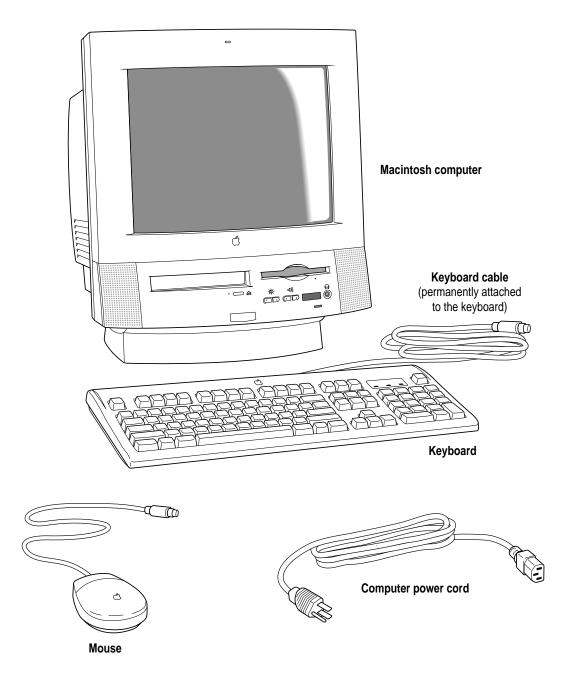*part*

I

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

1

Getting Started

• • • • • •

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

Macintosh computer

Keyboard cable
(permanently attached
to the keyboard)

Keyboard
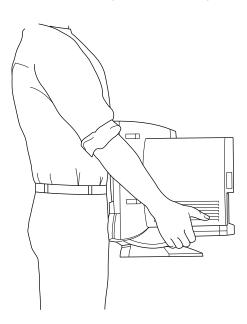
Mouse

Computer power cord

Plugging in the computer

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

When you are ready to begin, follow these steps:
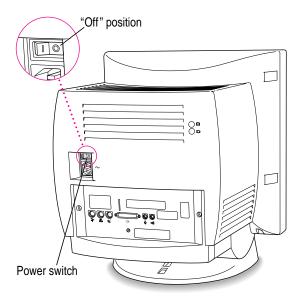
1   Place the computer where you want it.

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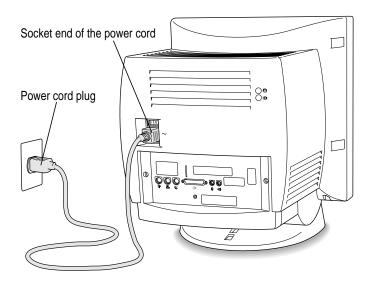
2 **Plug the socket end of the power cord into the recessed power plug (marked with the symbol ∿) on the back of the computer.**

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

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

"Off" position

Power switch

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

Socket end of the power cord

Power cord plug

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

Installing an expansion card

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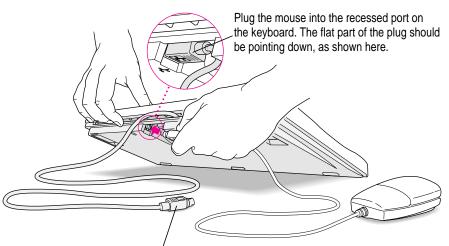
Connecting the mouse and the keyboard

To connect the mouse and keyboard to your computer, follow these instructions.

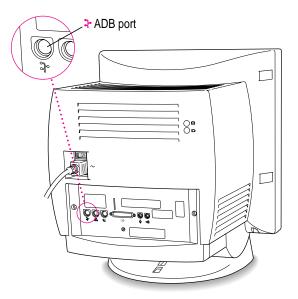**1** **Plug the mouse cable into the recessed port on the back of the keyboard.**

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

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

Plug the mouse into the recessed port on the keyboard. The flat part of the plug should be pointing down, as shown here.
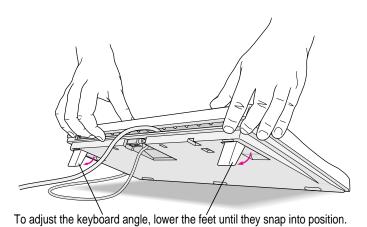
This cable plugs into the Apple Desktop Bus (ADB) port, marked with the ✣ icon, on the back of the computer.

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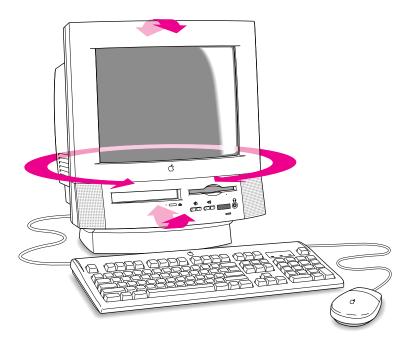
ADB port

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

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

Adjusting the angle of the screen

You can adjust the angle of the screen to avoid glare and reflections by using the computer's tilt-and-swivel base. Turn the computer to either side or tilt it slightly back or forward.

IMPORTANT You should not turn or tilt the computer while a CD-ROM is in the drive. For more information, see "Inserting a CD-ROM Disc or Other CD" later in this chapter.

For more information on setting up your office for comfort and safety, see Appendix A, "Health, Safety, and Maintenance Tips."

Connecting other equipment

If you are new to the Macintosh, it's a good idea to get some experience using your computer before you connect other equipment, such as a printer or scanner. To learn basic Macintosh skills, continue with the instructions in this chapter.
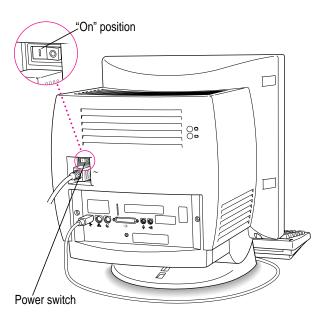
When you're ready to connect other equipment to your Macintosh, see the instructions in Chapter 3.

Turning the computer on for the first time

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

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

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

"On" position

Power switch

2 Press the Power key (marked with a ◁) on your keyboard.

If you have a keyboard different from the one pictured here, your Power key may be in a slightly different location, but a triangle is always marked on or near the key.
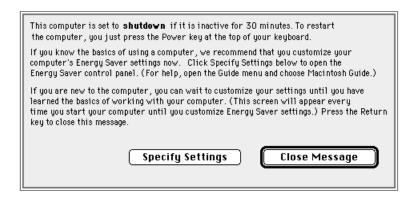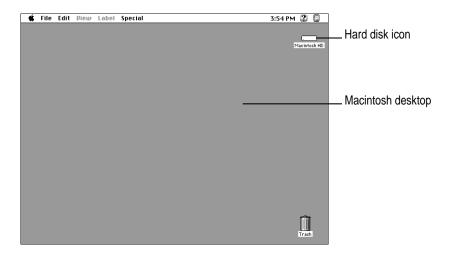
You hear a tone from your computer as it starts up.

3 Check to see what's on your screen.

You see a sequence of messages describing what is happening, followed by the Energy Saver dialog box.

■ If you see a blinking question mark, see "Solutions to Common Problems With Your Computer" in Chapter 8.

■ If you see anything other than the Energy Saver dialog box on your screen, or if you see nothing at all, see the section "Problems Starting Up?" next.

■ If you are a beginning Macintosh user, press the Return key when the Energy Saver dialog box appears.

■ If you're an experienced Macintosh user, you may want to set your energy-saving options now. For more information, refer to the "Saving Energy" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (②) menu, and "Saving Energy With the Energy Saver Control Panel," later in this chapter.

> This computer is set to **shutdown** if it is inactive for 30 minutes. To restart the computer, you just press the Power key at the top of your keyboard.
>
> If you know the basics of using a computer, we recommend that you customize your computer's Energy Saver settings now. Click Specify Settings below to open the Energy Saver control panel. (For help, open the Guide menu and choose Macintosh Guide.)
>
> If you are new to the computer, you can wait to customize your settings until you have learned the basics of working with your computer. (This screen will appear every time you start your computer until you customize Energy Saver settings.) Press the Return key to close this message.
>
> [Specify Settings]   [**Close Message**]

- If, when you press Return, you see the Macintosh desktop (shown below), your system software is already set up correctly.

  Skip now to the section, "What's Next?"

Hard disk icon

Macintosh desktop

Note: To save energy, your computer is automatically set to put itself to sleep if you haven't used it for 30 minutes or more (the computer goes into power-saving mode and the screen turns black). If this happens while you're setting it up, simply press the Power key or any key on the keyboard except Caps Lock to "wake up" the computer (it may take a few seconds). See "Saving Energy With the Energy Saver Control Panel," later in this chapter for more information on setting power-saving options.

Problems turning on your computer?

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

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

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

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

- Are the keyboard and mouse cables connected correctly? (Don't connect or disconnect the keyboard or mouse cable while the computer is on. You could damage your equipment.)

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

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

If you see a blinking question mark on the screen, you probably need to read "Solutions to Common Problems With Your Computer" in Chapter 8.

What's next?

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

■ If you are new to the Macintosh, turn to the next section, "Learning the Basics." When you've learned the basic Macintosh skills, turn to the section "Saving Energy With the Energy Saver Control Panel" to learn how to set energy-saving options for your computer.

■ If you are an experienced Macintosh user, turn to the section "Saving Energy With the Energy Saver Control Panel," later in this chapter, to learn how to set energy-saving options for your computer. Then turn to Chapter 2, "Getting Help," to learn about onscreen help (Macintosh Guide [or Mac OS Guide]), your main source of information when you're working with the Macintosh.

■ If you want to connect additional equipment, such as a microphone, to your computer, see Chapter 3, "Expanding Your Computer and Using Its Special Features," for instructions.

■ If you want to install application software on your computer, see Chapter 4, "Installing and Using Application Programs." You'll need this information to properly set up any applications specifically designed for Power Macintosh computers.
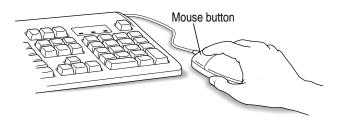
IMPORTANT If you need to turn off your computer at any point, please see "Turning the Computer Off" later in this chapter. It is very important to use the correct procedure for shutting down your Macintosh before turning it off.

Learning the basics

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

1   Slide your mouse along your mouse pad or desk.

Hold the mouse as shown, with the cable pointing away from you. Rest the heel of your palm on the desk and grasp the sides of the mouse between your thumb and fingers. Use your wrist and fingers to slide the mouse around with the index finger resting on the mouse button. Don't press the mouse button (under your index finger). Notice that the arrow (￬) on the screen moves in the same direction that you move the mouse.

Mouse button

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

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

If you run out of room on your mouse pad or desk while moving the mouse, pick up the mouse and place it where there's more room. (The arrow on the screen moves only when the mouse is in contact with the mouse pad or desk.)
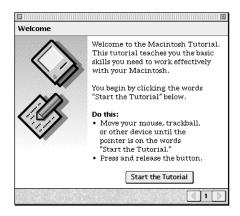
3 **With the tip of the arrow on the question mark, press and hold down the mouse button.**

A list of choices (called a *menu*) appears. This is the Guide (❷) menu, which is the place to go when you have a question about how to use your computer.
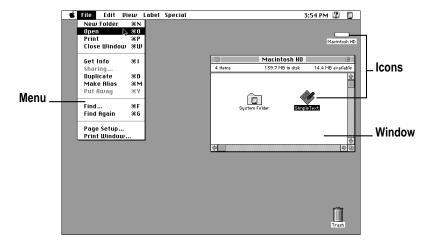
```
 🍎  File  Edit  View  Label  Special                    3:30 PM  ❓  🖵
                                              About Apple Guide  ▸
                                              Show Balloons              ☐
                                                                        sh HD
                                              Macintosh Tutorial
                                              Macintosh Guide  ⌘?
                                              Shortcuts
```

4 **While holding down the mouse button, move the arrow until the words "Macintosh Tutorial" are highlighted, then release the mouse button.**

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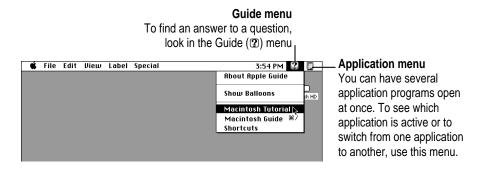
```
Welcome

          Welcome to the Macintosh Tutorial.
          This tutorial teaches you the basic
          skills you need to work effectively
          with your Macintosh.

          You begin by clicking the words
          "Start the Tutorial" below.

          Do this:
          • Move your mouse, trackball,
            or other device until the
            pointer is on the words
            "Start the Tutorial."
          • Press and release the button.

                 [ Start the Tutorial ]

                              ◁ 1 ▷
```

Reviewing the basics

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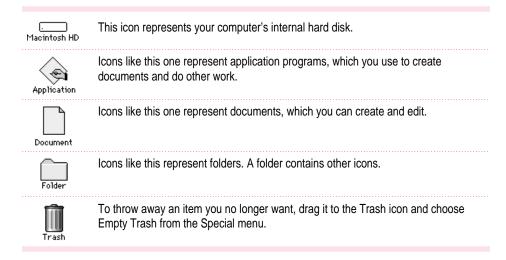

Menus

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.
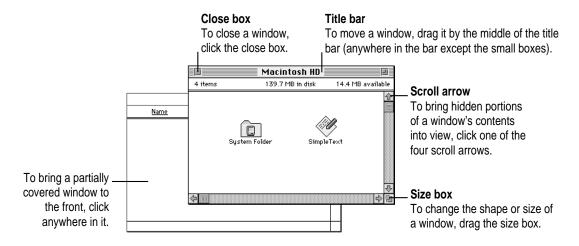
Icons

Icons are small pictures that represent disks, programs, documents, and folders. You can double-click any icon to open it and see what it contains.

Macintosh HD	This icon represents your computer's internal hard disk.
Application	Icons like this one represent application programs, which you use to create documents and do other work.
Document	Icons like this one represent documents, which you can create and edit.
Folder	Icons like this 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.

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

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

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

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

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

Macintosh HD
4 items   139.7 MB in disk   14.4 MB available
Name
System Folder   SimpleText

Saving energy with the Energy Saver control panel

When you save energy, you save natural resources and reduce pollution. Your Power Macintosh contains features that automatically save energy. You can increase the energy savings by using the Energy Saver control panel to turn your computer off if you won't be using it for a while—for example, overnight or over the weekend.

The Energy Saver dialog box (shown in step 3 of "Turning the Computer On for the First Time" earlier in this chapter) appears every time you start your computer until you open the Energy Saver control panel. Once you open the control panel, you can keep the preset options shown there, or set your own energy-saving options. If you do not want to set your energy-saving options when the Energy Saver dialog box is displayed, you can click Close Message or press the Return key (the Energy Saver dialog box continues to appear when you start your computer).

