likely to be the problem. (If you just added new software, its system extension, control panel, or custom utility is the most probable cause of the problem.)

To find out which software is the problem, use the Extensions Manager control panel (in the Control Panels folder in the Apple [] menu) to turn off a system extension or set of extensions and then restart your computer. (If you just added new software to your computer, its system extension is the most probable cause of the problem.) For detailed instructions, see the information about managing system extensions in the “Customizing Your Computer” topic of Macintosh Guide, available in the Guide (🔍) menu. If the computer performs better when an extension is turned off, contact the extension's manufacturer for information or an upgrade.

- Use the Memory control panel to turn off virtual memory. For more information on virtual memory, see the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu.

Note: If you turn on both virtual memory and RAM disk in the Memory control panel, don't set both of them at or near their maximum values. Doing so can result in unpredictable or reduced performance by your computer. (RAM disk uses random-access memory, or RAM, as if it were a hard disk.)

If you still do not notice an improvement, you may want to reinstall system software on your startup hard disk. See Chapter 7, “Reinstalling Your Computer's Software,” for instructions.

If you typically use several application programs at the same time, your computer's performance will increase if you install more random-access memory (RAM). See Chapter 8, “Installing Expansion Cards or Additional Memory.”

Solving printer problems

The following suggestions should work for all printers. (*Note:* Also refer to the manual that came with the printer.)

- Make sure that the printer driver for your printer is turned on in the Extensions Manager control panel in the Control Panels folder in the Apple (🍏) menu. To find out the name of the printer driver—for example, *LaserWriter*—refer to the documentation that came with your printer. The printer driver should appear in the Extensions list and have a checkmark beside it. If it does not, click to put a checkmark beside it, and restart your computer.
- Check your printer settings in the Chooser (in the Apple [🍏] menu), making sure you have selected the correct printer. If you are using a printer that is shared by other computer users (a printer on a local network), make sure that AppleTalk (in the lower-right corner of the Chooser) is active. If you are using your own printer (a serial printer connected to your computer), make sure that AppleTalk is inactive.
- Turn off the computer and printer and check the printer cable connections.
- If none of these suggestions solves the problem, you may need to reinstall the printer driver that came with your printer. Refer to the manual that came with your printer. (See the following important note.)

Note: If you have an Apple printer, you need to determine which printer driver to reinstall—the one that came with your printer or one of the drivers included on your *Macintosh Performa CD: Performa Software*. Depending on when you bought your printer, one of these printer drivers will be more recent than the other. It is the more recent one you want. Look at the date of the printer driver that came with your printer. (Usually, the printer driver comes on a floppy disk with the printer.) To see the date, insert the floppy disk, double-click its icon to open it, and choose “by Name” from the View menu. Then look for the same printer driver name on the *Macintosh Performa CD: Performa Software*. (Look for it in the Hard Disk Files folder, in the System Folder files folder, in the Extensions folder. Then choose “by Name” from the View menu to see the date next to it.) *The drivers must have the same name.* If they do, reinstall the printer driver with the most recent date next to it. If you use the printer driver on the *Macintosh Performa CD: Performa Software*, drag the printer driver into the System Folder on your hard disk and then click OK. If you use the printer driver that came with the printer, see the manuals that came with the printer for instructions on reinstalling it.

Starting up from the *Macintosh Performa CD: Performa Software*

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

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

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

If you see a blinking question mark on your screen

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



- 1 Press the Open/Close button of your CD-ROM drive to open the CD-ROM tray.
- 2 Place the *Macintosh Performa CD: Performa Software* in the tray with the disc label facing up.

Be sure to use the CD with the words “Performa Software” at the top. Make sure the disc is lying flat in the tray.

- 3 To close the tray, push the tray in or press the Open/Close button.

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

If you see the Macintosh desktop

- 1 Press the Open/Close button of your CD-ROM drive to open the CD-ROM tray.
- 2 Place the *Macintosh Performa CD: Performa Software* in the tray with the disc label facing up.

Be sure to use the CD with the words “Performa Software” at the top. Make sure the disc is lying flat in the tray.

- 3 To close the tray, push the tray in or press the Open/Close button.
- 4 Hold down the C key on your keyboard while you choose Restart from the Special menu.

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

Repairing a damaged disk

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

Try these suggestions first

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

- If the hard disk is internal, shut down your Macintosh, wait at least 10 seconds, and then turn it on again.
- If the hard disk is external, make sure that it is turned on and that its cable is connected firmly; then restart the Macintosh.
- If the hard disk is your startup disk, start up with a different startup disk. (See the previous section, "Starting Up From the *Macintosh Performa CD: Performa Software*.")

If, after you start up from a different disk, your hard disk's icon appears on your desktop, reinstall system software on the hard disk. (See Chapter 7, "Reinstalling Your Computer's Software.")

- Check the ID numbers of all SCSI equipment (anything connected to the SCSI port [⌘]) on your computer. Each device must have a unique ID number. The computer itself (the main logic board inside it) has the ID number 7 and the internal CD-ROM drive has the ID number 3. The ID numbers 0, 1, 2, 4, 5, and 6 are available for additional SCSI devices.

Also check that the chain of devices is terminated properly. For information on setting SCSI ID numbers and terminating a SCSI chain, see both the manuals that came with your SCSI equipment and Chapter 3 of this manual.

- If none of these suggestions solves the problem, test the disk by following the instructions given in "Checking for Damage on Your Hard Disk," which follows.

Checking for damage on your hard disk

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

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

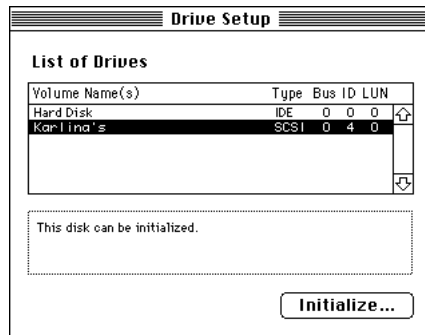
See “Starting Up From the *Macintosh Performa CD: Performa Software*” earlier in this chapter.

- 2 Click the Drive Setup icon in the Launcher to open the Drive Setup program.



Drive Setup

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



- 4 From the Functions menu, choose Test Disk.
- 5 When a message tells you that the testing is complete, click Quit.

If the test reveals a problem, you may be able to correct it by using Disk First Aid or another disk repair program (see the instructions in the next section) or you may need to reinitialize the disk (see “Initializing a Hard Disk” later in this chapter). Consult an Apple-authorized service provider for assistance if necessary. If you had a hard disk from another manufacturer installed after you bought your computer, use the software that came with the disk or contact the disk vendor to get the latest version of software.

How to repair a hard disk or floppy disk

You can repair some types of disk damage by using the Disk First Aid program, which is on the *Macintosh Performa CD: Performa Software*, a CD that came with your computer.

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

See “Starting Up From the *Macintosh Performa CD: Performa Software*” earlier in this chapter.

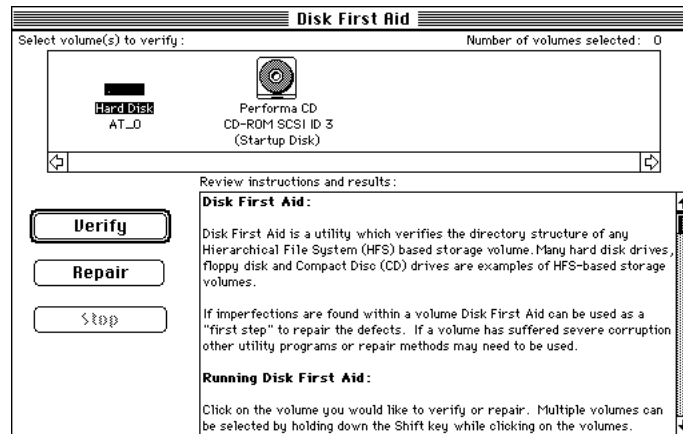
- 2 **Click the Disk First Aid icon in the Launcher to open the Disk First Aid program.**



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 done, choose Quit from the File menu.

If Disk First Aid cannot correct the problem

- Try repairing the disk again. Sometimes repeating the process corrects the problem.
- Use another disk repair or recovery program. Some disk repair programs let you recover information from a damaged disk.
- Consult an Apple-authorized service provider for help.

- If you can't repair the disk, you'll need to reinitialize it, which erases all the information on it. Before you reinitialize, be sure you recover all the information you can and back it up. Then erase (reinitialize) the disk. For instructions on reinitializing a floppy disk, see the "Disks" topic of Macintosh Guide, available in the Guide (🔍) menu. For instructions on reinitializing a hard disk, see the next section, "Initializing a Hard Disk."

If reinitialization doesn't work, discard the damaged disk (if it's a floppy disk) or take it to your Apple-authorized service provider for repair (if it's a hard disk). Bring both of the Macintosh Performa CDs, which you received with your computer, with you to the service provider.

Initializing a hard disk

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

- You purchase an uninitialized hard disk from another manufacturer.
- Your hard disk is damaged and can't be repaired.

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

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

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

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

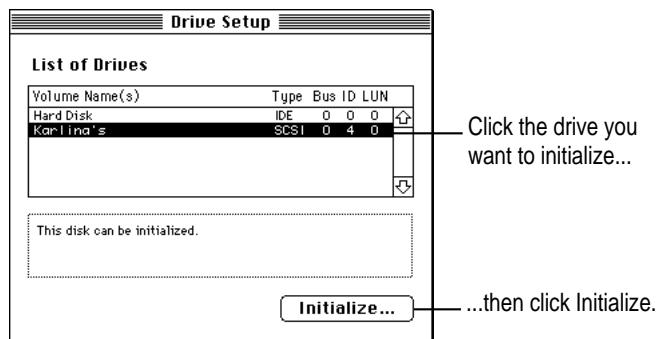
See "Starting Up From the *Macintosh Performa CD: Performa Software*" earlier in this chapter.

- 2 Click the Drive Setup icon in the Launcher to open the Drive Setup program.



Drive Setup

- 3 In the list of drives, click the disk you want to 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 the disk to your Apple-authorized service provider for repair.

Consult this chapter if you have problems with your computer that require you to reinstall the computer's software.

7

Reinstalling Your Computer's 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 application programs. System software is kept in the System Folder. When you turn on your computer, it looks for a startup disk, which is any disk that contains the system software, though usually it is the hard disk inside your computer. You could also set up another hard disk, floppy disk, or compact disc (CD) as a startup disk.

When should you reinstall system software?

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

Install system software 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 this chapter.

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



If this icon appears, first test your startup hard disk and repair any damage by following the instructions in “Repairing a Damaged Disk” in Chapter 6. If repairing the disk doesn’t help, follow the instructions in the next section.