Setting energy-saving options

You can get to the Energy Saver control panel by clicking Specify Settings in the Energy Saver dialog box that appears when you start your computer or by choosing Control Panels in the Apple () menu.

The Energy Saver control panel displays the options you can accept or change, as described next in this section. For more information on using the Energy Saver control panel, see the "Saving Energy" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide () menu.
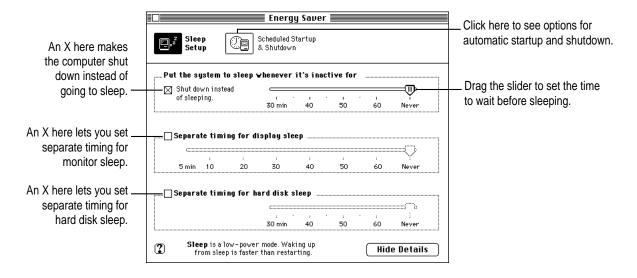
Putting your computer to sleep

Your Power Macintosh is preset to put itself to sleep after 30 minutes of inactivity. When your computer goes to sleep, the screen enters a low-power mode in which it dims and the hard disk stops spinning but remains ready to start back up quickly. (To prevent your computer from overheating, the fan will continue to spin.) If the computer goes to sleep while you have unsaved information on screen, you do not lose any of the information.

To put your computer to sleep right away, choose the Sleep command from the Special menu, or press the Power key on the keyboard to bring up the Shutdown dialog box pictured below.

Click here to put your computer to sleep now.

You can set sleep options by clicking Sleep Setup in the Energy Saver control panel, available under Control Panels in the Apple (⌘) menu. You click to put an X in a checkbox to indicate that the option is selected. If you want to deselect it, click to remove the X.

An X here makes the computer shut down instead of going to sleep.

An X here lets you set separate timing for monitor sleep.

An X here lets you set separate timing for hard disk sleep.

Click here to see options for automatic startup and shutdown.

Drag the slider to set the time to wait before sleeping.

Waking your computer from sleep
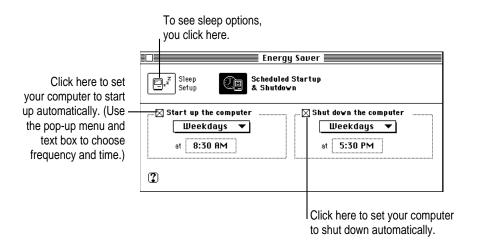
To wake the computer from sleep, press any key on the keyboard except Caps Lock. (It may take a moment or two for the computer to awaken.) The documents and application programs you had open when the computer went into sleep are still open, and unsaved changes are preserved.

Accessing a sleeping computer over a network

If your computer is being used as a server, other users can still access it over a network while it is asleep if you set server options that prevent the hard disk from going to sleep. (You can set server options using the Preferences menu when the Energy Saver control panel is displayed.) The network connection does not have to be established before the computer goes to sleep. However, if you've chosen to have your computer shut itself down rather than go to sleep, other users will not be able to access it over a network after the computer shuts itself down.

Scheduling automatic startup and shutdown

You can set your computer to start up and shut down at specified times using the Energy Saver control panel. An X in a checkbox means the option is selected. If you want to deselect it, click to remove the X. If there's an unsaved document open on your desktop when the scheduled shutdown time occurs, it is saved automatically in a folder on your startup disk. The folder is named with the date and time of the shutdown.

To see sleep options, you click here.

Click here to set your computer to start up automatically. (Use the pop-up menu and text box to choose frequency and time.)

Energy Saver

Sleep Setup

Scheduled Startup & Shutdown

Start up the computer
Weekdays
at 8:30 AM

Shut down the computer
Weekdays
at 5:30 PM

Click here to set your computer to shut down automatically.
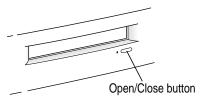
Inserting a CD-ROM disc or other CD

Your internal CD-ROM drive, if your computer came with one installed, works with CD-ROM discs, standard audio compact discs (CDs), and single-session or multisession Photo CDs. Follow these instructions to insert a CD-ROM disc (or other CD) into your CD-ROM drive. Then follow the instructions provided with your disc, as well as the instructions in this manual.

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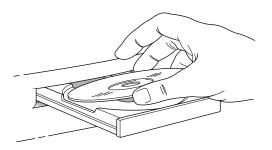
1 **Start up your computer, if it's not already on.**

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

Open/Close button

The tray opens.

3 **Place a 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 it is centered within the inside ring on the tray.

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

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

For instructions on ejecting a CD-ROM disc or other CD, see the "CD-ROM Discs" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu. For instructions on using Macintosh Guide (or Mac OS Guide), see Chapter 2 of this manual.

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

Some CD-ROM disc labels have artwork or labels on them that can cause the CD-ROM disc's weight to be slightly off-center. Because of the high rotation speed of your CD-ROM drive, these discs can occasionally wobble in the drive and cause your computer to vibrate. If you can feel or hear a CD-ROM disc vibrating, you don't need to do anything special. Just use the CD-ROM disc as you normally would. The vibration damages neither your computer nor the CD-ROM disc itself.

Note: Sometimes removing labels from discs that vibrate eliminates the vibration.

Turning the computer off

You can turn the computer off either by using the Power key on the keyboard or by choosing Shut Down from the Special menu.
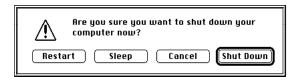
Note: If it is open, the tray on your CD-ROM drive automatically closes when you shut down your computer. If you have left a CD-ROM disc in the tray, you may want to open the tray and take the disc out before shutting down.

Using the Power key

To turn the computer off using the Power key on the keyboard, 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 down the Power key on the keyboard for about 2 seconds.**

The following dialog box appears on the screen:

> ⚠ Are you sure you want to shut down your computer now?
>
> [Restart]   [Sleep]   [Cancel]   [[Shut Down]]

3 **Press the Return key on the keyboard (or click the Shut Down button in the dialog box).**

Choosing Shut Down

To turn the computer off by choosing Shut Down from the Special menu, follow these instructions:

1 **Move the tip of the arrow (▸) to the Special menu at the top of the screen.**

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

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

> **Special**
> Clean Up Window
> **Empty Trash**
>
> **Eject Disk**   ⌘E
> **Erase Disk...**
>
> **Restart**
> **Shut Down** ▸
>
> **Sleep**

If you can't shut down your computer

If a problem with the computer prevents you from using the Power key on the keyboard or choosing Shut Down from the Special menu—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 side of the power switch marked with an ◯, on the back of the computer just above where the power plug is connected.

IMPORTANT You could lose unsaved work if you use the power switch on the back of the computer to turn it off. Only use the power switch when there is a problem that prevents the computer from being turned off with the Power key on the keyboard or the Shut Down command in the Special menu. 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 (either by pressing the Power key on the keyboard or by choosing Shut Down from the Special menu):

■ **Press the Power key (marked with a ◁) on the keyboard.**

Note: 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.
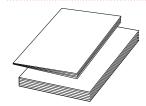
In the Guide menu

The Guide menu (marked with the ⍰ icon) is your main source of information about the Macintosh. To learn how to get several 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 came installed on your computer have separate manuals, either in the box with your computer or stored on your computer's hard disk.

From Read Me files

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 be found inside the application folder.

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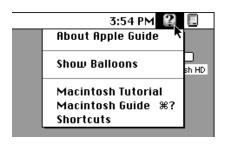
If you can't find an answer in any of the materials provided, call the customer support hotline. The phone number for the hotline is in the service and support information that came with your computer.

Note: If you have problems with an application program not published by Apple, call the program's publisher.

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

2 Getting Help

• • • • • •
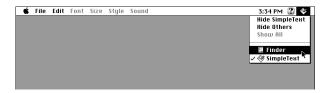
The Guide menu contains onscreen help and information and is your main source of information when working with your computer. The menu is identified by a question mark (⁇) in the upper-right corner of the screen.

Getting answers to your questions

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

1   Open the Application menu (in the upper-right corner of the screen) and choose Finder to make it the active application program.
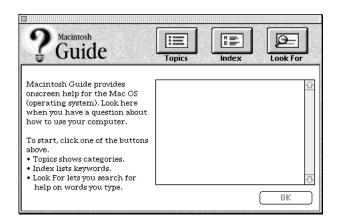
A checkmark appears beside the Finder command, indicating that the Finder is the active program.

2   Open the Guide menu (marked with the ⍰ icon) and choose Macintosh Guide (or Mac OS Guide).

The Macintosh Guide (or Mac OS Guide) window appears.

Whenever you use Macintosh Guide (or Mac OS 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 (or Mac OS 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.
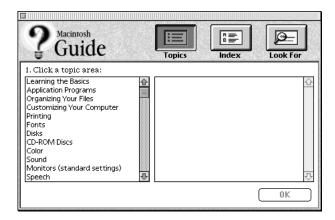
In the following sections you will practice using each method.

If you have problems while using Macintosh Guide (or Mac OS Guide), see "Tips for Using Macintosh Guide (or Mac OS Guide)" later in this chapter.

Getting answers with the Topics button
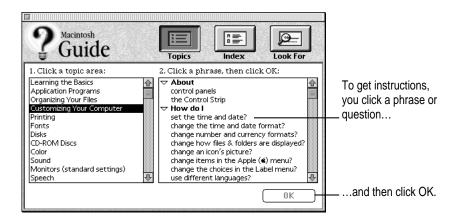
1 **In the Macintosh Guide (or Mac OS Guide) window, click the Topics button.**

A list of general topic areas appears on the left side of the Macintosh Guide (or Mac OS Guide) window. (Depending on the hardware and software you have, the list of topic areas may look different.)
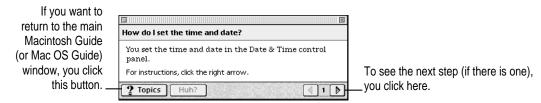
2 **In the list of topics, click "Customizing Your Computer."**

When you click any topic area, a list of related phrases and questions appears on the right side of the Macintosh Guide (or Mac OS Guide) window.

To get instructions, you click a phrase or question…

…and then click OK.

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

A small window appears with instructions for you to follow.

If you want to
return to the main
Macintosh Guide
(or Mac OS Guide)
window, you click
this button.

How do I set the time and date?

You set the time and date in the Date & Time control panel.

For instructions, click the right arrow.

? Topics   Huh?   ◁ 1 ▷

To see the next step (if there is one),
you click here.

4 **Read and follow the instructions in this window.**

Macintosh Guide (or Mac OS 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 (or Mac OS Guide) window.**

Now continue with the next section.
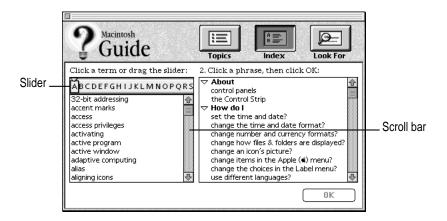
Getting answers with the Index button

1   In the Macintosh Guide (or Mac OS Guide) window, click the Index button.

An alphabetical list of index terms appears on the left side of the window.

Slider

Scroll bar
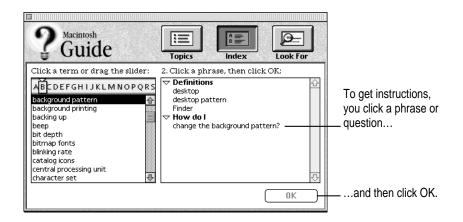
2   Scroll through the alphabetical list until the term "background pattern" is visible.

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 term "background pattern" in the alphabetical list.

When you click any index term, a list of related phrases and questions appears on the right side of the Macintosh Guide (or Mac OS Guide) window.

To get instructions, you click a phrase or question…

…and then click OK.

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

A small window appears with instructions for you to follow.

If you want to
return to the main
Macintosh Guide (or
Mac OS Guide)
window, you click
this button.

How do I change the background pattern?

You use the Desktop Patterns control panel to change
the desktop background on your computer. You can
choose one of the patterns provided with your
computer, or you can use a graphics program to create
your own pattern.

Which do you want to do? Click one:
◉ choose one of the patterns provided
○ create my own pattern with a graphics program

For instructions on what you chose, click the right arrow.

? Topics   Huh?   ◁ 1 ▷

To see the next step (if there is one),
you click here.

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

Macintosh Guide (or Mac OS 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 (or Mac OS Guide) window.

Now continue with the next section.
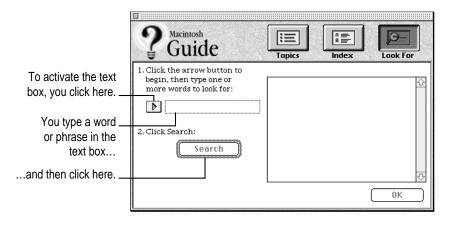
Getting answers with the Look For button
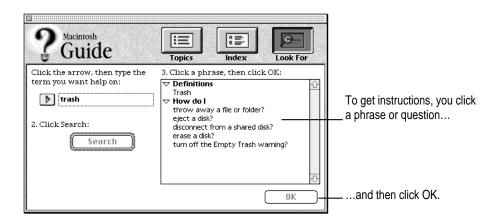
1   **In the Macintosh Guide (or Mac OS Guide) window, click the Look For button.**

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

To activate the text box, you click here.

You type a word or phrase in the text box…

…and then click here.
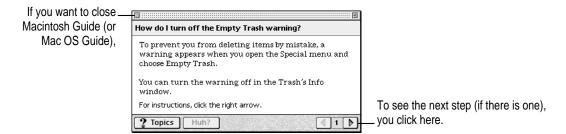
2   **Click the arrow button to activate the text box.**

3   **Type "trash" in the text box, then click Search.**

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

To get instructions, you click a phrase or question…

…and then click OK.

4   Click the question "How do I turn off the Empty Trash warning?" 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 (or
Mac OS Guide),

How do I turn off the Empty Trash warning?

To prevent you from deleting items by mistake, a warning appears when you open the Special menu and choose Empty Trash.

You can turn the warning off in the Trash's Info window.

For instructions, click the right arrow.

? Topics   Huh?   ◁ 1 ▷

To see the next step (if there is one), you click here.

5   Read and follow the instructions in the window.

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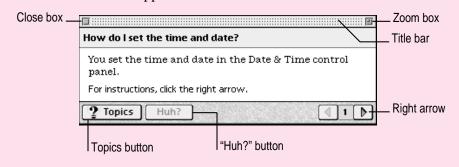
6   When you have completed all the steps, click the close box in the upper-left corner to close Macintosh Guide (or Mac OS Guide).

Tips for using Macintosh Guide (or Mac OS Guide)

Here are a few tips for using Macintosh Guide (or Mac OS Guide) effectively:

■ Macintosh Guide (or Mac OS Guide) is available only when you are in the Finder—the program that displays 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 (or Mac OS 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 (or Mac OS 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 in the upper-right corner of the window. 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 (or Mac OS Guide) window, click the Topics button in the lower-left corner of the Guide window.

■ When you're finished using Macintosh Guide (or Mac OS Guide), click the close box in the upper-left corner of the window.

Close box ——
Zoom box
Title bar

How do I set the time and date?

You set the time and date in the Date & Time control panel.

For instructions, click the right arrow.

? Topics   Huh?   ◁ 1 ▷ —— Right arrow

Topics button   "Huh?" button

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 Open the Guide menu (marked with the ⍰ icon) and choose Show Balloons.

```
🍎  File  Edit  View  Label  Special              3:58 PM  ⍰  ▯
                                          About Apple Guide
                                          Show Balloons        ch HD
                                          Macintosh Tutorial
                                          Macintosh Guide  ⌘?
                                          Shortcuts
```

2 With your mouse, move the pointer 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.

```
Trash

To discard an item, eject a disk, or
remove a hard disk or shared disk
icon from your desktop, drag it to the
Trash. To permanently remove items
in the Trash, choose Empty Trash
from the Special menu.

                                    Trash
```

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, open the Guide menu again and choose Hide Balloons.
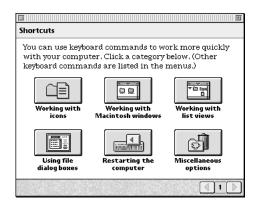
Learning useful shortcuts

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:
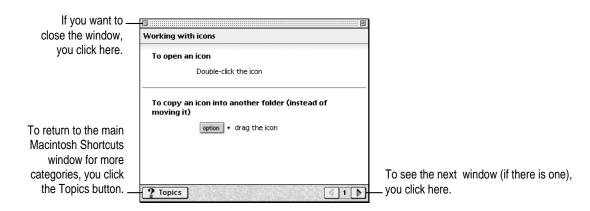
1   Open the Guide menu (marked with the ② icon) and choose Shortcuts.

The main Macintosh Shortcuts window appears.

2   Click one of the category buttons.

Another window appears, describing shortcuts for that category.

If you want to close the window, you click here.

To return to the main Macintosh Shortcuts window for more categories, you click the Topics button.

To see the next window (if there is one), you click here.

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

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

4 **When you finish reading about the shortcuts for your category, click the Topics button in the lower-left corner to return to the main Macintosh Shortcuts window. Or click the close box in the upper-left corner to close the window.**
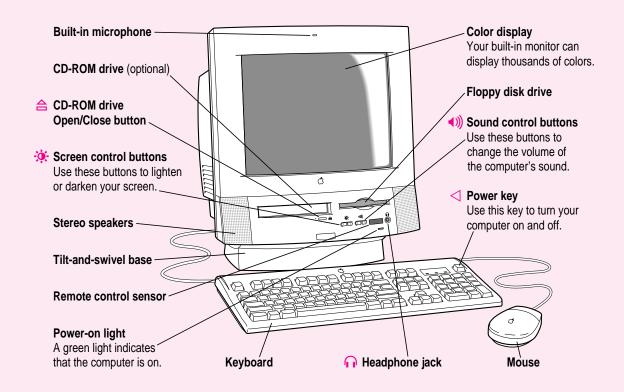
Read this chapter for information on expanding
your computer system with additional equipment
and using your computer's special features
(such as sound capabilities).

3 Expanding Your Computer and Using Its Special Features

The illustrations on the next pages show the basic computer system you now have and the ports and connectors you can use to expand your system's capabilities. Your computer has both external ports and internal slots in which you can install or attach additional hardware. Depending on the options your computer came with and the items you install later, you may be able to attach a printer; audio equipment such as a microphone, external speakers, or headphones; video equipment such as a second monitor, TV, or VCR; a scanner; or an external hard disk.
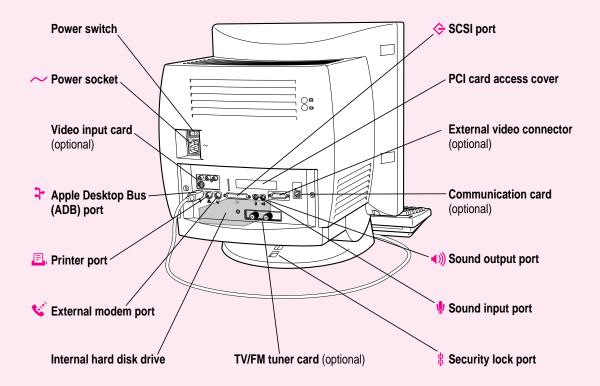
Items that go inside the computer can increase its capabilities and performance. Among these items are additional dynamic random-access memory (DRAM) in Dual Inline Memory Modules (DIMMs); a High Performance Module (Level 2 cache); and different kinds of expansion cards, such as PCI (peripheral component interconnect) and Ethernet cards. Instructions for installing these internal items are provided in Appendix B, "Installing Expansion Cards and Additional Memory." (Depending on your computer model, some of these items may already be installed for you.)

This chapter includes instructions for connecting some of the most popular types of additional equipment. It also tells you how to use some of the special features of your Macintosh such as sound control buttons, screen control buttons, and the built-in microphone.

Built-in microphone

CD-ROM drive (optional)

⏏ **CD-ROM drive Open/Close button**

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

Stereo speakers

Tilt-and-swivel base

Remote control sensor

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

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

Floppy disk drive

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

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

Keyboard

🎧 **Headphone jack**

Mouse

Your computer's ports and connectors

Headphone jack	🎧	Connects your Macintosh to standard headphones.
Video input card (optional)		Connects your Macintosh to a video camera, VCR, or other video equipment.
Apple Desktop Bus (ADB) port	⠿	Connects your Macintosh to an input device, such as a keyboard or a trackball.
Printer port	🖳	Connects your Macintosh to a printer, LocalTalk network, or GeoPort device, such as the GeoPort Telecom Adapter and the QuickTake 150 digital camera.
External modem port	☏	Connects an external modem or GeoPort device, such as the GeoPort Telecom Adapter, to your Macintosh.
SCSI port	⇦	Connects your Macintosh to SCSI equipment, such as external hard disk drives and scanners.
PCI card access cover		Covers port for optional Peripheral Component Interconnect (PCI) slot expansion card.

Power switch

～ Power socket

Video input card
(optional)

Apple Desktop Bus
(ADB) port

Printer port

External modem port

Internal hard disk drive

TV/FM tuner card (optional)

SCSI port

PCI card access cover

External video connector
(optional)

Communication card
(optional)

Sound output port

Sound input port

Security lock port
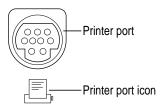
External video connector (optional)		Connects your Macintosh to a second monitor for video mirroring.
Communication card access cover		Covers slot for optional communication card or modem card. Most models of your computer come with a twisted pair (10Base-T) Ethernet card installed in this space.
Sound output port	◀))	Connects your Macintosh to sound output equipment, such as externally powered (amplified) speakers.
Sound input port	🎤	Connects your Macintosh to another audio source, such as a compact disc or audio cassette player.
Security lock port		Lets you attach a security lock to your Macintosh. See your computer products retailer for security lock devices that work with your computer.
TV/FM tuner card (optional)		Connects your Macintosh to an external TV antenna or cable TV service and FM radio antenna. If you want to install a TV/FM tuner card, purchase the Apple TV/FM Radio System or the Apple TV System.

WARNING Before you connect any equipment to your computer, make sure that your computer is plugged in (in order to ground the computer) and turned off. If you connect equipment with the computer turned on, you can damage your computer and your equipment. Also, each device you add should be compatible with your computer and must not exceed the maximum power allowance for that device. For more information consult an Apple-authorized dealer, the manufacturer of the equipment you add, or the *Technical Information* booklet that came with your computer.

Connecting a printer

Your computer has a printer port, which you use to connect a printer to your computer. Follow the instructions that came with your printer when connecting it to your computer.

Printer port

Printer port icon

Although you normally attach the cable that came with your printer to the printer port, you can attach the printer cable to your modem port instead if you already have a printer attached to your printer port.

Even if you have only one printer connected, you need to specify in the Chooser which port you used to connect your printer and choose the printer you want to use. For instructions on choosing a printer (including specifying the port to which it's connected), open the Guide (🔲) menu and choose Macintosh Guide (or Mac OS Guide). Then, click the Guide's Index button, and choose "printing" from the Guide's index.
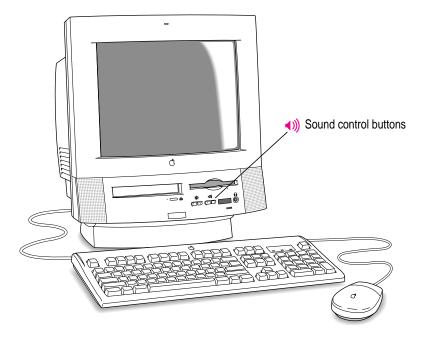
Using the sound control buttons on your computer

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

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

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

You can also use the Monitors & Sound control panel to adjust the sound or to turn **SRS(●)** 3D Surround Sound technology on or off. For more information, see the "Sound" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu.
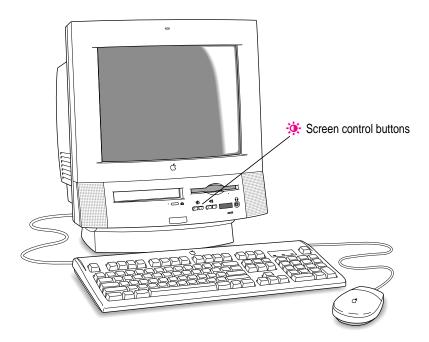
Note: Some applications take control of the sound functions of your computer, making the sound control buttons temporarily inactive (for example, you might not be able to press the sound button to increase the volume while you're playing a game). If you change the sound setting while your sound control buttons are inactive, the change will take effect after you quit the application.

◄)) Sound control buttons

Using the screen control buttons on your computer

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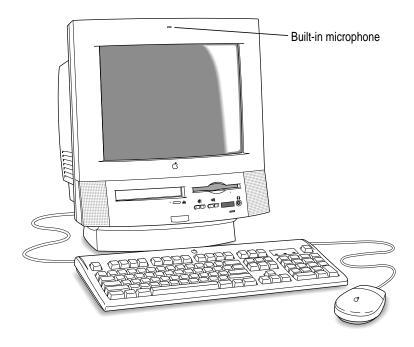
■ Press the button on the right to brighten your screen.

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

Screen control buttons

You can also use the Monitors & Sound control panel to control the level of light and dark on the screen or to change the screen resolution to show larger or smaller images. For more information, see the "Monitors" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (?) menu.

Using the built-in microphone

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

Built-in microphone

WARNING Do not stick any small objects into the built-in microphone. Doing so may damage your equipment.
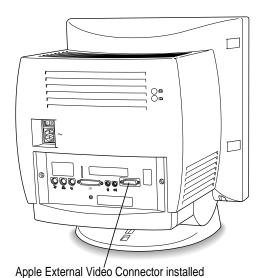
Using your computer's video features

Depending on the options that came with it (or options you install later), you can use your computer to display the computer's images on a second monitor or television. You may also be able to display, edit, and store video images from a video camera, video cassette recorder (VCR), or other video input equipment.

This section describes how to connect a second monitor to your computer for video mirroring or to increase screen space. For information about connecting video input equipment such as cameras or VCRs, refer to the manuals that came with your video input card (for example, the Apple Video System manual) and with your video equipment.

Connecting a second monitor for video mirroring

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

Apple External Video Connector installed

If your computer doesn't have the optional Apple external video connector, you need to purchase and install one if you want to connect a second monitor to your computer.

The second monitor must use the same resolution and timing as the built-in monitor. Depending on what type of monitor you have connected, you may need to change the first monitor's setting to one that the second monitor is capable of displaying.

For more information about the monitors that you can connect to your computer see the *Technical Information* booklet that came with your computer.

Connecting a second monitor to increase display space

If your built-in monitor doesn't provide enough screen space, you can install a PCI expansion card that provides a port for connecting a second monitor. (Unlike with video mirroring, the second monitor does not mimic what is displayed on the built-in monitor—instead, it gives you a larger continuous desktop area to display windows and other items.)

To connect a second monitor, purchase a video card and install it in the computer's PCI expansion slot, or have an Apple-authorized dealer install it for you. (If you are installing the expansion card yourself, follow the instructions that came with the card and the instructions in Appendix B of this manual.) Then plug the second monitor into the port provided by the card.

When you connect a second monitor, make sure that the ventilation openings on the computer and the monitors are clear and unobstructed.

If there is interference on your screens or on a television or radio near your computer, separate or reposition the affected equipment. For example, you may need to increase the distance between the built-in monitor and your second monitor so that they don't interfere with each other.

For additional instructions on using two monitors together, choose Macintosh Guide (or Mac OS Guide) from the Guide (🄂) menu after you have connected a second monitor to your computer; click the Guide's Index button, and select "monitors" in the list of index terms.

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.

SCSI port

SCSI icon

You can connect several SCSI devices to the SCSI port by linking them to create a chain of devices. 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. Each SCSI device connected to this chain must have its 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, be sure to complete the tasks explained in this section.

IMPORTANT This section contains general instructions for attaching SCSI devices to your computer. Be sure also to follow the specific instructions that came with your external hard disk drive or other SCSI device when connecting the device to your Macintosh. The specific instructions that came with the device tell how to change a device's ID number and attach a SCSI cable or terminator to the device.

Make sure each device has a unique ID number

Each SCSI device connected to your computer must have its own, unique ID number from 0 to 6. The SCSI ID number helps the computer keep track of the devices and sort out conflicts when more than one device in the SCSI chain is communicating with the computer simultaneously.

The ID numbers in your computer are assigned as follows:

ID	Device
3	Optional internal Apple CD-ROM drive
7	Main logic board

Make sure other SCSI devices you add to the chain do not use ID numbers that are already assigned. For example, if your computer came with an internal CD-ROM drive, don't use SCSI ID numbers 3 (which is assigned to the optional CD-ROM drive) or 7 (which is assigned to your computer's main logic board). See the instructions that came with each SCSI device for information on checking and setting its SCSI ID number.

IMPORTANT If you use two or more devices attached to the same SCSI interface with the same ID number, your equipment could malfunction and you could lose data as a result.
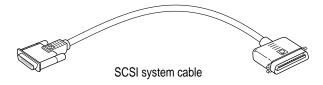
The SCSI devices can be in any physical order in the chain; it is not necessary to arrange them in numerical order.