When to use the *Macintosh Performa CD: Performa Software*

You reinstall your computer’s software with the *Macintosh Performa CD: Performa Software*, a compact disc that came with your computer. The *Macintosh Performa CD: Performa Software* contains system software (the software that enables your computer to operate) and other application programs that came installed on your computer.

You need to reinstall your computer’s software if

- your computer will not start
- a file or an application program is missing or damaged

This chapter describes three ways to use the *Macintosh Performa CD: Performa Software*:

- You can reinstall (restore) just the system software—the files needed to run your computer—using the Restore System Software program.
- You can reinstall (restore) all the software that came with your computer by using the Restore All Software program.
- You can copy one or more individual files from the CD-ROM disc to your hard disk.

You also use the *Macintosh Performa CD: Performa Software* as a startup device when your computer won’t start up properly.

Note: Also keep the *Macintosh Performa CD: Guided Tour* handy. This CD contains backup copies of the Guided Tour programs you may have seen when you first turned on your computer. Instructions later in this chapter also describe how to use the *Macintosh Performa CD: Guided Tour* CD to restore these programs.

The “If You Still Have Problems” section at the end of this chapter tells you what to do if using the CD-ROM disc does not solve the problem.

Using the CD-ROM disc as your startup device

Before you reinstall software onto your hard disk, you need to start up your computer with the *Macintosh Performa CD: Performa Software*. The procedure for starting up from the CD-ROM disc varies depending on the condition of the system software on your hard disk. To find out which of the following procedures to use, turn on your Macintosh.

If you see a blinking question mark on the screen

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

Note: If you don't see a blinking question mark, go to the next section, “If You See the Usual Macintosh Desktop.”

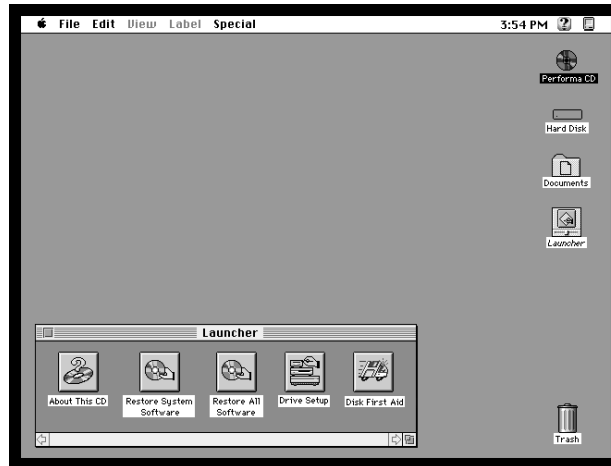


- 1** Press the Open/Close button of your CD-ROM drive to open the CD-ROM tray.
- 2** Place the *Macintosh Performa CD: Performa Software* in the tray with the disc label facing up.

Be sure to use the CD with the words “Performa Software” at the top. Make sure the disc is lying flat in the tray.

- 3 To close the tray, push it in or press the Open/Close button.

Your Macintosh recognizes the CD-ROM disc as a startup disk, and in a few seconds the desktop below appears.



Your screen may look slightly different from this one.

Now continue with the steps in “Reinstalling Your System Software” or “Reinstalling All Your Original Software.”

If you see the usual Macintosh desktop

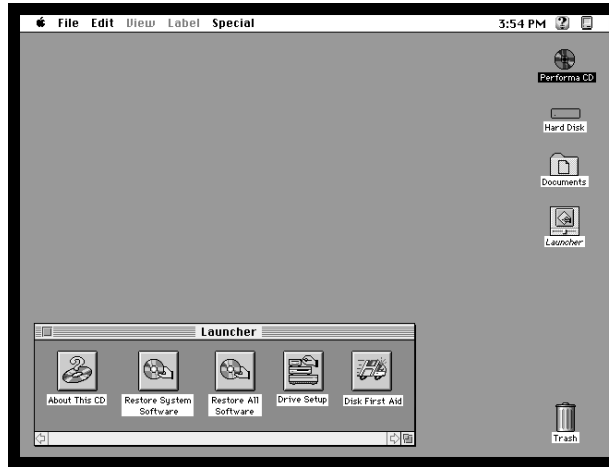
- 1 Press the Open/Close button of your CD-ROM drive to open the CD-ROM tray.
- 2 Place the *Macintosh Performa CD: Performa Software* in the tray with the disc label facing up.

Be sure to use the CD with the words “Performa Software” at the top. Make sure the disc is lying flat in the tray.

- 3 To close the tray, push it in or press the Open/Close button.
- 4 Hold down the C key on your keyboard while you choose Restart from the Special menu.

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

In a few seconds the Macintosh desktop with the Launcher appears.



Your screen may look slightly different from this one.

Now continue with the steps in “Reinstalling Your System Software” or “Reinstalling All Your Original Software.”

Reinstalling your system software

Software can sometimes develop problems and may need to be replaced. Restore System Software is a program that reinstalls the system software that was on your computer when you purchased it.

Note: When you use the Restore System Software program, only system software (all the Apple programs that run the computer) is reinstalled. All other programs and documents remain on your hard disk.

Follow these steps to reinstall your system software:

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

For instructions, see the previous section, “Using the CD-ROM Disc as Your Startup Device.”

- 2 Locate the Restore System Software icon in the Launcher window.



Restore System
Software

- 3 Click the Restore System Software icon to open it.

In a moment you'll see this screen:



- 4 Click the Continue button, or press the Return key on your keyboard.

Restoring begins. A status box appears and keeps you informed of progress during the restoration, which takes several minutes.

- 5 When you see a message that the software was restored successfully, click the Restart button or press the Return key on your keyboard.

In a few moments, the Macintosh desktop with the Launcher appears on your screen:



Your screen may look slightly different from this one.

- 6 Eject the CD-ROM disc by dragging its icon to the Trash.
- 7 Insert the *Macintosh Performa CD: Guided Tour* into the CD-ROM drive.

The *Macintosh Performa CD: Guided Tour* reinstalls the software programs that you may have seen before when you first turned on your computer. Reinstall these in case you need to refer to them again.

- 8 Hold down the C key on your keyboard while you choose Restart from the Special menu.

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

- 9 In the Launcher that appears on your screen, click the Restore Guided Tour button.



Restore Guided
Tour

- 10 When the Restoring Performa Software screen appears, click the Continue button or press the Return key on your keyboard.

- 11 When you see a message that the software was restored successfully, click the Restart button or press the Return key on your keyboard.**

In a few moments, the Macintosh desktop with the Launcher appears on screen (as in step 5). You have successfully restored Apple software to your hard disk.

- 12 Eject the CD-ROM disc by dragging its icon to the Trash.**

If your computer starts up properly but a program is damaged or missing, you may want to run the Restore All Software program from the *Macintosh Performa CD: Performa Software*. See the instructions in the next section, “Reinstalling All Your Original Software.”

Note: You may want now to refer to the sections “Protecting the Information on Your Hard Disk” and “Creating a Startup Floppy Disk” at the end of this chapter for further, preventive information in case of future problems.

Reinstalling all your original software

If you want to restore the Macintosh Performa system software and other application programs to the state they were in when you first purchased your computer, follow these instructions.

Note: If you have installed newer versions of programs that came with your computer, you may need to reinstall them after you use the Restore All Software program. All documents and programs that *didn't* come with your computer (all the files that you have added to your hard disk, such as letters and reports) remain on your hard disk when you reinstall your other software using the Restore All Software program. Programs that you added to your computer after you bought it do not need to be reinstalled.

To restore all the software that came with your computer:

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

For instructions, see “Using the CD-ROM Disc as Your Startup Device,” earlier in this chapter.

- 2 Click the Restore All Software icon in the Launcher window.



Restore All
Software

- 3 In the dialog box that appears, click the Continue button or press the Return key on your keyboard.

Restoring begins. A status box appears and keeps you informed of progress during the restoration, which takes several minutes.

- 4 When you see a message that the software was restored successfully, click the Restart button or press the Return key on your keyboard.

In a few moments, the Macintosh desktop with the Launcher will appear on your screen.



Your screen may look slightly different from this one.

- 5 Eject the CD-ROM disc by dragging its icon to the Trash.

- 6** Insert the *Macintosh Performa CD: Guided Tour* that came with your computer into the CD-ROM drive.

The *Macintosh Performa CD: Guided Tour* reinstalls the software programs that you may have seen before when you first turned on your computer. Reinstall these in case you need to refer to them again.

- 7** Hold down the C key on your keyboard while you choose Restart from the Special menu.

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

- 8** In the Launcher that appears on your screen, click the Restore Guided Tour button.



Restore Guided
Tour

- 9** When the Restoring Performa Software screen appears, click the Continue button or press the Return key on your keyboard.

- 10** When you see a message that the software was restored successfully, click the Restart button or press the Return key on your keyboard.

In a few moments, the Macintosh desktop with the Launcher appears on screen (just as in step 4). You have successfully restored all your original software to your hard disk.

- 11** Eject the CD-ROM disc by dragging its icon to the Trash.

You may want to refer to the sections “Protecting the Information on Your Hard Disk” and “Creating a Startup Floppy Disk” at the end of this chapter for further, preventive information in case you have future problems.

Copying files from the *Performa Software* CD-ROM disc to your hard disk

The *Macintosh Performa CD: Performa Software* has a folder on it named Hard Disk Files. You can copy any file in this folder by dragging the file to your hard disk. The Hard Disk Files folder contains these folders:

- System Folder files (contains system software)
- Apple Extras files (contains copies of Apple software)
- Applications files (contains copies of software not published by Apple)
- Documents files (contains various documents)

For example, if your computer is working but you have inadvertently deleted the SimpleText application program from your hard disk, you can copy the SimpleText program from the *Macintosh Performa CD: Performa Software* without using the Restore All Software program. (SimpleText is in the Apple Extras folder on the *Performa Software* CD-ROM disc.)

Note: Your *Performa Software* CD-ROM disc may contain other programs, such as Drive Setup and Disk First Aid. These programs are used for testing and repairing disks, as described in the section “Repairing a Damaged Disk” in Chapter 6.

For information about programs on either of the Macintosh Performa CDs, see any Read Me files that may accompany them on the CD-ROM disc.

Protecting the information on your hard disk

If your hard disk becomes damaged, you can use both Macintosh Performa CDs to reinstall the software that came with your computer—but the personalized documents that you have created could be lost if you don’t keep backup copies. To avoid this loss, copy your documents frequently onto backup disks. See the section “Protecting the Information on a Disk” in Chapter 4.

Creating a startup floppy disk

The *Macintosh Performa CD: Performa Software* contains a disk copy program (in the Disk Images folder) that enables you to create a floppy disk that you can use to start up your computer. You may want to create a startup floppy disk to use in case you are unable at a future time to start up from the CD-ROM disc.

See the text file in the Disk Images folder for instructions on using the disk copy program to make a startup floppy disk.

If you still have problems

If you don't see the Macintosh desktop on your screen, or if the Macintosh still does not start up properly, see the section "Repairing a Damaged Disk" in Chapter 6.

If you are able to repair the hard disk, try again to restore the information on it by following the instructions in the previous section, "Reinstalling All Your Original Software."

If you are not able to repair the hard disk, call Apple for help. See the service support information that came with your computer.

Read this chapter for instructions on installing expansion cards or additional memory in your computer.

8

Installing Expansion Cards or Additional Memory



This chapter provides information about expansion cards and memory, including an optional High Performance Module, and explains how to install them.

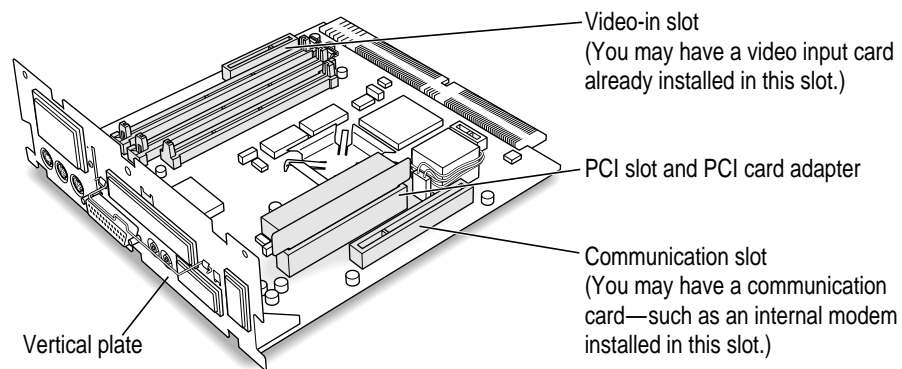
Installing an expansion card or memory involves three procedures, which are detailed in this chapter:

- opening the computer
- inserting the expansion card or memory module into a specific slot or socket
- closing the computer

About expansion cards

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 capabilities, and additional processing power. Your Macintosh has slots available for three different kinds of expansion cards:

- a PCI (peripheral component interconnect) slot that can accommodate a 6.88-inch PCI card, such as a video-editing card
- a communication slot for an internal modem or Ethernet card (you may already have an internal modem or other communication card installed in this slot)
- a video-in slot for a video input card that brings signals into the computer from a videocassette recorder (VCR), laser disc player, video camera, or similar device (The video input card is sold by your Apple-authorized dealer under the name *Apple Video System*.)



You can also install the following additional expansion cards in your Macintosh:

- a TV/FM tuner card that allows you to watch and to record TV and videos and to listen to FM radio on your Macintosh (The TV/FM tuner card is sold by your Apple-authorized dealer under the name *Apple TV/FM Radio System*.)
- video cards that let you perform video editing and other functions

This chapter contains instructions for installing a PCI card or a communication card. To install a video input card or a TV/FM tuner card (if you don't already have these cards installed), 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, contact Apple directly to see if you can install the card yourself. See the service and support information that came with your computer for a telephone number to contact Apple.

About memory

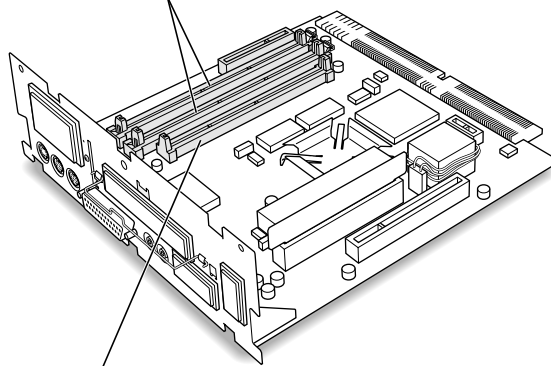
You can install additional memory—dynamic random-access memory (DRAM)—in your computer. DRAM allows you to work with more programs and larger documents. Additional memory comes in packages called Dual Inline Memory Modules, or DIMMs. Altogether, you can install a maximum of 136 megabytes (MB) of DRAM in this Macintosh model. For additional processing power, you can also install an optional High Performance Module (256K level 2 cache) in the cache slot.

For more information about memory, see the “Memory” topic of Macintosh Guide, available in the Guide (🔍) menu.

You should have an Apple-certified technician install additional DRAM. However, you may feel comfortable installing DRAM yourself.

- If you want to install additional DRAM yourself, you must purchase the memory chips, or DIMMs, from an Apple-authorized dealer. Then follow the instructions later in this chapter, in the section “Installing DIMMs or a High Performance Module.”
- If you want an Apple-certified technician to install additional DRAM, see 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.

DRAM DIMM slots (2) for installing additional DRAM
(You may have an additional DRAM DIMM installed already.)



Cache slot for installing a High Performance Module for additional processing power

DRAM configurations

Your computer can use any DRAM configuration with DIMMs of these sizes: 8 MB, 16 MB, 32 MB, or 64 MB. The exact configuration depends on the density of the DRAM chips that are mounted on the DIMMs. Use only DIMMs that support a 1K or 2K refresh count. Do not use DIMMs that support a 4K refresh count.

Your computer already comes with 8 MB soldered on your computer's main logic board plus 8 MB installed in one of the DIMM slots, for a total of 16 MB of DRAM. One DIMM slot remains for installing an additional 8-MB, 16-MB, 32-MB, or 64-MB DIMM, for a total of 24 MB, 32 MB, 48 MB, or 80 MB of DRAM respectively. (If you want to install the maximum amount of memory, you need to replace the 8-MB DIMM already installed in one of the DIMM slots with a 64-MB DIMM, and then install a 64-MB DIMM in the remaining slot, for a total of 136 MB of DRAM.)

IMPORTANT The DIMMs should be 64-bit wide, 168-pin fast-paged mode, with 70-nanosecond (ns) RAM access time or faster and a 1K or 2K refresh count. The Single Inline Memory Modules (SIMMs) from older Macintosh computers are not compatible with your computer and should not be used. DIMMs that support a 4K refresh count also should not be used.

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

Instructions for installing DIMMs are in the section “Installing DIMMs or a High Performance Module” later in this chapter.

High Performance Module configurations

A High Performance Module (256K level 2 cache) provides an overall increase in your computer's performance. Although the computer's processor speed stays the same when you install a High Performance Module (see your *Technical Information* booklet for the exact speed), your computer performs tasks significantly faster. You install a High Performance Module on the main logic board of your computer.

Instructions for installing a High Performance Module are in the section “Installing DIMMs or a High Performance Module” later in this chapter.

Opening the computer

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

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

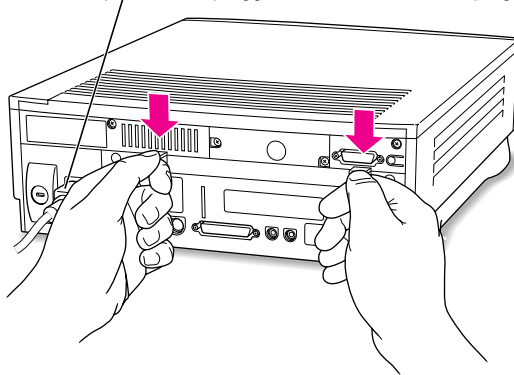
You can also press the Power key (marked with a \triangleleft) on the keyboard.

- 2 Unplug all the cables except the power cord from the computer (including the cable that connects your keyboard to the computer).**

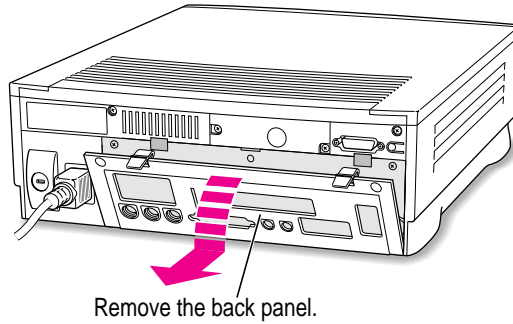
Leaving the power cord plugged in helps protect the computer from electrostatic discharge damage. (You'll unplug the power cord later.)

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

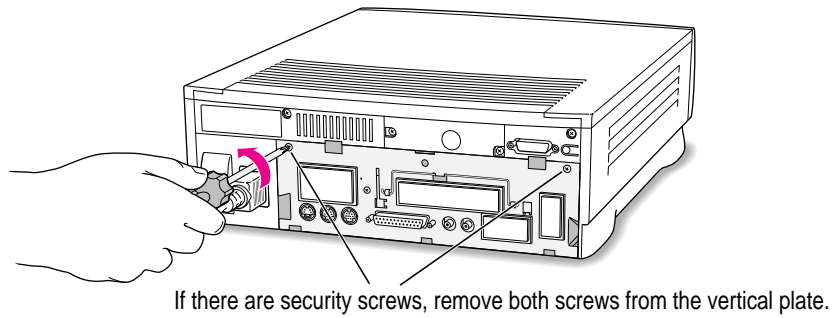
Leave the power cord plugged in for now. You'll unplug it later.



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

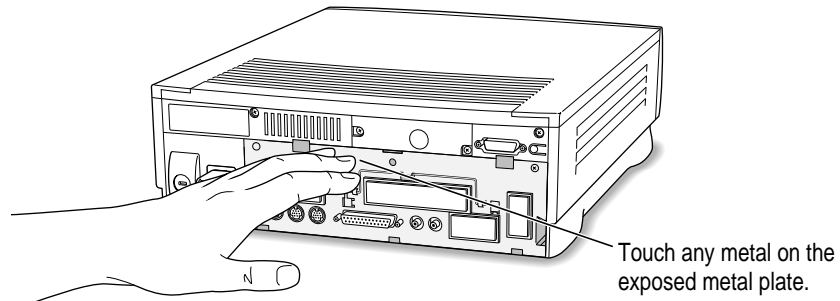


- 5** If there are security screws on the vertical plate on the back of the computer, remove them with a screwdriver.



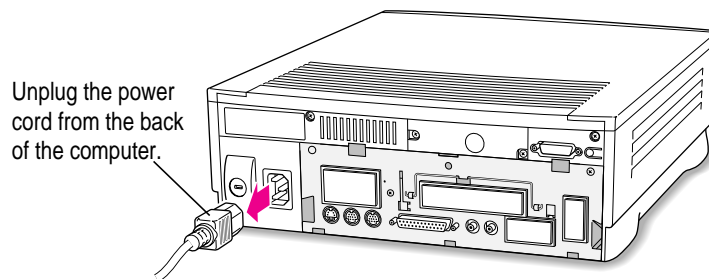
- 6 Touch any metal on the back of the computer to discharge static electricity from your body.**

Always do this before you touch any parts or install any components inside the computer. This discharges static electricity from your body and helps protect components inside the computer.