Make sure you use the right type and length of cable
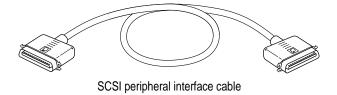
To attach a SCSI device to your computer or to another device in the chain, always use SCSI cables that are double-shielded, such as Apple SCSI cables. Never use printer-type RS232 cables (commonly used with DOS and Windows computers). Poor quality SCSI cables are often the cause of SCSI problems.

Avoid mixing brands, types, or styles of SCSI cables.

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

SCSI system cable

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

SCSI peripheral interface cable

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

Keep the cables between SCSI devices as short as possible. Cables 18 to 24 inches are best. PowerBooks and some SCSI devices (particularly scanners) may not work with cables longer than 24 inches.

Terminate the SCSI chain properly

To ensure accurate transmission of information, a terminator must be at each end of a SCSI chain. There is a built-in terminator at the beginning of the chain. You need to make sure that the last device in the chain has a terminator.

IMPORTANT In most cases, only the first and last devices in the SCSI chain should be terminated (but see the exceptions, below). Make sure that no external SCSI device other than the last one has a terminator.

Exceptions to the "first and last" rule: If the SCSI chain is 18 inches or shorter, the terminator on the last device is not needed. If the total cable length in the chain is greater than 10 feet, the chain may need a third terminator at the 10-foot point. Do not add the third terminator unless you are experiencing a SCSI problem, and check all other possible causes of the problem before adding the third terminator. (See the information on troubleshooting SCSI problems in Part II of this manual.)

To terminate the last device in the chain:

■ If your SCSI device has a built-in terminator, use it as the last device in the chain.

   If you wish to attach two or more SCSI devices that have built-in terminators, an Apple-authorized service provider can remove the extra built-in terminators.

■ If the device at the end of the SCSI chain does not have a built-in terminator, attach an external terminator. You can attach or remove external terminators yourself. (Do not use a black terminator; the black terminators are for Macintosh IIfx computers and certain LaserWriter printers.)

External SCSI terminator

Connecting a SCSI device

Be sure to read the previous section, "Before You Connect a Device," before following the instructions here. Use these general instructions in conjunction with the instructions that came with your SCSI device:

1   Shut down your computer.

2   Make sure the SCSI device is switched off.

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

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

Use the thumbscrews and metal clips on the connectors to create a tight, reliable connection.

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 computer before turning on the computer itself. Otherwise, your computer won't be able to recognize that the SCSI devices are connected to it and your computer may not be able to start up.

Even if you don't plan to use a device, you must still turn it on to ensure that signals pass properly along the SCSI chain.

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

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

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

Replacing internal storage devices

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

4 Installing and Using Application Programs

Applications that come with your computer are stored in the Apple Extras folder on your hard disk and in the CD Extras folder on the system software CD that came with your computer. Some of the applications that come with your computer include the following:

- *AppleScript,* which allows you to automate actions you perform repeatedly in the Finder. Instructions for using AppleScript are included in the AppleScript folder in the Apple Extras folder.

- *Apple Video Player,* which you use to watch video or TV on your computer, and Apple FM Radio, which you use to listen to FM radio on your computer if you also have the video input and TV/FM tuner cards installed. Your computer has these cards installed if you find the Apple Video System or Apple TV/FM System manuals in the box that came with it. If you don't have these cards installed, you can purchase them from an Apple-authorized dealer.

- *AppleCD Audio Player,* which allows you to play and control audio CD-ROM discs in your computer's CD-ROM drive.

- *SimpleText,* which allows you to create text documents. With your computer's built-in text-to-speech capabilities, you can have your computer speak the text in your SimpleText document aloud.

To find out if an application needs to be installed, look inside its folder for an icon labeled Installer. If you find an Installer icon and want to use that application, double-click the Installer and follow the instructions on the screen. Most application folders also contain Read Me files that provide additional information about the application. To read the contents of a Read Me file, double-click its icon.

Your computer's system software includes additional applications that provide special features or enhanced capabilities for your computer. Included among the system software applications are the following:

- PC Exchange, which lets you work with DOS and Windows disks as if they were Macintosh disks

- QuickDraw 3D, which gives your computer the ability to display graphics in three dimensions

- PlainTalk, which allows your computer to understand spoken commands in English and Mexican Spanish

Installing application programs

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

To use your applications most effectively, follow these guidelines:

- Read the manuals you received with the application if you have a problem.

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

- Whenever you copy an application from its disk to your hard disk, be careful not to copy a System Folder.

- If an application malfunctions consistently, try installing a fresh copy. If that doesn't help, find out from the software manufacturer whether your version of the application is compatible with your computer model and your system software.

Installing applications 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.

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

For instructions on how to eject a floppy disk, see the "Disks" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu.

Note: Be sure you're acting within the terms of the software license agreement that comes with your application program before you install the application on your computer. The license agreement specifies how many copies of the application you can make for yourself and others.

Installing applications from a CD-ROM disc

To install an application program on your internal hard disk from a CD-ROM disc, insert and open the CD-ROM disc. Then look for a ReadMe file or follow the instructions that came with the disc to install the application. (For instructions on using a CD-ROM disc, see "Inserting a CD-ROM Disc or Other CD" in Chapter 1 and the "CD-ROM Discs" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu.)
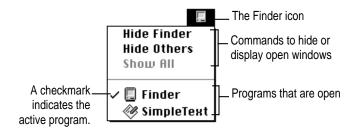
IMPORTANT Never copy an entire CD-ROM disc to your hard disk by dragging the CD-ROM disc icon to your hard disk. If you do, you may inadvertently copy duplicate system software files onto your hard disk and take up hard disk space with unnecessary files.

Note: Many applications that come on CD-ROM discs require you to have the CD-ROM disc in the drive whenever you use the application even though you've installed the application on your computer's hard disk and opened the copy on the hard disk.

Working with several applications at a time

You can open as many application programs and desk accessories (mini-applications that you usually open through the Apple menu) as your computer's memory allows.

All open applications are listed in the Application menu at the right end of the menu bar. You can find out which application is active and which other applications are open by opening the Application menu. The name of the active application (the one currently in use) has a checkmark next to it, and its icon appears in the menu bar.

The Finder icon

Hide Finder
Hide Others — Commands to hide or
Show All   display open windows

A checkmark
indicates the — ✓ 📄 Finder — Programs that are open
active program.   ✍ SimpleText

Switching applications

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

If an application's icon is dimmed in the Application menu, that means its windows are hidden. You can still choose the application from the menu, however, to display the application's windows.

You can also switch to another application by clicking in a window that belongs to the other application or by by double-clicking its icon.

Hiding and showing windows on the desktop

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

The other applications remain open even though their windows are hidden. When you switch to another application 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

You can increase the memory available to run your application programs by changing virtual memory settings.

Virtual memory uses space on your computer's hard disk to create extra random-access memory (RAM) to run your applications. Virtual memory allows your computer to run more applications at the same time, and to have more windows open at the same time, but it can result in slightly slower performance. Also, some application programs may not perform optimally when virtual memory is turned on.

To turn virtual memory on or off, use the Memory control panel. See the "Memory" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (2) menu for more information.

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

Backing up your files

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.

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 you need to copy a file onto a floppy disk and it is too large to fit onto a single floppy disk, you can use a commercial backup application to copy the file onto multiple floppy disks.

- You can use a commercial backup application 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.

Tip: A good way to remember where you have stored documents is to print a summary of the items you've stored in a folder. For instructions on printing the contents of a folder, see the "Printing" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (2) menu.

Using Power Macintosh application programs

Your Power Macintosh is compatible with most application programs intended for use with Macintosh computers, but certain applications are designed especially for Power Macintosh computers. These applications are sometimes called "native" applications and they take best advantage of your computer's speed.

Special memory requirements

Some Power Macintosh applications may be slightly larger than other applications and may take up more memory. If you find that you are running out of memory when you use your Power Macintosh applications, 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" earlier in this chapter, and the "Memory" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (🕮) menu.
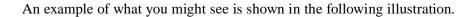
You can also add more memory to your computer, as described in Appendix B, "Installing Expansion Cards and Additional Memory."
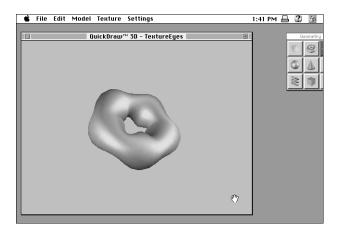
Using older Macintosh applications

If you experience problems using an older Macintosh application, it may be incompatible with your Power Macintosh. You may be able to use your older application if you turn off Modern Memory Manager. To do this, open the Apple (🍎) menu, choose Control Panels, and open the Memory control panel. Then turn off Modern Memory Manager.

Using special 3D software

The special design of your computer's logic board allows it to take advantage of QuickDraw 3D, which is a capability built into some applications to enhance their 3D graphics. Because of this hardware specialty, called "3D Acceleration," your computer can give especially high-quality clarity and textures, as well as increased speed when you use QuickDraw 3D-supported applications.

An example of what you might see is shown in the following illustration.

If you may want to purchase 3D-supported software, see your Apple-authorized dealer.

IMPORTANT For best video performance, Apple recommends setting your monitor at a resolution of 640 x 480 and a color depth of 16 bits when running 3D graphics. For more information about setting your monitor's resolution, see Macintosh Guide (or Mac OS Guide) in the Guide (☻) menu.

Removing software

If you have previously installed some or all of the software in the Apple Extras or CD Extras folder, you can remove or deinstall the software if you do not use it. Removing software like this will make more hard disk space available.

To remove software, follow these steps:

1   Start up your computer from the system software CD-ROM disc that came with your computer.

For detailed steps, see "Starting Up From a CD-ROM Disc" in Chapter 8.

2   Open the Apple Extras folder on the hard disk or the CD Extras folder on the CD-ROM disc.

3   Open the folder for the software you want to remove.

4   Double-click the Installer icon to open the Installer application.

5   If the Installer's Welcome screen appears, click OK.

The Easy Install dialog box appears.

6   Choose Custom Remove from the pop-up menu.

```
══════════════════════ Install
  ✓Easy Install
   Custom Install
   Custom Remove
                    ▶
```

The Custom Remove dialog box appears, listing the software components that can be removed.

7   **Scroll through the list of components, clicking the checkbox next to each component you want to remove.**

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

8   **Click Remove.**

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

10   **When you see a message reporting that the removal was successful, click Quit.**

11   **Restart your computer.**

The software is removed and your computer is ready to use. If you want to remove more software, you can repeat the steps in this section.

Read this chapter for information about
the equipment you need to get online,
such as modems and ISDN.

5 Connecting Your Computer to a Telephone Line

A world of information is now available online. By connecting your computer to a telephone line (commonly referred to as "going online"), you can access the Internet, send and receive electronic mail (e-mail) and faxes, and connect to online services like America Online and CompuServe. You can also use a telephone line to access another Macintosh or an entire AppleTalk network from a remote Macintosh computer. (For example, you can telecommute by accessing a company computer network from a remote location, such as a home office.)

To get online using a telephone line, you need special equipment and software. This chapter provides a brief introduction to the equipment you need. (It's also possible to get online through a network connection, if the network includes the right equipment.) For information about the software you need to perform online tasks, see Chapter 7, "Using an Online Service or the Internet."

Types of equipment

There are three types of equipment you can use to get online: a modem, an ISDN line, and shared telecommunications equipment on your network.

Modem: A modem may be the most common way to connect a computer to a phone line, particularly if you are using your computer at home. A modem works with standard analog telephone lines. To add a modem to your computer, you can install a modem card in your computer's communication slot or connect an external modem. For more information about modems, see the next section, "Choosing and Connecting a Modem."

ISDN line: An Integrated Services Digital Network (ISDN) line is a special digital phone line that is about four times faster than the fastest modem used over a standard analog telephone line. However, an ISDN line typically costs more than regular phone service and may not be available in your community. For more information about ISDN, see "Connecting to an ISDN Line" later in this chapter.

Shared Telecommunications Equipment on Your Network: Many models of your computer come with an Ethernet card, allowing you to connect to a network. If your computer is part of a network, there may be shared communications equipment available that will allow you (or anyone else on your network) to get online. Contact your computer network administrator for more information. You can also find general information about networks in Chapter 6, "Connecting Your Computer to a Network."

Choosing and connecting a modem

A modem is a piece of equipment that turns the data from your computer into information that can be transmitted over telephone lines. The modem enables your computer to send and receive telephone calls, connect to the Internet, access online services, and communicate with other computer users. Some modems also allow you to transmit documents on your computer to fax machines as well as receive faxes as documents that you can view on screen or print.

To add a modem to your computer, you can install an internal modem card in the communication slot of your computer, or, if the communication slot is already filled with a network card, you can connect an external modem (a separate piece of equipment that sits outside the computer case and connects to it with a cable).

Keep in mind that when your phone and a modem share a single phone line, you will not be able to use both at the same time, even if they are attached to separate phone jacks. While you use a modem, outside callers get a busy signal and you cannot call out. Conversely, when you use your phone, you cannot use the modem. (If you miss phone calls because you often use your modem, you may want to get a second phone line installed or get a phone company message service which, unlike an answering machine, will record messages even when your phone is off the hook or you are online.)

Also keep in mind that long distance charges accrue when your modem dials long-distance numbers. In most cases, an online service or an Internet service provider will have a local access phone number so that long distance charges do not apply.

Choosing a modem

When selecting a modem, look for one with a high speed of data transfer, a compatible modem cable (if the modem is external), and good bundled software. Remember, if your communications slot is already filled with a network card (many models of your computer come with an Ethernet card in this slot), you'll want to look for an external modem rather than a modem card.

Modem speed

The modem speed determines how fast a modem can *download*, or transfer data from a remote location to your computer. Be sure to purchase the fastest modem that you can afford, particularly if you plan to connect to the World Wide Web. Many Web pages contain graphics, video, and sound content that will take longer to download with a slower modem.

The speed of a modem is specified in kilobits per second (kbps) or bits per second (bps). Faster modems transfer data to and from your computer more quickly than slower ones. The following table describes the current modem speeds that are available.

Modem speed	Usage
33,600 bps (33.6 kbps)	The fastest modem available (as of this writing) for use with standard analog telephone lines. Suitable for World Wide Web use.
28,800 bps (28.8 kbps)	Slightly slower than a 33.6 kbps modem, but still very suitable for World Wide Web use.
14,400 bps (14.4 kbps)	Only half as fast as a 28.8 kbps modem. May be acceptable for text-oriented applications such as e-mail or terminal emulation.
9600, 4800, and 2400 bps	Too slow for most purposes.

Modem cables (for external modems)

If you purchase an external modem that is designed for use with a Macintosh, it will probably include a Macintosh-compatible modem cable. If you have to purchase a cable separately, make sure it supports *hardware handshaking,* a protocol that controls the flow of data between computers. Also, check to make sure the cable has a rounded connector that will fit the modem port on the back of your computer (labeled with a ✆ icon). A cable designed for use with a Windows- or DOS-compatible computer won't work with your Macintosh.

Bundled software

Many modems include bundled software, such as fax software, a terminal emulation program, and free trial membership software for online services. If you can't decide between two comparably priced modems, pick the one that comes with the best bundled software.

Connecting a modem

To connect an external modem, follow the instructions in the manuals that came with your modem. To install and connect an internal modem card, follow the instructions in Appendix B of this manual for installing communication cards as well as the instructions in the manual that came with the card.

Note: Some modems have a single phone jack, while others have two. If your modem has 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 internal modem into the same jack at the same time. (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 When connecting a modem, make sure you connect the modem to an analog phone line—the kind used typically in homes. Connecting to an ISDN line could damage the modem.

IMPORTANT Disconnect your modem from the phone jack during lightning storms. This will prevent a destructive voltage overload from damaging the modem.

Setting up your modem to connect online

Once you have installed and connected your modem, you need to configure the connection so the modem can contact your network or Internet service provider (ISP). The Apple Internet Connection Kit that came on the system software CD-ROM disc can be used to set up your modem connection. Your network administrator or ISP can provide more information about what settings to use to configure your connection. Refer to Chapter 7, "Using an Online Service or the Internet," for more information about getting your computer online.

Connecting to an ISDN line

If you have a home office, telecommute frequently, or routinely need to send and receive large files, then a 28.8- or 33.6-kbps modem may not be fast enough for your needs. For faster performance, you may want to consider connecting your computer to an Integrated Services Digital Network (ISDN) digital telephone line, which can transfer data at 128 kbps, nearly 4.5 times faster than a 28.8 kbps modem.

ISDN lines are available to most but not all residential and business telephone customers. Check with your local phone company to see if ISDN service is available at your location.

There are fixed monthly charges and per-minute usage fees for ISDN, just like regular phone service. Typically, ISDN costs more than regular phone service, but it is still affordable for many business and residential purposes. Because one ISDN line can support several devices simultaneously—such as a computer, voice phone, and fax machine—you may be able to replace existing extra phone lines with one ISDN line.

Note: Because an ISDN line requires a power source at your location, a phone attached to an ISDN line will not work during a power outage. For emergency use, you should strongly consider keeping your regular analog phone line, which receives power from the phone company.

Setting up an ISDN line

If you're interested in setting up an ISDN line, first contact your local phone company to see if ISDN service is available at your location. Your phone company can also provide specific information about monthly charges and usage fees. (Your phone company may also charge an installation fee, which may be waived or refunded if you agree to keep the ISDN line for a specified amount of time.)

In addition, you also need to purchase and configure an ISDN terminal adapter, which connects to the external modem port on your Macintosh and to the ISDN line. (ISDN terminal adapters are often called "ISDN modems" because they are somewhat similar to modems.)

Some ISDN terminal adapter models may be difficult to configure with the network configuration of your employer or internet service provider. Work closely with your computer network administrator or internet service provider to make sure you purchase a compatible ISDN terminal adapter.

Read this chapter for information about
connecting to other computers
in a local area network.

6 Connecting Your Computer to a Network

Any group of computers and other devices connected in order to communicate with each other constitutes a network. Some networks connect all their computers by a particular type of cable. Such networks are called local area networks (LANs). LANs can be as simple as two computers connected together or as complex as a business's in-house computer network. Sometimes groups of networks connect to form a larger network, such as the Internet. This is called a wide area network (WAN). This chapter discusses several types of LANs to which you can connect your computer.

Connecting to a network expands the features of your computer by giving you access to the services and resources provided on the network. For example, your computer by itself lets you store, retrieve, and modify information on floppy disks, hard disks, and CD-ROM discs. When your computer is connected to a network, however, you can also store and retrieve information on the hard disks and CD-ROM discs of other computers, use electronic mail, and share computing resources such as printers, modems, and network services.

You can get much of the specific information about the network you want to connect to from the *network administrator*—the person who oversees the network's operation. Before you begin connecting to a network, contact its network administrator.

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.

- **Ethernet** To connect to a high-speed Ethernet network, you need an Ethernet card installed in the communication or PCI (peripheral component interconnect) slot in your computer. Many models come with a 10Base-T (twisted pair) Ethernet card already installed in the communication slot.

- **Alternative networks such as Token Ring, ISDN, or Fiber Distributed Data Interface (FDDI)** To connect to any of these networks, you need to install a PCI card for the specific type of network you want to connect to in one of the PCI slots in your computer.

This chapter describes how to connect to and configure your computer on LocalTalk and Ethernet networks. For other network-related information, refer to the appropriate information source

- If your computer is already connected to a network, refer to Macintosh Guide (or Mac OS Guide), available in the Guide (②) menu, for information about printing to a networked printer, accessing information on file servers, and sharing files on your computer with other users. Also, your network administrator can provide information about network software that may be available, such as Internet access and electronic mail.

- If your location does not currently have a network and you are interested in setting one up, refer to a book on Macintosh networking that will help you select and plan a network appropriate for your organization. Many helpful books are available at computer bookstores.
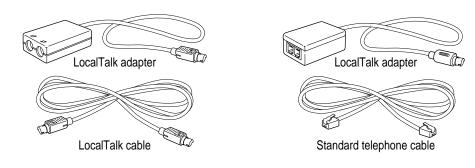
Note: With a modem, you can connect to the Internet and other online services. However, with an Ethernet card or LocalTalk connection (described in this chapter), you can also connect your computer to other computers or servers in a local area network. You may also be able to reach the Internet if you connect to a network that has an Internet link. (By the way, access to the Internet over a network may be noticeably faster than access by a modem. For information on using your modem, see Chapter 5.)

Connecting to a LocalTalk Network

To connect your Macintosh to a LocalTalk network, you will need LocalTalk cables and a LocalTalk adapter. In most cases, the Apple LocalTalk Locking Connector Kit DIN-8, available from your Apple-authorized dealer, contains the components you need to connect your Macintosh to an existing LocalTalk network. If your network uses standard telephone cables for your network wiring, obtain an Apple LocalTalk RJ-ll Connector instead.
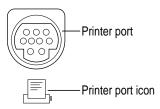
Apple LocalTalk Locking Connector Kit DIN-8   Apple LocalTalk RJ-11 Connector

LocalTalk adapter   LocalTalk adapter

LocalTalk cable   Standard telephone cable

To connect your Macintosh to a LocalTalk network, do the following:

1 Shut down your computer.

2 Attach the LocalTalk adapter to the printer port or modem port on your computer.

Printer port

Printer port icon
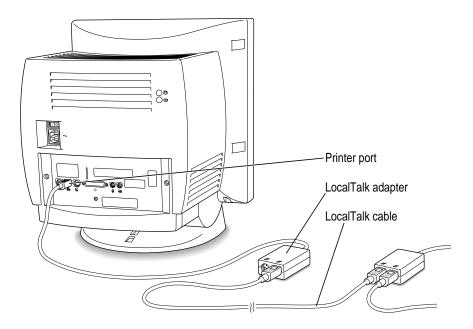
3 Attach a network cable between the LocalTalk adapter connected to your computer and a LocalTalk adapter on your existing network.

IMPORTANT While connecting to the middle of the network you may interrupt other users. Check with your network administrator before you connect.

If you connect to the last computer in the network, you need to attach a network terminator to your LocalTalk adapter.

If you are using the Apple LocalTalk Locking Connector Kit DIN-8, use the LocalTalk cable that comes with the kit to connect to a network with LocalTalk cables. If you are using the Apple LocalTalk RJ-11 Connector, use a standard telephone cable with RJ-11 connectors.

Printer port

LocalTalk adapter

LocalTalk cable

4   Configure your LocalTalk connection following the advice of your network administrator and the instructions in "Configuring Your Network Connection," later in this chapter.

Connecting to an Ethernet network

What is "Ethernet"? It's a cabling scheme that lets your computer communicate with other computers much faster than it can with LocalTalk cables. To connect your computer to an Ethernet network, you need to do the following:

- Find out from your network administrator what kind of Ethernet network you're connecting to.

- If your computer did not come with the appropriate Ethernet card already installed, buy and install the right kind of Ethernet card and cable. See "Choosing an Ethernet Card," next in this chapter. See Appendix B for instructions on installing cards in your computer.

- Connect the card to the network. See the instructions later in this chapter for connecting the card to the type of Ethernet network you have.

- Configure the network connection. See the instructions in "Configuring Your Network Connection" later in this chapter.

Choosing an Ethernet card

Many models of your computer come with an Ethernet card already installed If your computer didn't include an Ethernet card and you decide to add one, there are two factors that affect what kind of Ethernet card you should purchase for your computer—where the card will be installed in your computer and what kind of network you'll be connecting to. Depending on the type of card you install, you may also need an appropriate media adapter.

Where to install the card

Some kinds of Ethernet cards fit into the computer's communication slot; however, so do internal modem cards. If you install an internal modem card in the communication slot but you also want to connect to an Ethernet network, purchase an Ethernet card that instead uses the computer's PCI (peripheral component interconnect) slot.

WARNING Do not connect cables to the back of your computer when the power is on or you may damage your system.

■ If your Ethernet card uses a PCI slot, follow the instructions in "Installing a PCI Card" in the section "Installing an Expansion Card" in Appendix B, and the instructions that came with the card.

■ If your Ethernet card (the card is often referred to as an Apple Ethernet Comm II card) uses the communication slot, follow the instructions in "Installing a Communication Card" in the section "Installing an Expansion Card" in Appendix B and the instructions that came with the card.

Network type

Find out what kind of network you will be connecting to (your network administrator should be able to provide this information). Depending on the kind of network, you will have to choose among cards that use one of these types of cables:

■ thin or thick coaxial (or "coax") cable, also called 10Base-2

■ 10Base-T (twisted pair) cable

■ fiber-optic media or other standard Ethernet cable

So for example, if you know that your Ethernet network uses 10Base-T cables, and you want to use your communication slot for a modem card, you would purchase a 10Base-T Ethernet card that fits in a PCI slot.

Media adapters

You can connect *directly* to an Ethernet network using a 10Base-T twisted-pair cable. However, to connect your computer to an Ethernet network using coaxial cables, you need one of the following Ethernet media adapters:

- Apple Ethernet Thin Coax Transceiver
- Apple Ethernet AUI Adapter

See your Apple-authorized dealer for more information on Apple Ethernet media adapters.
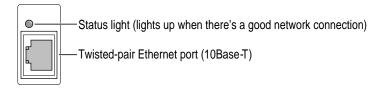
Connecting to a twisted-pair Ethernet network

Follow this procedure to connect your Macintosh to an Ethernet network that uses a twisted-pair cable. (You can't connect to an Ethernet network unless you have an Ethernet card installed. If your computer didn't come with an Ethernet card already installed, see the information at the beginning of this section, "Connecting to an Ethernet Network.") You need a twisted-pair patch cord with an RJ-45 telephone-style connector, which you plug into a wall plate connected to the existing 10Base-T Ethernet network.
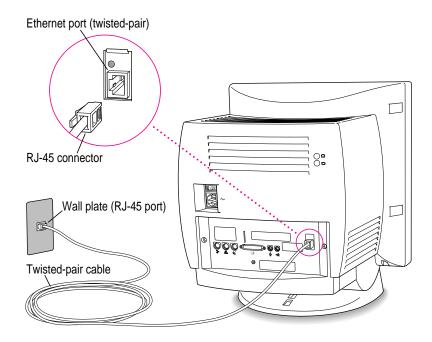
IMPORTANT Be careful not to plug a regular telephone cable into your RJ-45 connector. Although it works very differently, an RJ-45 connector looks very similar to a standard telephone cable. Also, the connectors at the ends of the cables will fit into both telephone and twisted-pair Ethernet ports. Make sure you are using an RJ-45 connector cable.

To connect your Macintosh to a twisted-pair Ethernet network, follow these instructions:

1 **Shut down your computer.**

2 **Plug one end of the twisted-pair patch cord into the 10Base-T Ethernet port on the Ethernet card in your Macintosh.**

Status light (lights up when there's a good network connection)

Twisted-pair Ethernet port (10Base-T)

3 **Plug the other end of the twisted-pair patch cord into an RJ-45 wall outlet that is connected to a twisted-pair Ethernet network.**

Ethernet port (twisted-pair)

RJ-45 connector

Wall plate (RJ-45 port)

Twisted-pair cable

4 **Configure your network connection following the advice of your network administrator and the instructions in "Configuring Your Network Connection," later in this chapter.**
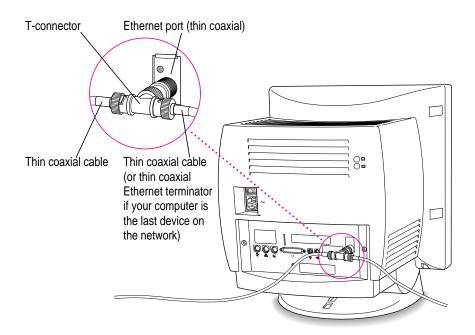
Connecting to a thin coaxial Ethernet network

Follow this procedure to connect your Macintosh to an Ethernet network that uses thin coaxial cable. The hardware connection requires a thin coaxial Ethernet card and cable.
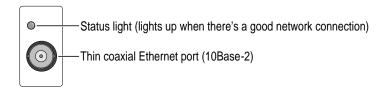
IMPORTANT You can connect your Macintosh anywhere on the network; however, to do so requires that you temporarily disconnect the network, which could disrupt existing network services and other people using the network. Consult your network administrator before connecting your computer to the network.

To connect your Macintosh to a thin coaxial network, follow these instructions:

1 **Shut down your Macintosh.**

2 **Attach one end of a thin coaxial cable to the last thin coaxial transceiver on the network.**

3 **Attach the other end of the thin coaxial cable to the T-connector.**

T-connector   Ethernet port (thin coaxial)

Thin coaxial cable   Thin coaxial cable
                      (or thin coaxial
                      Ethernet terminator
                      if your computer is
                      the last device on
                      the network)

4   **Plug the T-connector on the transceiver into the thin coaxial (10Base-2) port on the Ethernet card in your Macintosh.**

Status light (lights up when there's a good network connection)

Thin coaxial Ethernet port (10Base-2)

IMPORTANT A thin coaxial network must be terminated at its endpoints to function. If your computer is the last one in the network, it must have a terminator installed on the other side of the T-connector. Check the documentation that came with the network card.