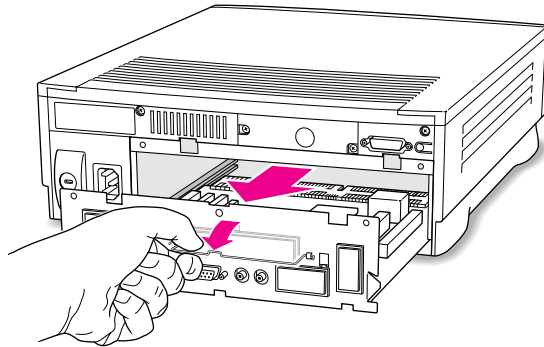
- 7 Unplug the power cord from your computer.**

You can unplug the power cord since you discharged static electricity in the previous step.

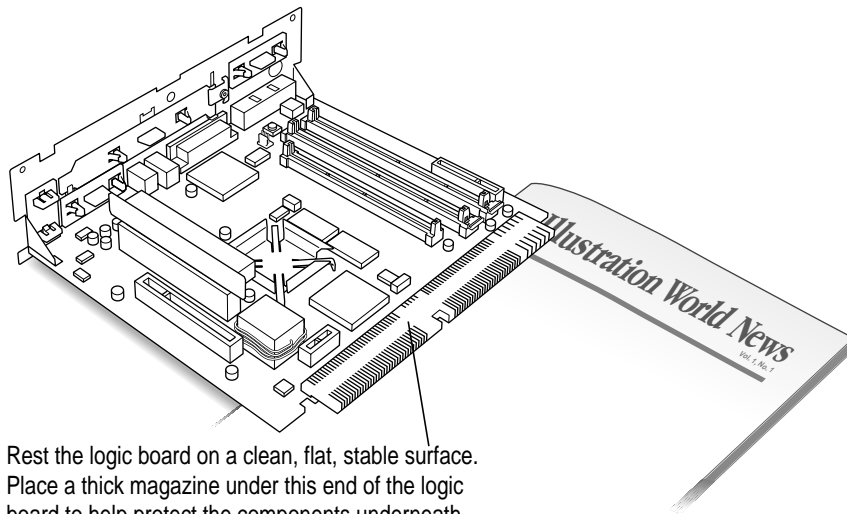


- 8 Gently pull down on the wire handle and swing it out to unlock it from its storage position. Then grasp the handle and gently pull the logic board out of the computer.**

The vertical plate and the logic board to which it's attached slide all the way out of the computer.



- 9 Once the logic board is out, set it on a clean, flat, stable surface. Rest the end of it on a thick magazine or a thin book to protect the components underneath.**



Rest the logic board on a clean, flat, stable surface. Place a thick magazine under this end of the logic board to help protect the components underneath.

What you do next depends on whether you're installing an expansion card, memory, or a High Performance Module. Go to the pertinent section in this chapter.

Installing an expansion card

This section contains instructions for installing a PCI card or a communication card. (To install a video input card or a TV/FM tuner card, follow the instructions that came with the card.)

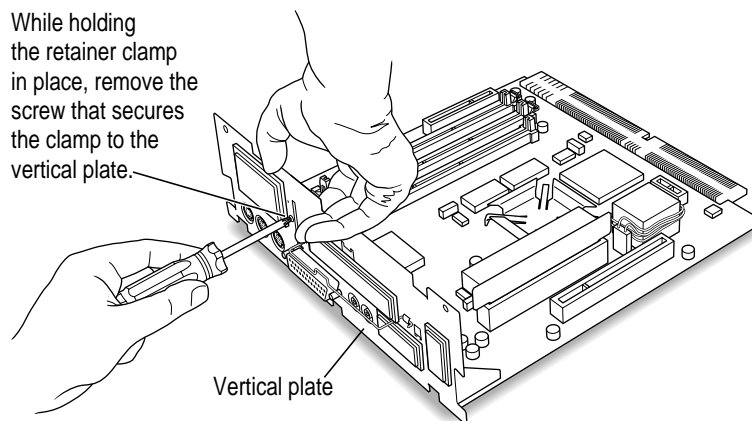
Installing a PCI card

This section contains instructions for installing a PCI card, which must be no longer than 6.88 inches.

Use these instructions in conjunction with those that come with your PCI card:

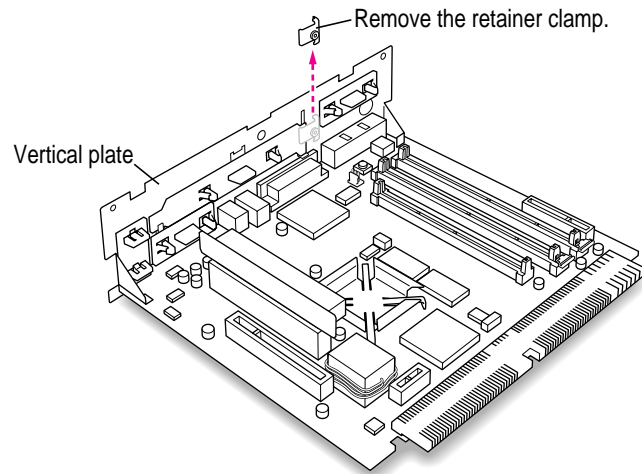
- 1 Unscrew the retainer clamp screw from the front of the vertical plate, while holding the clamp in place in back of the vertical plate.**

Avoid letting the retainer clamp fall onto the logic board.



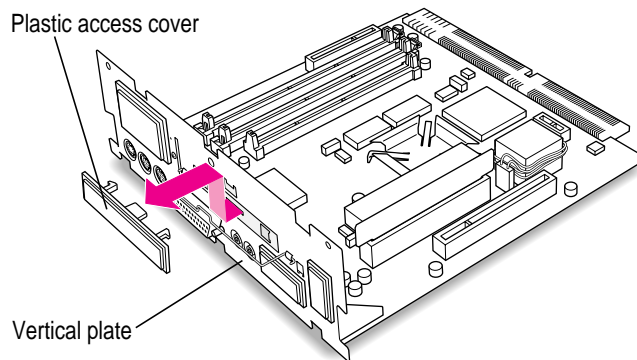
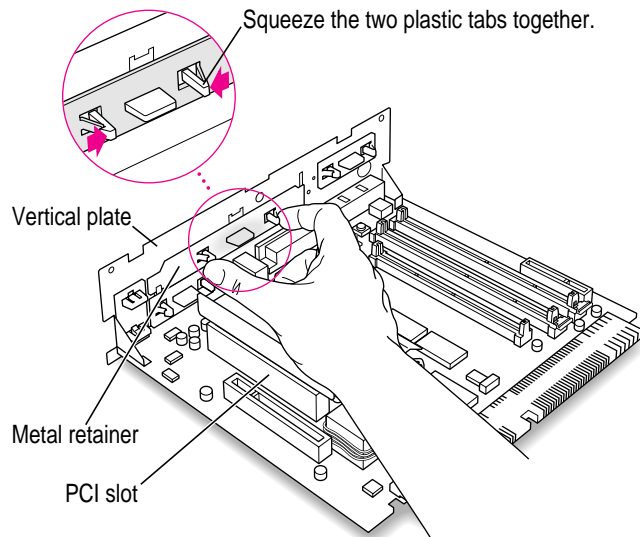
2 Lift out the retainer clamp and set it aside.

You'll need the retainer clamp later, after you install the card.

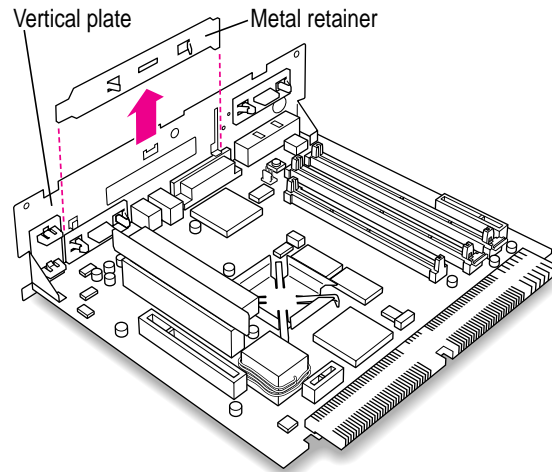


- 3 If your PCI card has ports for connecting equipment, remove the plastic access cover from the vertical plate.

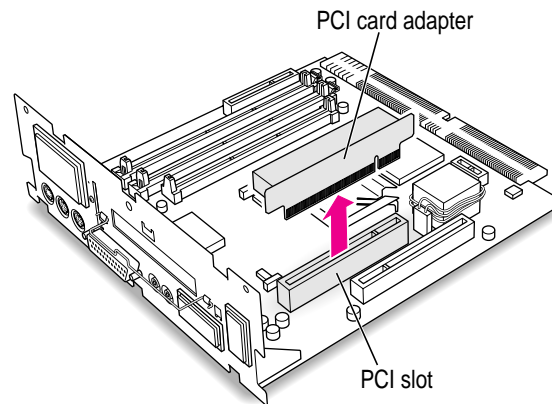
On the inside of the computer, squeeze together the two plastic tabs holding the access cover in place; then pull the access cover off from the outside.



- 4 Remove the metal retainer from the inside of the vertical plate.**

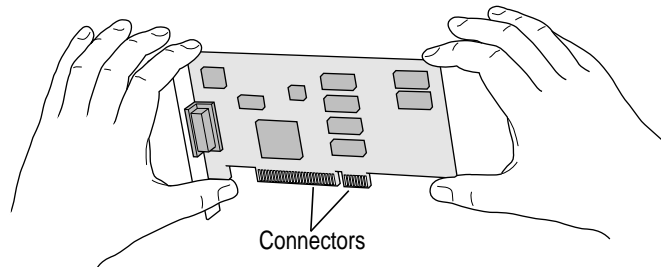


- 5 Remove the PCI card adapter from the main logic board.**



6 Remove the PCI card from its static-proof bag.

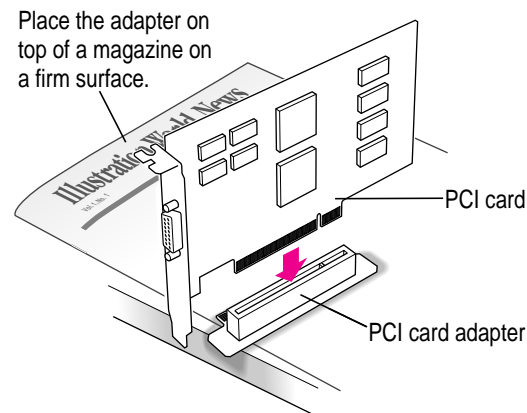
Hold the card by its edges to avoid touching any connectors.