5   **Configure your network connection following the advice of your network administrator and the instructions in "Configuring Your Network Connection," later in this chapter.**
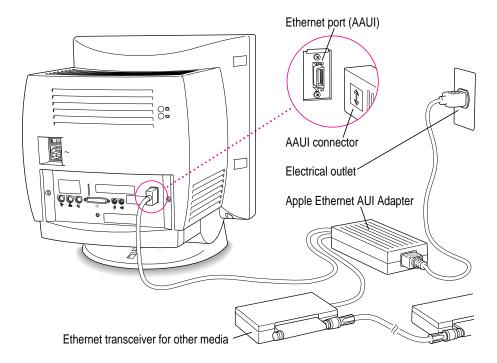
Connecting to other types of Ethernet network

The Apple Ethernet AUI Adapter is a universal adapter that lets you connect your computer to less-common types of industry-standard Ethernet media, such as thick coaxial or fiber-optic cable. If you are using the Apple Ethernet AUI Adapter, you also need an Ethernet transceiver for your specific media type; the transceiver must have a standard AUI port on it.
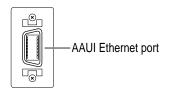
To connect your computer to an Ethernet transceiver for other types of Ethernet media, follow these instructions:

1   **Shut down your computer.**

2   **Connect the Ethernet transceiver to the network following the instructions that came with the transceiver.**

3 **Plug the transceiver cable from the Ethernet transceiver into the standard AUI port on the Apple Ethernet AUI Adapter.**

Ethernet port (AAUI)

AAUI connector

Electrical outlet

Apple Ethernet AUI Adapter

Ethernet transceiver for other media

4 **Plug the adapter's power cord into an electrical power outlet.**

5 **Plug the connector on the Apple Ethernet AUI Adapter into the AAUI Ethernet port on your Macintosh.**

AAUI Ethernet port

6 **Configure your network connection following the advice of your network administrator and the instructions in "Configuring Your Network Connection," later in this chapter.**

Configuring your network connection

After you physically connect your computer to a LocalTalk or Ethernet network, you need to configure your network connection in the AppleTalk control panel, the TCP/IP control panel, or both.

■ You use the AppleTalk control panel to set up your connection to an AppleTalk network (that is, a network using the AppleTalk protocol).

■ You use the TCP/IP control panel to set up your connection to the Internet and to a TCP/IP network. (TCP/IP stands for Transmission Control Protocol/Internet Protocol. It is the set of data communication rules followed by networks to communicate with each other on the Internet.)

You may need additional information about the network to which your computer is connected, or about the service through which your computer is connected to the Internet. To get this information, you may need to contact your network administrator or your Internet service provider (ISP).

Configuring your AppleTalk network connection
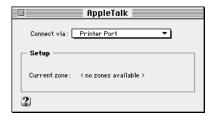
To configure your AppleTalk network connection, you must specify the port you use to connect your computer to the network.

Additionally, you may need to select the zone in which your computer is located. Larger networks use zones to create groups of computers, printers, servers, and other network devices. For example, a network might have a zone for each floor in an office building. If your network has more than one zone, you can choose the zone in which your computer is located. The zone you choose is automatically selected in the Chooser (for example, when you select a network printer) and it is the zone in which other network users can find your computer if you turn on file sharing.

To configure your AppleTalk network connection, follow these steps:

1   Choose Control Panels from the Apple menu.

2   Double-click the AppleTalk icon to open it.

The AppleTalk control panel opens.

3   Move the pointer to the "Connect via" pop-up menu (if available), press and hold down the mouse button to open the menu, and choose the port through which your computer is connected to the network.

You can connect to an AppleTalk network through an Ethernet port, the printer port, the modem port, or any other ports available on expansion cards installed in your computer. (Any additional ports appear automatically in this pop-up menu.)

Note: If you don't see a pop-up menu here, this setting has been locked. Contact your network administrator for assistance. (If you don't have a network administrator, you can use the Administration user mode to unlock this setting. For more information about user modes, click the ⍰ button in the AppleTalk control panel.)

4   Use the Current Zone pop-up menu (if available) to choose the zone you want.

If you don't see a pop-up menu here, either your network has no zone, this setting has been locked, or your network is not set up to allow you to choose a zone. Zones are set up by the network administrator.

5   Click the close box to close the AppleTalk control panel.

If you have made configuration changes, an alert box asks if you want to save them.

If you have changed the port, an alert box also tells you that the change will interrupt any AppleTalk services that are established. This means that your network services, such as printers and e-mail, may be temporarily unavailable, and you may have to choose a printer and connect to your e-mail service again after saving changes.

6   To save your changes, click the Save button.

Your changes take effect immediately; you do not have to restart your computer.

Getting more information about the AppleTalk control panel

Macintosh Guide (or Mac OS Guide) contains information about additional capabilities available in the AppleTalk control panel, such as

- using configurations, a way to save different AppleTalk settings and switch among them as desired—for example, if you use your computer with more than one network

- using the User Mode command to change the availability of settings in the AppleTalk control panel

- turning AppleTalk off in order to save RAM in your computer when you are not using an AppleTalk network

For more information about these capabilities, click the ? button in the AppleTalk control panel.

Configuring your TCP/IP network connection

You must properly set up the TCP/IP control panel if your computer is connected to a network that uses TCP/IP standards, such as the Internet.

TCP/IP (Transmission Control Protocol/Internet Protocol) is a set of rules that are applied to data sent and received on the Internet. The rules standardize how data is communicated so that many different kinds of computers can recognize it. TCP/IP protocols can be used with many different types of network equipment and connections. If you don't know whether your network uses TCP/IP, contact your network administrator.

To set up your TCP/IP network connection, you must specify the port you use to connect your computer to the network. TCP/IP networks also require information about your computer's network address. You must enter that information in the TCP/IP control panel, or specify a server on which the information can be found. To get this information, check with your network administrator or Internet service provider.

Before you begin

To properly configure your connection, you need to have information about all the elements involved. Among these are the types of servers used on the network, your Internet Protocol (IP) address, and your subnet mask. Your Internet service provider or network administrator can give you the information you need in order to set up your connection.

Setting up
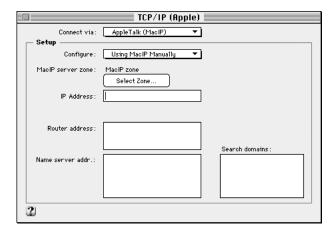
To set up your TCP/IP network connection, follow these steps:

1 **Choose Control Panels from the Apple () menu.**

The Control Panels window opens.

2   Double-click the TCP/IP icon to open it.

The TCP/IP control panel opens.
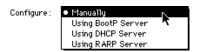
3   Use the "Connect via" pop-up menu to choose the port through which your computer is connected to the network.

Note: If you don't see the pop-up menu or other settings described in this section, the TCP/IP configuration may have been locked. Contact your network administrator for assistance. (If you don't have a network administrator, you can use the Administration user mode to unlock this setting. For more information about user modes in the TCP/IP control panel, click the ⍰ button)

4 **Use the Configure pop-up menu to choose a configuration method.**

If you are connected using Ethernet, the pop-up menu looks like this

Configure:
- Manually
  Using BootP Server
  Using DHCP Server
  Using RARP Server

If you are connected using AppleTalk (MacIP), the pop-up menu looks like this:

Configure:
- Using MacIP Manually
  Using MacIP Server

5 **What to do in this step depends on whether you are configuring your network manually or automatically.**

- If you are configuring your network connection manually, type the information provided by your network administrator or Internet service provider into the appropriate boxes.

  You must specify an IP address. You may also need to enter a subnet mask number, router address, and other information.

- If your network configuration will be provided automatically by a server, do one of the following:

  - If you are using a BootP server or DHCP server, skip to step 6. The server usually provides all the configuration information needed by TCP/IP.

  - If you are using a RARP server, you may need to type additional information provided by your network administrator or Internet service provider into the appropriate boxes. If so, enter the information now.

  - If you are using a MacIP server, click Select Zone. In the dialog box that appears, choose the zone that contains the MacIP server you want to use and then click OK. (Additionally, if you are connecting with Apple Remote Access [ARA] you must open a connection before you can select a zone.)

6   **Click the close box to close the TCP/IP control panel.**

If you have made configuration changes, an alert box asks if you want to save them. If you have changed the port, an alert box also tells you that the change will interrupt any connections to TCP/IP services. For example, you may have to quit and reopen a Web browser or e-mail software after saving changes.

7   **To save your changes, click the Save button.**

Your changes take effect immediately; you do not have to restart your computer.

Getting more information about the TCP/IP control panel

Macintosh Guide (or Mac OS Guide) contains information about additional capabilities available in the TCP/IP control panel, such as:

- using configurations, a way to save different TCP/IP settings and switch among them as desired
- using the User Mode command to determine the availability of settings in the TCP/IP control panel
- turning TCP/IP off to save RAM when you are not using a TCP/IP-based network

For more information about these capabilities, click the ⍰ button in the TCP/IP control panel.

Read this chapter for information
about the Internet and online
service software that is included
with your computer.

7 Using an Online Service or the Internet

You can use your Macintosh to join the fastest growing organization on earth: the online community. By connecting your computer to an online service or the Internet, you can exchange electronic mail ("e-mail") messages, gather information on topics of interest, participate in discussion groups, download software, and use many other services.

Your Macintosh computer includes software that you can use to connect to an online service or the Internet. This chapter describes the software and provides a brief introduction to the information and services that are available online.

In addition to the included software, you need special equipment, such as a modem, to get online. For more information about the equipment you need, see Chapter 6, "Connecting Your Computer to a Telephone Line."

Connection software

Your Macintosh comes with two types of software that you can use to get online: America Online and the Apple Internet Connection Kit. Although both of these provide Internet access, they have different features; you can use the one that best addresses your needs.

America Online

America Online (AOL) is an online service; in addition to giving you access to the Internet, America Online provides exclusive information services not available on the Internet. AOL is also very easy to use, and may be the best choice if you have never used an online service or the Internet before. For more information about AOL, see its folder on your hard disk or on the CD that came with your computer.

Apple Internet Connection Kit

The Apple Internet Connection Kit is a collection of Apple and third-party software that lets you connect to the Internet quickly and easily. The kit includes the Netscape Navigator web browser, Claris Emailer Lite e-mail software, and several other Internet applications and utilities. For more information, see the *Apple Internet Connection Kit Getting Started* manual that came with your computer.

What you can do online

You can usually do the following through an online service or the Internet.

Exchange electronic mail

You use e-mail to exchange messages. You can create, read, and respond to e-mail. You can conveniently and quickly send the same e-mail message to many recipients at once. You can also subscribe to e-mail distribution lists that provide information on topics of interest to you.

Access the World Wide Web

The World Wide Web is the fastest growing part of the Internet. Many organizations post information on Web "pages" that you can view with software called a Web browser. A portion of the Apple Computer "home page" is shown below.

A Web page usually contains words or pictures that serve as links to other information. You can click these links to display related information. There are Web pages available on every imaginable subject, providing news, information, and entertainment. You can search the Web to find information on topics of interest.

Some online services and companies that provide Internet access will even set aside some space for you make your own Web page available.

Download files

You can retrieve pictures, sound files, movies, text documents, utilities, and application software at a minimal cost (and often at no cost at all). Although Apple Computer, Inc., does not provide technical assistance with the software you download (unless the software was created by Apple), the software's creators may provide technical support.

Join a discussion group

Discussion groups are forums where people with common interests openly exchange information by writing messages. On the Internet, these discussion groups are called *Usenet newsgroups*. Like Web pages, Usenet newsgroups address nearly every subject imaginable. Topics range from stamp collecting to nuclear physics to cooking. You can use the searching applications that are available online to find links to different topics and groups.

Chapter 8   Troubleshooting

part

II

8   Troubleshooting

When you have questions

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

If you have trouble

While you're using your computer, you may occasionally see a bomb icon or an error message, or the pointer (▶) may "freeze" on the screen. If you have trouble with your computer, take a few minutes to read the information in this chapter. If your problem is related to a particular procedure, you should also look for information on that procedure in Macintosh Guide (or Mac OS Guide), available in the Guide (②) menu. For additional troubleshooting information and a list of common questions relating to your system software, see the "Troubleshooting" topic area of Macintosh Guide (or Mac OS Guide).

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

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

Take your time

When you see an error message, you don't have to take action immediately. The message stays on the screen until you click the OK (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. List the application 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 area of Macintosh Guide (or Mac OS Guide), available in the Guide [②] menu.)

■ Check the screen for any clues. Is a menu selected? What applications 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 an application not published by Apple, call the application's publisher.

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 application in use when the problem occurred; if this works, you can then save the documents open in other applications before restarting. Restart the computer immediately after you save your documents—quitting an application 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 an application to quit only when you can't choose Quit from the File menu.

To restart your Macintosh, try the following steps:

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

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

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

3 **If the Power key on the keyboard 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.)

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. Afterward, appropriate icons should appear for all documents.

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

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

1 **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 desktop starts rebuilding.

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 could 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 application 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 ◁) on the keyboard.

- The screen brightness controls are not adjusted properly.

  Press the righthand screen control button to see if brightness increases.

- The computer 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.

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.

Your computer has a clock that runs continuously. When the computer is turned off, a battery keeps the clock running. If your clock begins to keep time inaccurately, have your Apple-authorized service provider replace the battery. Consult the service and support information that came with your computer for instructions on how to contact an Apple-authorized service provider for assistance.

> **WARNING** Do not attempt to replace the clock battery yourself. If the clock begins to lose accuracy, have an Apple-authorized service provider replace the battery. The service provider will dispose of the battery according to the local environmental guidelines.

You inadvertently delete an application from your computer's hard disk.

You can replace any of the software that came with your computer by dragging it from the CD-ROM disc that contains system software to your hard disk.

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

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

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

  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. 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 CD-ROM disc that contains system 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 a CD-ROM Disc" 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 "Installing or Reinstalling System Software" later in this chapter 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.
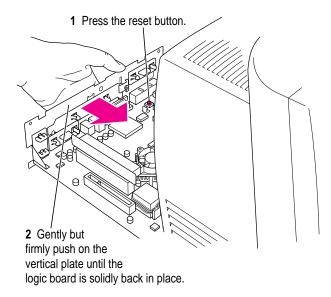
Eject any floppy disks by turning off the computer and then holding down the mouse button while you turn the computer on again. Try starting up with the CD-ROM disc that contains system software. Do this by inserting the CD-ROM disc into the CD-ROM drive and holding down the C key while you restart the computer. (See the section "Starting Up From a CD-ROM Disc" 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 computer does not start and you have just installed DIMMs, a High Performance Module, or expansion cards.

You may need to press the reset button on the main logic board.

- Open your computer following the instructions in "Opening the Computer," in Appendix B of this manual.
- Press the reset button on the logic board, and then slide the logic board back into the computer.

■ Reconnect all cables and then restart your computer.

1 Press the reset button.

2 Gently but firmly push on the vertical plate until the logic board is solidly back in place.

When you press the reset button, some of your computer's software settings will change. You should 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 area of Macintosh Guide (or Mac OS Guide), available in the Guide (🖳) menu.

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 CD-ROM disc that contains system software. 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, the CD-ROM drive has SCSI ID number 3. 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 CD-ROM disc that contains system 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 a CD-ROM Disc" 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 "Installing or Reinstalling System Software" later in this chapter to reinstall system software on your startup hard disk.

Icons do not appear correctly on your screen.

You need to rebuild the desktop—a process that helps your Macintosh keep track of files and folders on your hard 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 area of Macintosh Guide (or Mac OS Guide), available in the Guide (②) menu.

- The disk may be damaged. See "Repairing a Damaged Disk" later in this chapter for information on testing and repairing disks.

- The disk may have been formatted for use on another kind of computer. You may be able to use an application 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 (available through the Apple [] menu) and that it is turned on. To turn on 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. When your computer is off, restart the computer, then press the Open/Close button of your CD-ROM drive to open the tray. Remove the CD-ROM disc. Close the tray. Then start up your computer again.
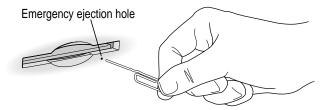
To avoid having the computer start up from a CD-ROM disc, remember to remove any disc in the drive before you shut down your computer.

You can't eject a floppy disk.

For instructions on ejecting any disk (a floppy disk, a CD-ROM disc, or a removable media disk), see the "Disks" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu. If you can't eject a floppy disk in the usual way, by selecting the disk's icon and choosing Put Away from the File menu or by dragging the disk's icon to the Trash, try the following in order:
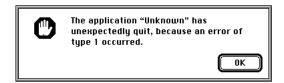
■ Hold down the ⌘ and Shift keys and press the number 1 key on your keyboard to eject a disk in the internal disk drive.

■ Turn off the computer. If the disk isn't ejected, then hold down the button on your mouse or other pointing device while you turn the computer on again.

- Locate the small hole near the disk drive's opening, and carefully insert the end of a large straightened paper clip into it. Push gently until the disk is ejected. Do not use excessive force.

Emergency ejection hole

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 an application, you see a message that not enough memory is available.

> The application "Unknown" has unexpectedly quit, because an error of type 1 occurred.
>
> OK

One of the following is probably the cause:

- The computer ran out of memory.
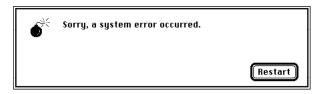
  Quit the applications that you have open and then open the application you want to use, or restart your computer.

  Use the Memory control panel to turn on virtual memory. For more information on virtual memory, see the "Memory" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu.

■ The application needs more memory.

Use the application's Info window to give it more memory. For more information on increasing an application's memory, see the "Memory" topic area of Macintosh Guide (or Mac OS 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 application 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 area of Macintosh Guide (or Mac OS Guide), available in the Guide (⍰) menu.

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

A dialog box with a bomb appears.

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

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 computer. (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 applications 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 "Installing or Reinstalling System Software" later in this chapter to reinstall system software on your startup hard disk.

- 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 available through 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 area of Macintosh Guide (or Mac OS 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 "Installing or Reinstalling System Software" later in this chapter to reinstall system software on your startup hard disk.

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

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 computer. See "Start Over by Restarting Your Computer" in the section "If You Have Trouble" earlier in this chapter for instructions.

■ Follow the suggestions for the previous problem, "A Dialog Box With a Bomb Appears."

■ The mouse or keyboard is not connected properly.

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

Turn off the computer by pressing the Power key (marked with a ◁) then pressing Return to shut down the computer. If that doesn't work, turn off the computer by pressing the side of the power switch marked with an ○ near where the power cord is connected to the computer. With the computer off, check that the mouse and keyboard cables are connected properly. Press the side of the power switch marked with a |, and then restart the 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 of this book.

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

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

Typing on the keyboard produces nothing on the screen.

One of the following is probably the cause:

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

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

■ 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 off Easy Access. Then restart your computer.

■ The keyboard is not connected properly.

Turn the computer off completely by pressing the power switch on the back of the computer near where the power cord is connected. With the computer off, check that the keyboard cable is connected properly at both ends. Then press the power switch so that it's in the "on" position (with the side marked with a | down) and press the Power key on the keyboard to start up again.

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

Open Easy Access from the Control Panels folder available through 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 applications 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 area of Macintosh Guide (or Mac OS Guide), available in the Guide (?) menu.

  If the problem recurs, you may need to reinstall system software. See "Installing or Reinstalling System Software" later in this chapter to reinstall system software on your startup hard disk.

- 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 original keyboard.

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 an application that you think might be able to open the document, then choose Open from the application's File menu to try to open the document.

■ Purchase and install the correct software to use the document, or find out if the creator of the document can convert it to a form that one of your applications 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 available through 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 (or Mac OS 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 computer.

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

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

■ Use the PC Exchange control panel (in the Control Panels folder available through the Apple [🍎] menu) to specify which Macintosh application 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 may have special procedures for opening and saving documents with different file formats. See the information that came with your application, or call the application's publisher.

■ Try opening the document in another application.

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 (or Mac OS Guide), available in the Guide (②) menu.

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

Macintosh applications 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 applications.

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

You experience problems using an older Macintosh application.

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

- Open the Memory control panel (in the Control Panels folder, available
  through the Apple [🍎] menu) and turn off Modern Memory Manager.

- If that doesn't work, contact the application's publisher to see if an upgrade
  is available.

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

You may have **SRS**(●) 3D Surround Sound turned on. To turn it off,
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." 3D Surround Sound doesn't work
well through headphones.

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

- Any time you want to record sound using an external microphone, you
  need to make sure your sound input source is set to "External
  Microphone." Open the Monitors & Sound control panel in the Control
  Panels folder, available through 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 area of Macintosh Guide (or
Mac OS Guide), available in the Guide (Ⓖ) menu in the upper-right corner
of your screen.

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

If you inadvertently press the ⌘ key and the Power key (marked with a ◁) at
the same time, you may see a right-angle-bracket prompt (>) on your screen
instead of the usual Macintosh desktop. To return to the Macintosh desktop,
type the letter G and press Return.

Solutions to CD-ROM problems

Problems using the optional 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, available through 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.)

You've just ejected a CD, but the computer keeps asking you to reinsert it.

■ 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. Then press the Open/Close button of your CD-ROM drive to open the tray. Remove the CD-ROM disc, close the tray, and start up your computer again.

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

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

If a CD-ROM disc icon appears on your screen, use one of these methods:

■ Select the disc icon on your screen and drag the icon to the Trash. You won't lose information on the CD-ROM disc by dragging its icon to the Trash.

■ Select 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 an application that allows you to play audio CDs and control your CD-ROM drive; it's available in the Apple [] menu.)

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

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

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

- If the tray still doesn't open, turn off your computer, 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, then carefully pull the tray open. Do not force the tray open; wait until the paper clip has released 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.

You can't eject a CD-ROM disc by pushing the Open/Close button on the drive.

- When a CD-ROM disc is mounted (there is a disc in the drive and its icon appears on your desktop), you must eject it by dragging its icon to the Trash or clicking its icon and choosing Put Away from the File menu.

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 CD-ROM disc that contains system software while holding down the C key. (See the section "Starting Up From a CD-ROM Disc" 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 later in this chapter, "Installing or Reinstalling System 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 later in this chapter, "Installing or Reinstalling System 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, available through the Apple (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 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.)

■ If file sharing is on and you are having trouble ejecting a disc, turn file sharing off in the Sharing Setup control panel in the Control Panels folder, available through the Apple (apple) menu.

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 your 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, available through the Apple ( ) menu, to turn them on. (Click to put checkmarks beside them.) 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 computer cannot recognize. Ask the disc's manufacturer for a disc that a Macintosh can recognize.

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

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

   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 on your computer's hard disk before using the CD-ROM 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.

Problems using ISO 9660 or High Sierra discs

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

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

  Drag the CD-ROM disc icon to the Trash. When the tray opens, hold down the Option key while you push the tray back in. Continue to hold down the Option key until the disc icon reappears on the screen, then release the Option key. The application 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 your System Folder on your hard disk.

Problems playing audio CDs

You don't hear any sound when you play an audio CD using the AppleCD Audio Player.

■ If you have headphones or speakers connected to the computer, adjust the connectors to make sure they are firmly connected. Make sure the volume control on your headphones or speakers is not turned down too low.

■ If you do not have headphones or speakers connected to the computer, make sure that nothing else is plugged into the sound output port (◀)) on the back of your computer.

■ If you are trying to play an audio CD over a network, you won't be able to hear it. Play audio CDs in your computer's CD-ROM drive.

■ Make sure the volume is turned up in the AppleCD Audio Player. With the Audio Player 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 that disc at the same time.

You are unable to record sound from an audio CD.

■ Check your computer's sound input port to see if a microphone or other device is connected.

■ You may need to reset the sound options in the Monitors & Sound control panel. Refer to the "Sound" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (②) menu.

You insert an audio CD and it begins playing immediately.

Your computer is set to automatically begin playing audio CDs when they are inserted. To turn off this feature, use the QuickTime Settings control panel available under the Apple [] menu to change the automatic play setting.

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 later in this chapter in "Installing or Reinstalling System Software."

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

Your computer may be low on memory. To view color icons, restart your computer and then reopen the Photos folder. See the "Memory" topic area of Macintosh Guide (or Mac OS 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 application you are using may not be designed to work with large (high-resolution) image files. You can open the image with another application or you can assign more memory to the application. (See the "Memory" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide [] menu, for more information on managing memory.)

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

Restart your computer. (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 application you are using may not be designed to work with large (high-resolution) image files. You can open the image with another application or you can assign more memory to the application. See the "Memory" topic area of Macintosh Guide (or Mac OS 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 potentially the cause of the problem.)

To find out which software is the problem, use the Extensions Manager control panel (in the Control Panels folder, available through 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 area of Macintosh Guide (or Mac OS 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 area of Macintosh Guide (or Mac OS Guide), available in the Guide () menu.

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

If you typically use several application programs at the same time, your computer's performance will increase if you install more RAM (random-access memory). See Appendix B, "Installing 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, available through 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. (Click to put a checkmark beside it, and then 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.

Note: If you have an Apple printer, you need to determine which printer driver to reinstall—the one that came on a floppy disk with your printer or the driver that comes on the system software CD-ROM disc (both drivers must have identical names). You should install the driver that has the most recent date. You can see the date of a driver file by inserting its disk and choosing to view its contents by Name (select "by Name" from the View menu). To install the printer driver from the CD-ROM disc, drag it to the System Folder on your hard disk and then click OK. To install the printer driver that came on a floppy disk with your printer, refer to the manuals that came with the printer for instructions.

Starting up from a CD-ROM disc

To initialize, test, or repair a hard disk, or to install system software on a hard disk, you need to start up your computer from the CD-ROM disc containing system software that came with the computer (if you have a CD-ROM drive).

To start up the computer using the CD-ROM disc, either use a control panel to set the CD-ROM drive as your startup drive, or follow these steps:

1   Turn your computer on.

2   Immediately press the Open/Close button on your CD-ROM drive, quickly insert the CD-ROM disc containing system software into the drive, and close the tray.

3   Immediately press the C key on your keyboard.

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

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

1   Shut down your computer.

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

2   Turn the computer on.

3   Immediately press the C key on the keyboard.

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

Starting up from a floppy disk

To initialize, test, or repair a hard disk, or to install system software on a hard disk, you need to start up your computer from another disk. Usually, you start up using the built-in CD-ROM drive (if you have one). However, if you can't use the CD-ROM drive for some reason, you can also start up the computer from the floppy drive using a *Disk Tools* floppy disk. (Note that the *Disk Tools* floppy disk is created from files that are on the CD-ROM disc that contains system software—if you cannot use your CD-ROM drive, you'll need to find another Macintosh with a CD-ROM drive that you can use to create the *Disk Tools* floppy disk.)

Disk Tools is available as a disk image file on the CD-ROM disc that contains system software. (A disk image file is a file that contains a compressed version of a floppy disk's contents.) To create a *Disk Tools* floppy disk, insert the CD-ROM disc that contains system software and a floppy disk, then double-click the *Disk Tools* disk image file on the CD-ROM disc. This launches an application called Disk Copy that carries out the process of creating the floppy disk from the disk image file. Refer to the Disk Copy ReadMe file for more information about using Disk Copy.

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

1   **Shut down or turn off your computer.**

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

3   **Press the Power key on the keyboard (marked with a ◁) to turn on the computer.**

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 and neither of the two previous suggestions help, start up with a different startup disk. (See the previous section, "Starting Up From a CD-ROM Disc.")

  If, after you start up from a different disk, your hard disk's icon appears on your desktop, reinstall system software on the hard disk. (See the instructions later in this chapter in "Installing or Reinstalling System 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 (if you have one) 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," next in this section.

Checking for damage on your hard disk

You can test a hard disk for damage with the Drive Setup application, which is on the CD-ROM disc that contains system software, and came with your computer.

1   Start up your computer from the CD-ROM disc that contains system software.

See "Starting Up From a CD-ROM Disc" earlier in this chapter.

2   Double-click the Drive Setup icon.

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

Drive Setup

3   In the List of Drives, click the disk you want to test.
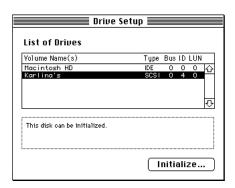
4   **From the Functions menu, choose Test Disk.**

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 application (see the instructions that are next in this 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 manufacturer 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 application, on the CD-ROM disc containing system software, which came with your computer.