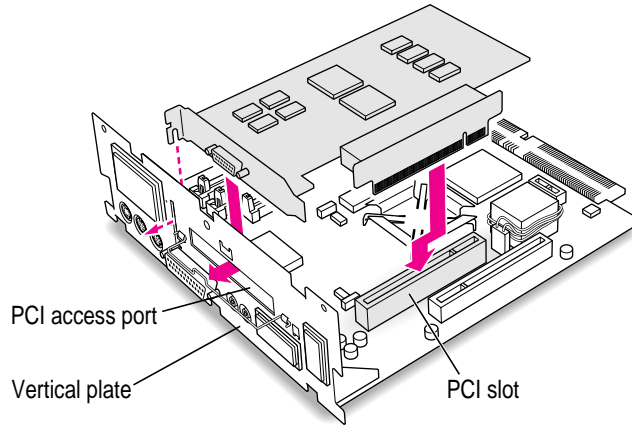
7 Connect the PCI card and the PCI card adapter.

Place the adapter on top of a magazine on a firm surface. (Make sure the magazine is thick enough to protect your working surface from being scratched by the metal pins on the adapter.)

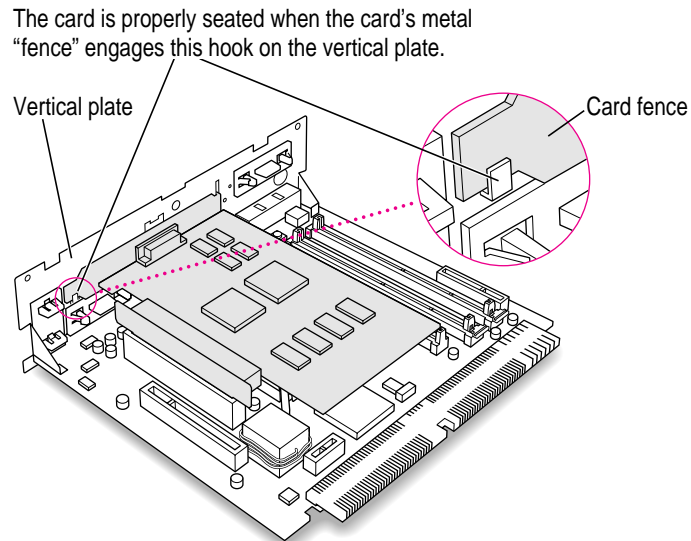
Press the card firmly into the adapter. You may find it helpful to place the card and the adapter near the edge of a table with the metal edge of the card hanging over the end of the table. In this position, you can easily insert the card completely into the adapter.



8 Align the PCI card and the adapter over the PCI slot.

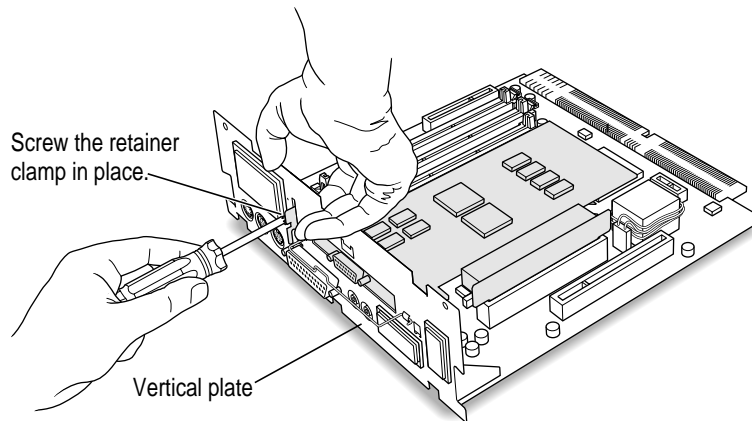
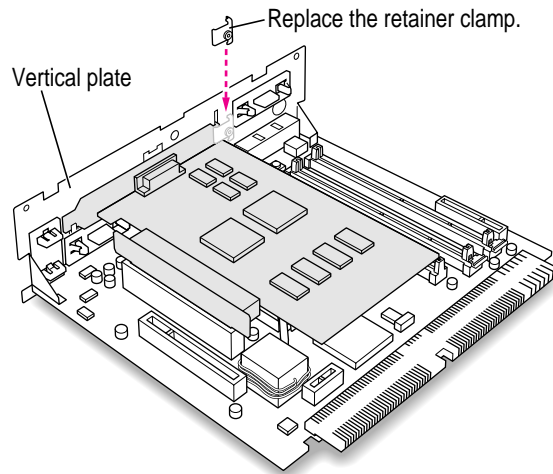


9 Insert the adapter into the PCI slot on the main logic board. Make sure the metal fence on the PCI card engages the hook on the vertical plate and that any connectors on the card protrude through the PCI access port opening.



If you meet resistance, pull the adapter out and try again. To see if the adapter is properly connected, lift it gently. If it resists and stays in place, it's connected.

- 10** Insert the retainer clamp back into the hole and hold it there while you screw it into place.



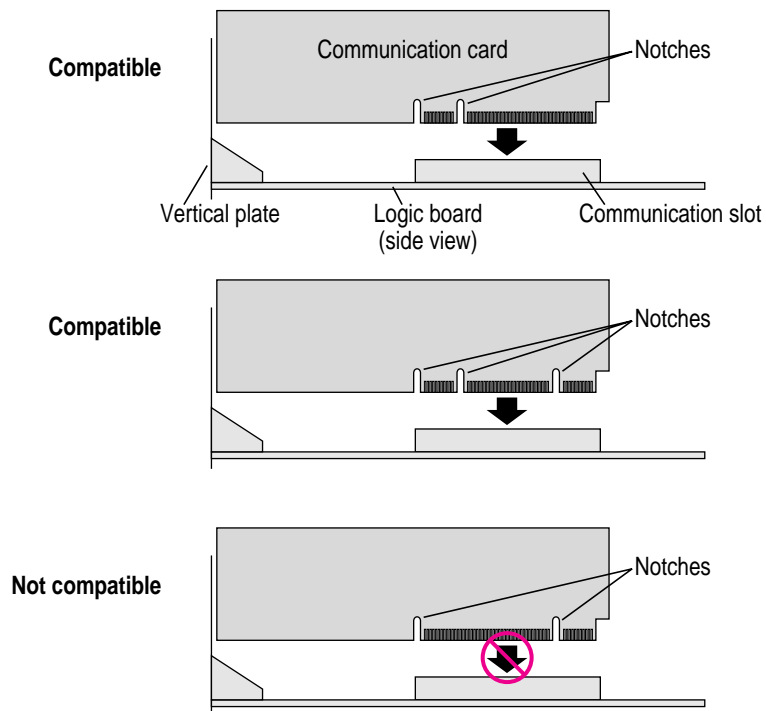
- 11** If you have a communication card, DIMMs, or a High Performance Module to install, go to those instructions later in this chapter. If you are finished installing items in your computer, proceed to “Closing the Computer.”

Installing a communication card

This section contains instructions for installing an Ethernet or an internal modem card in the communication slot. You use an Ethernet card to communicate with other computers through a local area network (LAN). For example, in businesses, an Ethernet card connected to a LAN enables more than one computer to print on a shared printer and to access documents on a central, shared server.

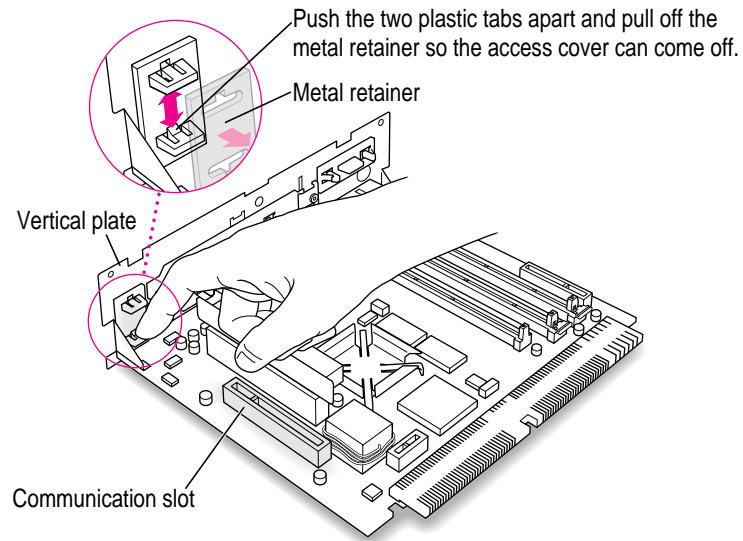
Note: Using a modem is not the same as being connected to a local area network. You do not need an Ethernet card unless you need to connect your computer to other computers in an Ethernet network. For more information about connecting to an Ethernet network, see “Connecting to an Ethernet Network” in the section “Connecting to a Network” in Chapter 3.

Some communication cards designed for other communication slots are not compatible and cannot be installed here. You can tell by examining the placement of the notches on the card. Use the following illustration as a guide if you’re not sure you have the correct type of card.



To install a communication card, follow these steps:

1 Remove the plastic access cover from the vertical plate.



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

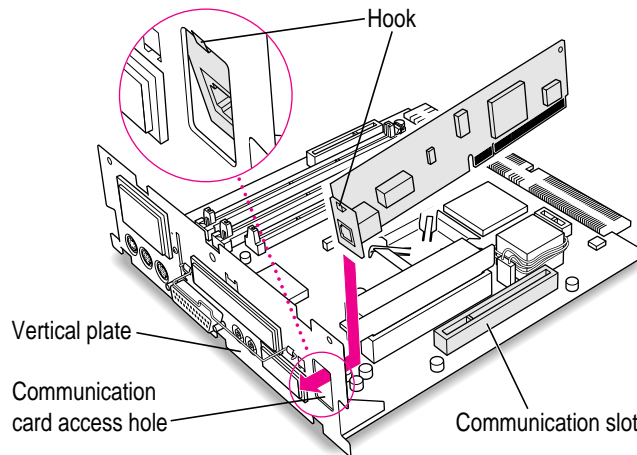
Hold the card by its edges to avoid touching its connectors.

3 Align the card with the communication card access hole.

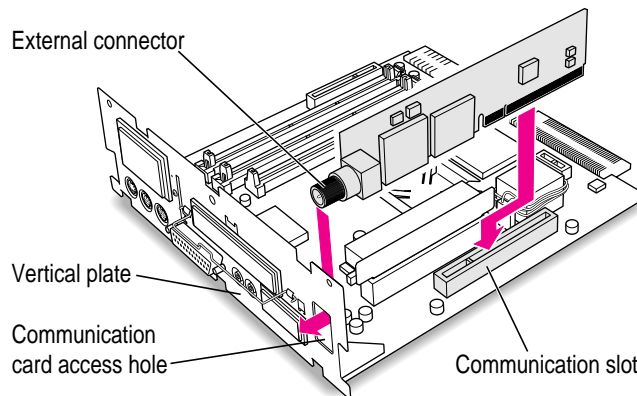
The communication slot is the rightmost slot on the logic board as you face the vertical plate.

- 4** Check the external connector on your card, see which of the following two illustrations matches the card you have, and install the card according to the illustration.

If the card has a hook, make sure it engages the vertical plate before pushing the card into the slot.



If the card does not have a hook, simply pass the external connector through the opening in the vertical plate as shown. (Some cards have a flat external connector.)



- 5** **Passing the external connector through the hole in the vertical plate, 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 it out and try again.

If your card has a hook, make sure the hook engages the vertical plate.

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

Note: After you have finished these installation instructions and turned on your computer, you may need to install software for your communication card. If you installed an Ethernet card, you may also need to change the network connection in the AppleTalk control panel. See the manual that came with the card and "Connecting to an Ethernet Network" in the section, "Connecting to a Network" in Chapter 3 for more information.

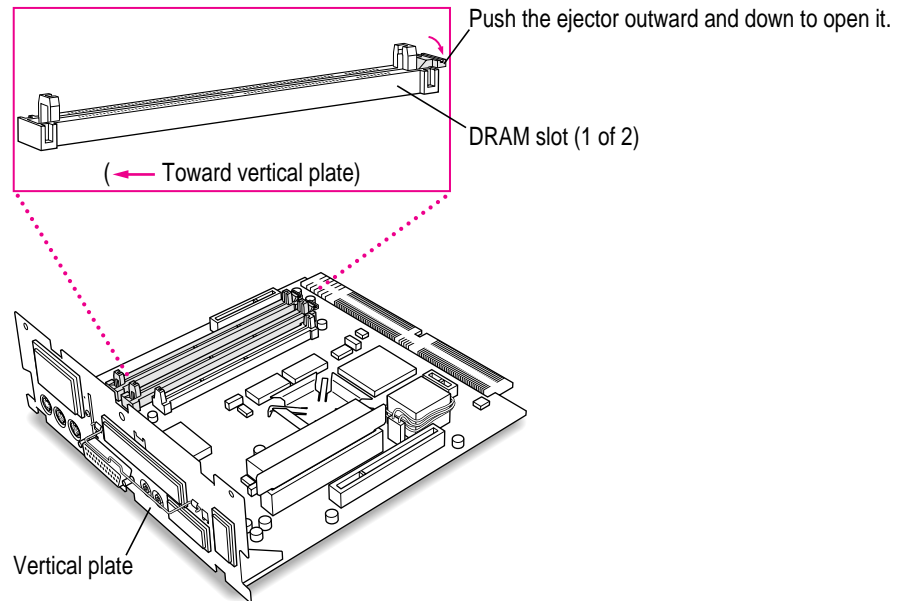
- 7** **If you have DIMMs or a High Performance Module to install, go to the next section in this chapter. If you are finished installing items in your computer, proceed to "Closing the Computer."**

Installing DIMMs or a High Performance Module

WARNING Although instructions for installing DRAM DIMMs and a High Performance Module are provided in this manual, Apple Computer strongly recommends that you have an Apple-certified technician install them. 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 DIMMs 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.

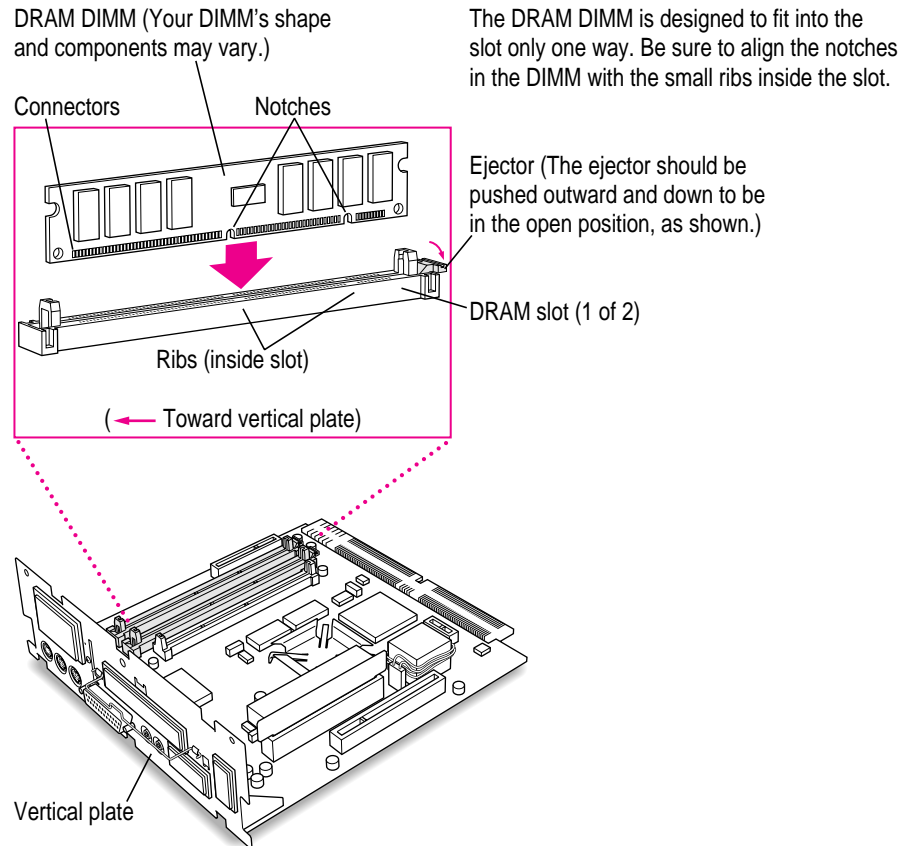
Installing a DRAM DIMM

- 1 Push the ejector on the DRAM slot outward and down to open it.



- 2 With the ejector in the “open” position, align the DRAM DIMM in one of the slots as pictured.

IMPORTANT Do not touch the DIMM’s connectors. Handle the DIMM only by the edges.



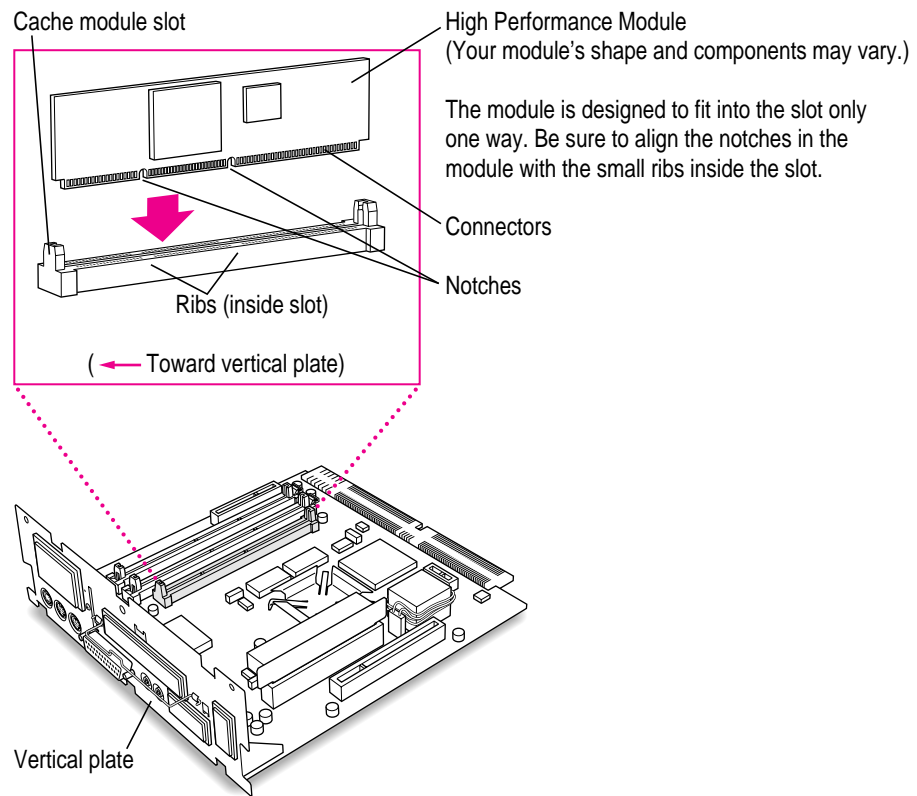
- 3 Push down on the DIMM until it snaps into place.
The ejector will automatically close.
- 4 Repeat steps 1–3 if you have another DRAM DIMM to install.
- 5 If you have a High Performance Module to install, proceed to the next section, “Installing a High Performance Module into the Cache Module Slot.” If you are finished installing items, proceed to the section “Closing the Computer.”

Installing a High Performance Module into the cache module slot

- 1 **Aligning the notches in the module with the small ribs inside the cache module slot, insert the module in the slot.**

The module is designed to fit into the slot only one way.

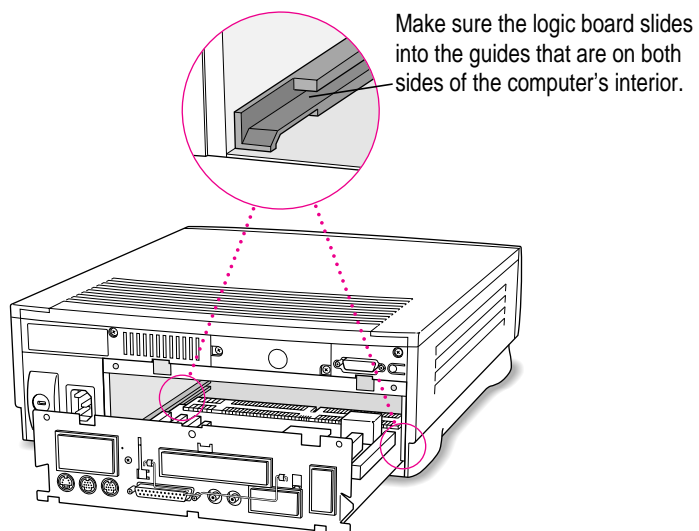
IMPORTANT Do not touch the module's connectors. Handle the module only by the edges.



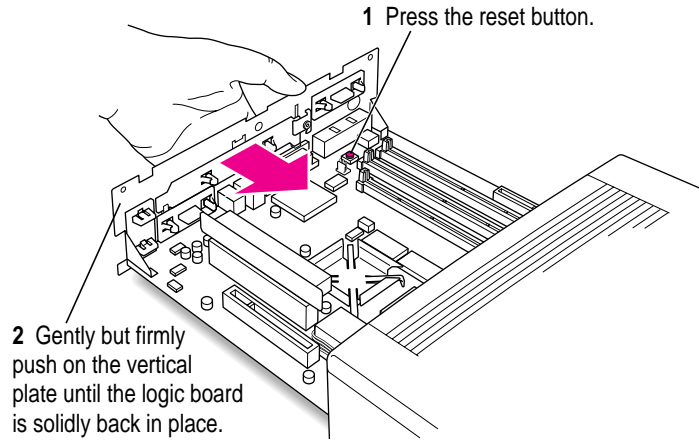
- 2 **If you are finished installing items in your computer, proceed to “Closing the Computer.”**

Closing the computer

- 1 Slip the base of the logic board into the guide rails inside the computer's case.

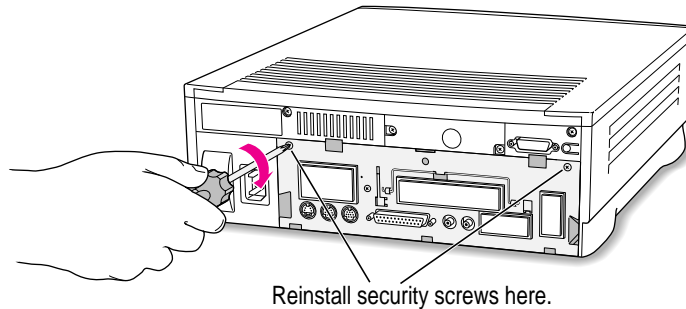


- 2 Press the reset button, and slide the logic board back into the computer.

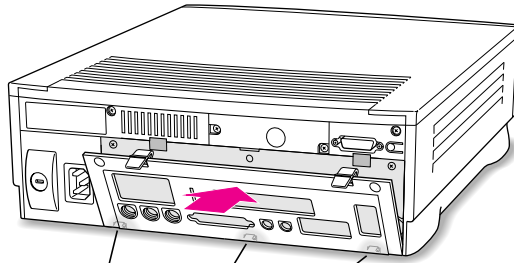


Note: When you press the reset button, some of your computer's software settings will change. After you turn on your computer later, you may want to open the control panels for the date and time, keyboard, and mouse to make sure that they are set the way you want them. For more information about working with control panels, see the "Customizing Your Computer" topic of Macintosh Guide, available in the Guide (🔗) menu.

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

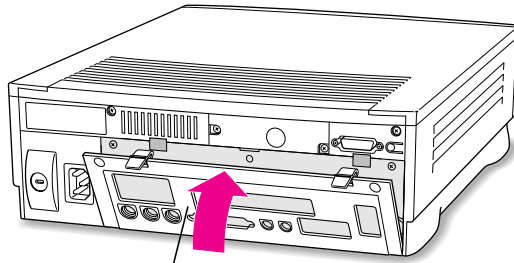


- 4 Slip the three hooks at the base of the back panel into the grooves on the computer case.



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

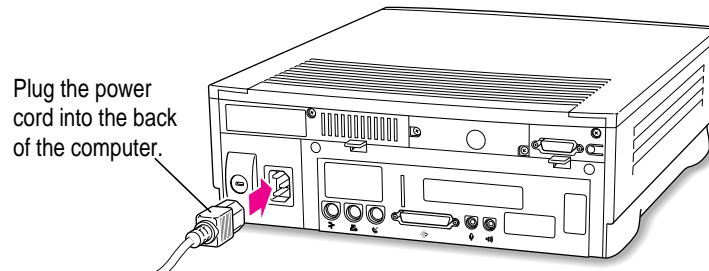
- 5 Swing the back panel up and snap it into place.



Snap the plastic back panel into place.

- 6 Plug all the cables except the power cord back into the computer.

7 Reconnect the power cord.



Your computer is now ready to turn on and use.

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

Reminder: When you turn on your computer, don't forget 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. (Pressing the reset button on the logic board changed these settings.) For more information about working with control panels, see the "Customizing Your Computer" topic of Macintosh Guide, available in the Guide (📖) menu.

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 next.

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.

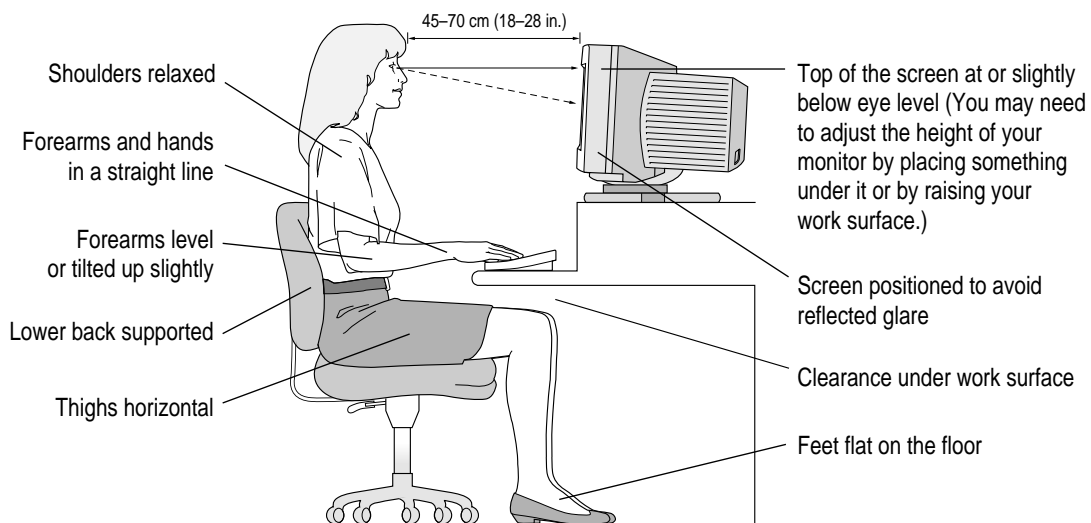
- An adjustable chair that provides firm, comfortable support is best. Adjust the height of the chair so your thighs are horizontal and your feet flat on the floor.

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 exist:

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

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

Handling your computer equipment

Follow these guidelines for handling your computer and its components:

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

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

Handling the monitor

Follow these procedures for handling the monitor:

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

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

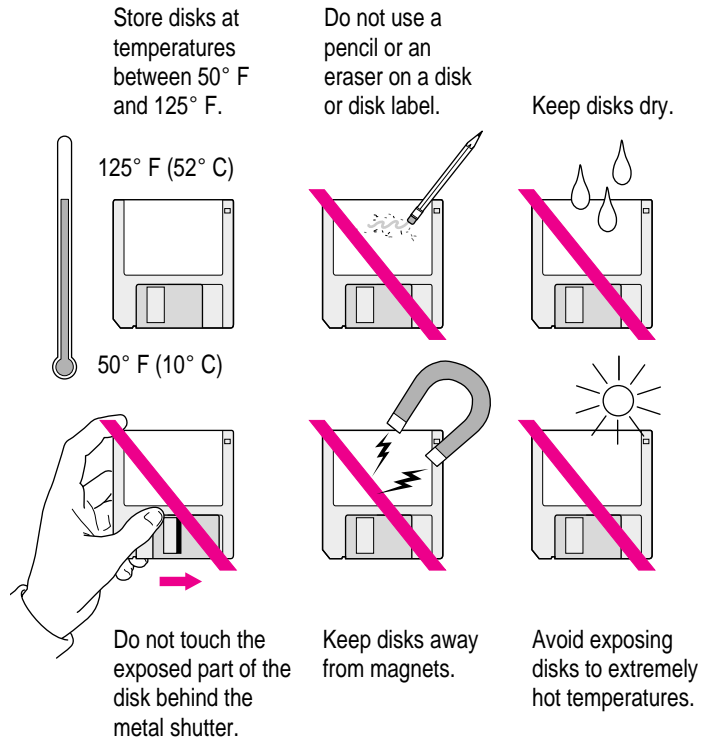
- Make sure the vents on the computer are clear and unobstructed.
- If there is interference on the monitor’s screen or on a television or radio near your computer, move the affected equipment farther away.

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, turn off your computer, 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

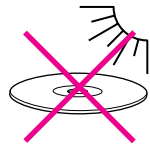


Handling CD-ROM discs

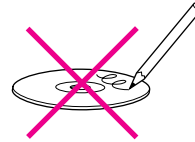
Keep these important safety instructions in mind as you use CD-ROM discs:

- 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:



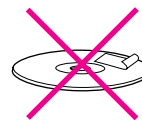
Do not expose discs to direct sunlight.



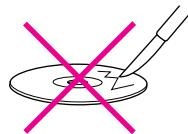
Do not write on discs.



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 washbasins, 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.

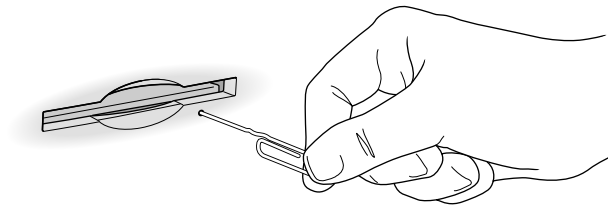
Ejecting a disk

For instructions on ejecting any disk (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 steps 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.
- Shut down 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.

WARNING To protect the power supply from damage, make sure the voltage switch on the back of the computer is set correctly before you plug the computer into a power outlet. Refer to Chapter 1 for instructions on setting the voltage switch.

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

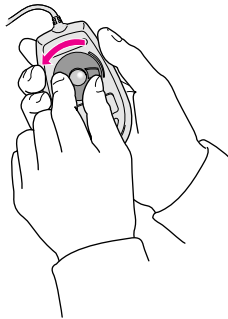
To clean the screen, put household glass cleaner on a soft cloth and wipe the screen. Don't spray the cleaner directly on the screen, because the liquid might drip into the monitor or computer.

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.

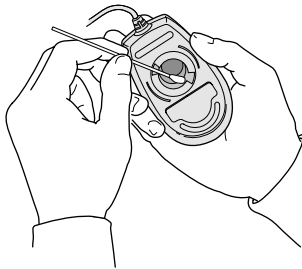
- 1 Turn off your computer.**
- 2 Turn the mouse upside-down and turn the plastic ring on the bottom counterclockwise to disengage it.**



If 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.

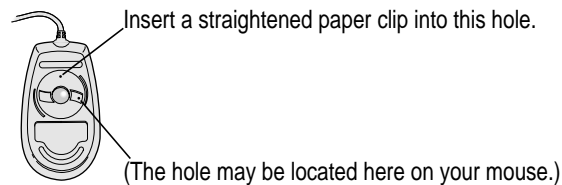
Your mouse should roll smoothly across your mouse pad or desk. If it doesn't, repeat these instructions carefully.

Locking and unlocking the mouse

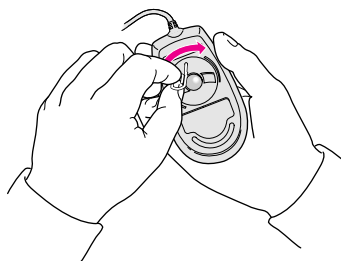
Some mouse devices can be locked so that the ball can't be removed. A locking mouse has a small hole on the plastic ring.

To lock the mouse, follow these steps:

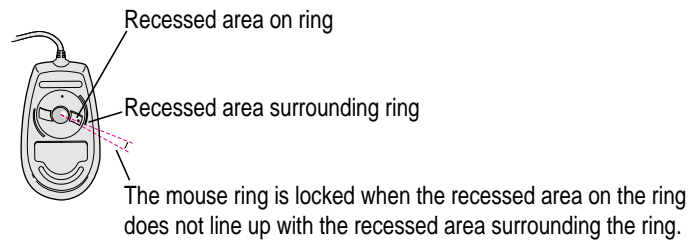
- 1 Insert a straightened paper clip into the hole on the plastic ring.



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

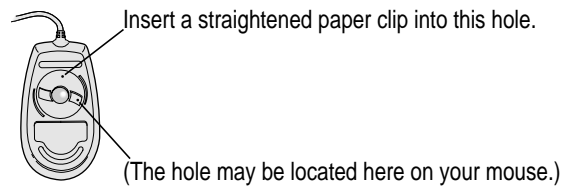


Turn the ring a very short distance, until it stops. When the recessed area on the ring is *not* lined up with the recessed area surrounding the ring, the mouse is locked.

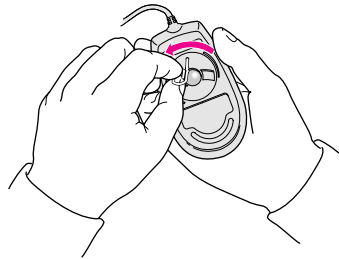


To unlock the mouse, follow these steps:

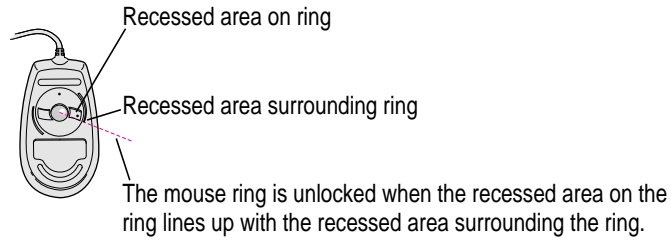
- 1** Insert a straightened paper clip into the hole on the plastic ring.



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



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



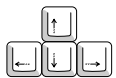



Read this appendix to learn how to use the special keys on your keyboard.

Appendix B 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 lets you quit a program.







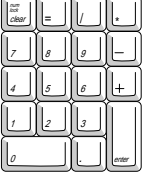





The following table describes what you can do with the special keys on your keyboard. Special keys vary with some models of keyboard, so some keyboards do not have all the keys listed.

Special keys on Apple keyboards

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

continued ►

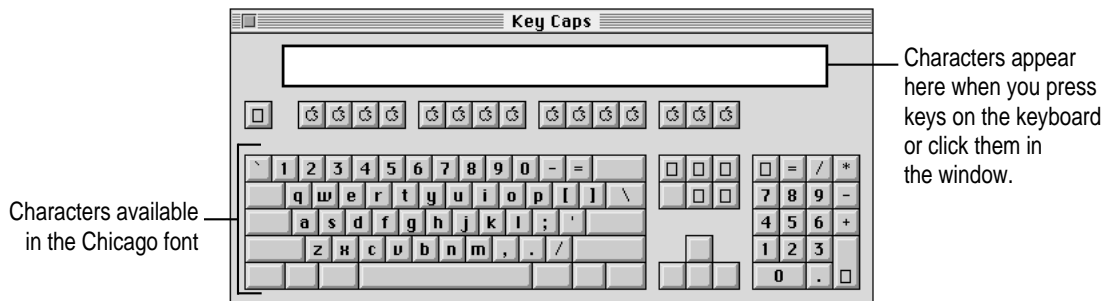
Special keys on Apple keyboards *(continued)*

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

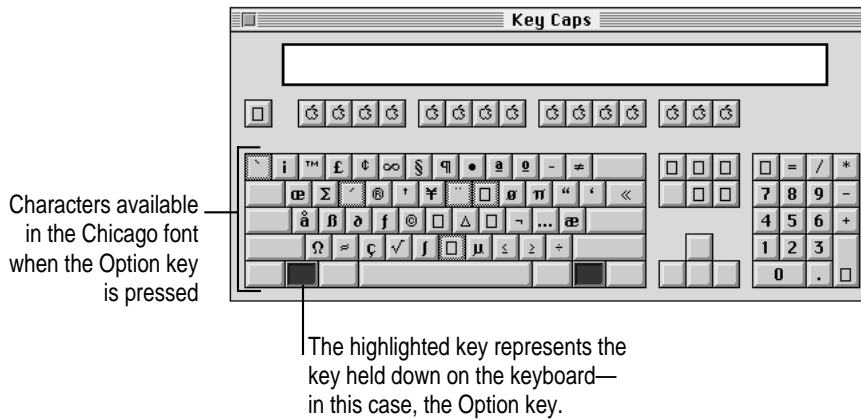
Typing special characters and symbols

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

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



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



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

Note: If you see rectangles instead of diacritical marks on some of the pictures of keys in Key Caps, try pressing Option-x to see the diacritical marks. However, use the Option key (not Option-x) 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
Start the computer from a CD-ROM disc	C key (at startup)
Ignore the selected startup device	⌘-Option-Shift-Delete
Turn off system extensions	Shift key (while starting up)
Start the Extensions Manager	Space bar (while starting up)
Rebuild the desktop	Option-⌘ (while starting up)



If you can't find what you're looking for in this index, look in Macintosh Guide—available in the Guide (🔍) menu on your computer.



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Macintosh Performa
User's Manual



*Includes setup, troubleshooting, and health-related information
for Macintosh Performa 6360 series computers*

 Apple Computer, Inc.

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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。

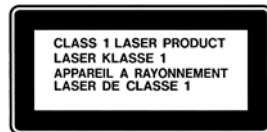
取扱説明書に従って正しい取り扱いをしてください。

CD-ROM drive

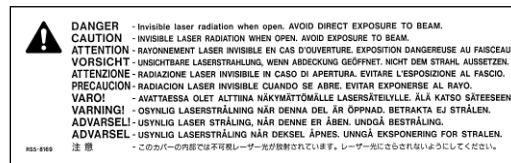
WARNING Making adjustments or performing procedures other than those specified in your equipment’s manual may result in hazardous exposure.

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

If you have an internal Apple CD-ROM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located in a user-accessible area, indicates that the drive meets minimum safety requirements. A service warning label is located in a service-accessible area. The labels on your product may differ slightly from the ones shown here.



Class 1 label



Service warning label

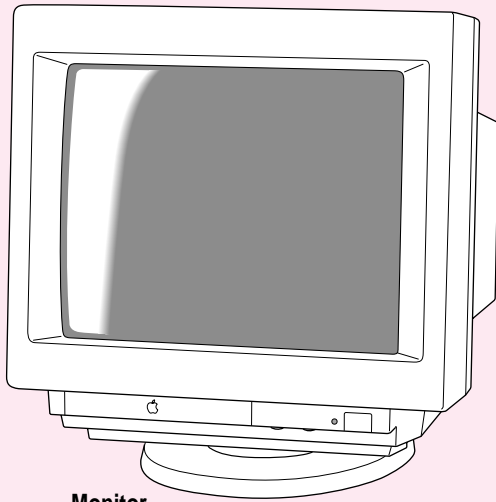


Welcome to Macintosh

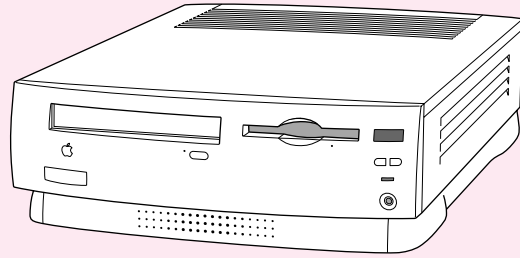
Congratulations on the purchase of your new Macintosh. Your computer is designed to give you the highest performance combined with real ease of use. It's also easy to set up and easy to expand. This book guides you through the setup procedure, tells you how to expand your Macintosh, and provides many 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 (also called “native” applications) at any software store that carries products for the Macintosh computer.



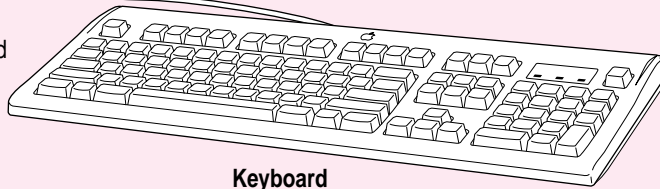
Monitor



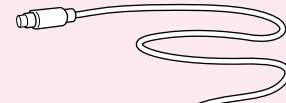
Macintosh Performa computer



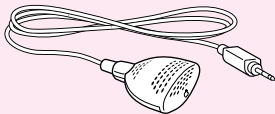
Keyboard cable
(permanently attached
to the keyboard)



Keyboard



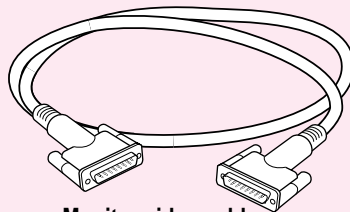
Mouse



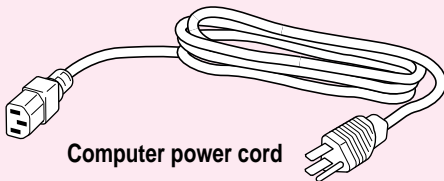
Apple PlainTalk Microphone (optional)



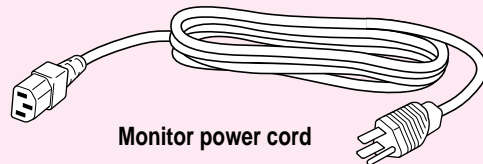
Phone cord
(comes with optional internal modem)



Monitor video cable
(sometimes built into the monitor)



Computer power cord



Monitor power cord