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

See "Starting Up From a CD-ROM Disc" earlier in this chapter.
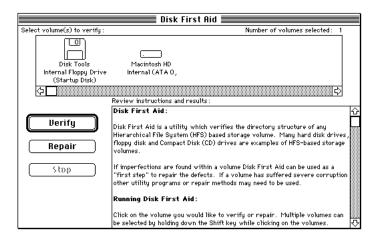
2   **Double-click the Disk First Aid icon.**

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

Disk First Aid

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

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

4   **Click Repair to begin testing and repairing the disk.**

You can't repair the startup disk or the disk that contains the Disk First Aid application, but you can test these disks by clicking Verify. If the application 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 application. Some disk repair applications 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 (that is, preparing it for use), see the "Disks" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (⍰) menu. For instructions on reinitializing a hard disk, see the next section, "Initializing a Hard Disk."

  If initialization doesn't work, discard the damaged disk (if it's a floppy disk) or take it to your Apple-authorized service provider for repair (if it's a hard disk). Bring the CD-ROM disc that contains system software 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 an application called Drive Setup, which is on the CD-ROM disc that contains system software, and 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 CD-ROM disc that contains system software (or from the *Disk Tools* disk, if your computer does not have a CD-ROM drive).**

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

2 **Double-click the Drive Setup icon.**

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

Drive Setup
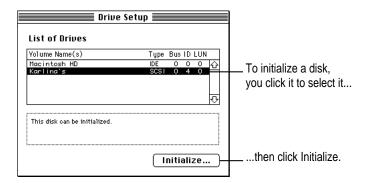
3 **In the List of Drives, click the disk you want to initialize.**

To initialize a disk, you click it to select it...

...then click Initialize.

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

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

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

Installing or reinstalling system software

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

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

When should you install system software?

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

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

When should you reinstall system software?

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

If this icon appears, follow the instructions in "How to Repair a Hard Disk or Floppy Disk" earlier in this chapter to test your startup hard disk and repair any damage.

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

Installing system software

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

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

To do a normal installation, follow these steps:

1 **Start up your computer from the CD-ROM disc that contains system software (or from the *Disk Tools* disk, if your computer does not have a CD-ROM drive).**

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

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

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

Disk First Aid

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

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

4 **Open the Drive Setup application.**

You use the Drive Setup application to update your hard disk.
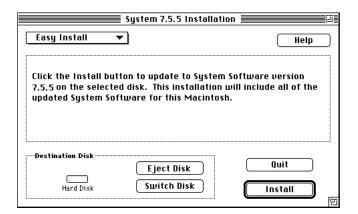
5 **In the list of drives, click your startup disk.**

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

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

8 **Shut down your computer.**

9 **Start up your computer from the CD-ROM disc that contains system software or from the _Disk Tools_ floppy disk if you don't have a CD-ROM drive.**

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

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

10 **Click Continue.**

The Easy Install dialog box appears.

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

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

12 **Click Install.**

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

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

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

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

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

Doing a clean installation of system software

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

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

To do a clean installation, follow these steps:

1 Start up your computer from the CD-ROM disc that contains system software (or from the *Disk Tools* disk, if your computer does not have a CD-ROM drive).

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

2 Find and open the Disk First Aid icon.

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

Disk First Aid

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

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

4 **Open the Drive Setup icon.**

You use the Drive Setup application to update your hard disk.
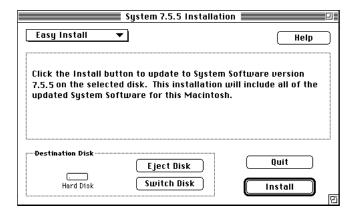
5 **In the list of drives, click your startup disk.**

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

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

8 **Shut down your computer.**

9 **Start up your computer from the CD-ROM disc that contains system software.**

See "Starting Up From a CD-ROM Disc" earlier in this chapter.

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

10 **Click Continue.**

The Easy Install dialog box appears.

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

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

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

The following dialog box appears.

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

      [  Cancel  ]  [[    OK    ]]
```

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

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

14 **Click Clean Install.**

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

It takes a few minutes to complete the installation.

16 **When the installation is complete you see a message reporting that the installation was successful.**

If a Restart button appears, click it to restart your computer.

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

IMPORTANT Certain system extensions or application programs that were originally on your hard disk may not be installed with the Installer application. If you notice that a certain extension or application was not installed, install it separately by dragging it to your hard disk. You can find these additional extensions and applications on the CD-ROM disc or the set of floppy disks that contains system software. (System extensions or application programs from other manufacturers can be reinstalled from their installation disks.) If you don't have a CD-ROM drive, see the service and support information that came with your computer for information on how to contact Apple for assistance.

Adding back your special software

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

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

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

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

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

Doing a custom installation

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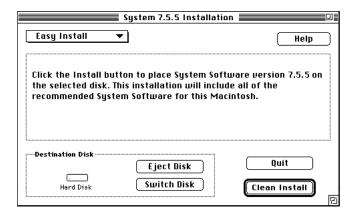
To install customized system software, follow these steps:

1 **Start up your computer from the CD-ROM disc that contains system software (or from the *Disk Tools* disk, if your computer does not have a CD-ROM drive).**

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

2 **Click OK.**

The Easy Install dialog box appears.
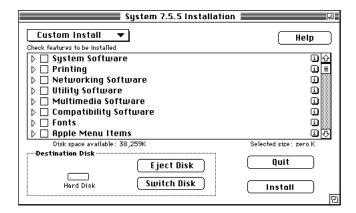
3 **Press to open the pop-up menu in the upper-left corner of the dialog box, and choose Custom Install.**

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

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

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

5 **Click Install.**

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

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

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

8 **Restart your Macintosh.**

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

Installing or reinstalling CD-ROM software

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

When should you install or reinstall CD-ROM software?

You don't need to install the CD-ROM software unless you encounter problems. (See "Solutions to CD-ROM Problems" earlier in this chapter for descriptions of the kinds of problems you might encounter.)

Installing or reinstalling CD-ROM software

1 **Start up your computer from the CD-ROM disc that contains system software**
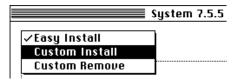
See "Starting Up From a CD-ROM Disc" in the section "Initializing a Hard Disk" earlier in this chapter.

The Installer's Welcome screen may appear. If not, you may have to double-click the System Software Installer icon to open the Installer application.

2 **Click OK.**

The Easy Install dialog box appears.

3 **Press to open the pop-up menu in the upper-left corner of the dialog box, and choose Custom Install.**

```
══════════════════════ System 7.5.5
┌──────────────────────────┐
│ ✓Easy Install            │
│  Custom Install          │
│  Custom Remove           │
└──────────────────────────┘
```
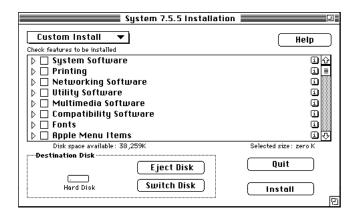
The Custom Install dialog box appears, listing all available system software components.

4 **Select Multimedia Software by clicking the checkbox next to it.**

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

5 **Click Install.**

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

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

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

8 **Restart your Macintosh.**
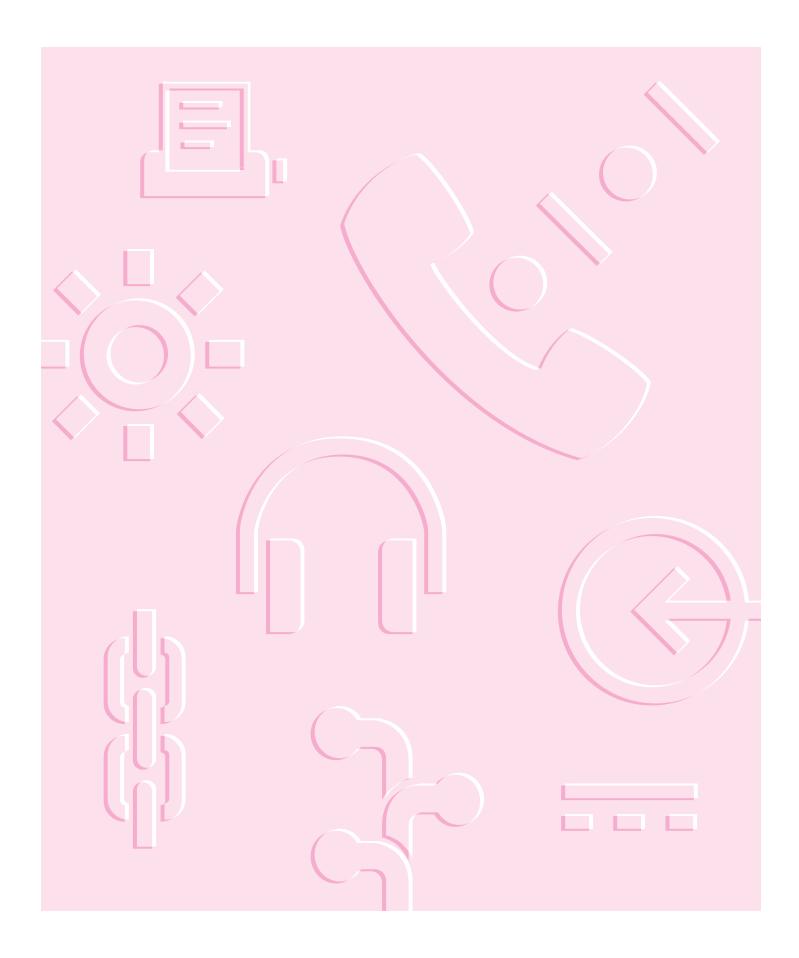
The CD-ROM software is reinstalled and your computer is ready to use. Don't forget to eject the CD-ROM disc containing system software when you are finished.

part

III

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

Appendix A
Health, Safety, and Maintenance Tips

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

Health-related information about computer use

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

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

Musculoskeletal discomfort

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

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

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

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

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

Eye fatigue

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

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

To prevent discomfort and eye fatigue:

- Arrange your 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.
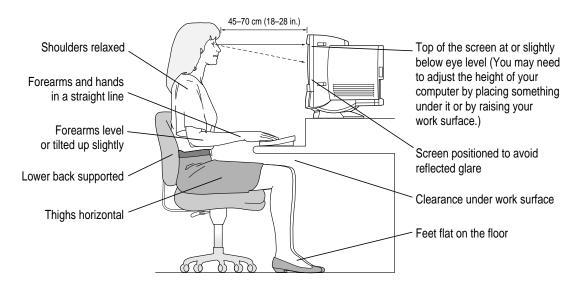
Arranging your office

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.

45–70 cm (18–28 in.)

Shoulders relaxed

Forearms and hands in a straight line

Forearms level or tilted up slightly

Lower back supported

Thighs horizontal

Top of the screen at or slightly below eye level (You may need to adjust the height of your computer by placing something under it or by raising your work surface.)

Screen positioned to avoid reflected glare

Clearance under work surface

Feet flat on the floor

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 take 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:
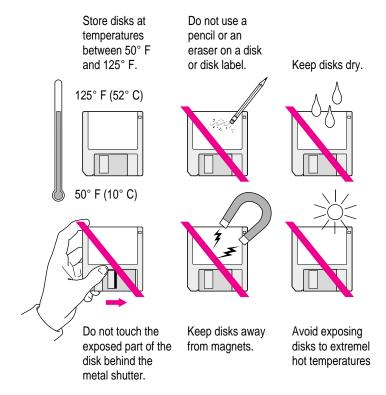
■ Turn down the screen brightness (by pressing the left button of the screen controls) if you leave the computer turned on for extended periods. If the brightness is not turned down, the image on the screen could "burn in" and damage the screen. (You can also use the Energy Saver control panel, available in Control Panels in the Apple [] menu to set computer sleep and energy-saving options.)

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

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

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

Keep disks dry.

125° F (52° C)

50° F (10° C)

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

Keep disks away
from magnets.

Avoid exposing
disks to extremel
hot temperatures
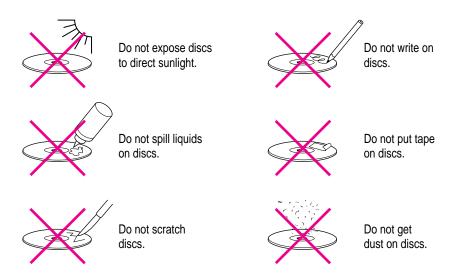
Handling CD-ROM discs

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

- Hold a disc by the edges or by one edge and the center hole. Do not touch the disc surface.

- To clean discs, wipe the shiny surface with a soft damp cloth, working in straight lines from center to edge. Do not use any form of cleaning agent.

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

Do not expose discs to direct sunlight.

Do not write on discs.

Do not spill liquids on discs.

Do not put tape on discs.

Do not scratch discs.

Do not get dust on discs.

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

■ Position your computer so that when the tray opens, it doesn't bump into anything.

■ Do not leave the disc tray open. If dust gets on the lens of the CD-ROM drive, the drive may have problems reading your compact discs.

■ Do not put anything (for instance, a cup) on top of the tray when it is open.

■ Do not force the tray open by hand.

■ Do not wipe the lens with a paper towel or other abrasive surface. If you need to clean the lens, see an Apple-authorized service provider for a lens cleaner.

■ Never transport your computer with a disc inside the CD-ROM drive.

■ Keep your computer equipment away from any source of liquid (such as wash basins, bathtubs, and shower stalls). If you drink coffee or other beverages while you're at your computer, take care not to spill.

■ Avoid exposing your equipment to damp or wet weather. If your system is near a window, be sure the window is closed in rainy weather.

Power supply

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

Cleaning your equipment

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

- Use a damp, soft, lint-free cloth to clean the computer's exterior. Avoid getting moisture in any openings.

- Don't use aerosol sprays, solvents, or abrasives.

Cleaning the computer case

To clean the case, do the following:

1 **Turn off the computer completely and then disconnect the power cord. (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.
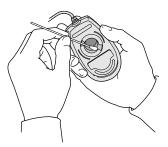
If the mouse is locked, see the next section, "Locking and Unlocking the Mouse," for instructions on how to unlock it.

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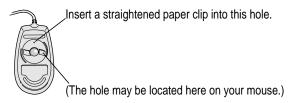
Your mouse should roll smoothly across your mouse pad or desk. If it doesn't, repeat these instructions carefully.

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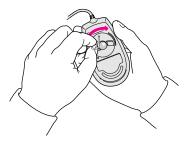
Some mouse devices can be locked so that the ball can't be removed. A locking mouse has a small hole on the plastic ring.

To lock the mouse, follow these steps:
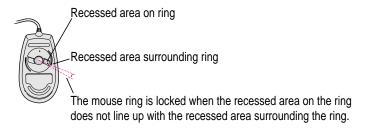
1 Insert a straightened paper clip into the hole in the plastic ring.

Insert a straightened paper clip into this hole.

(The hole may be located here on your mouse.)

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

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

Recessed area on ring

Recessed area surrounding ring

The mouse ring is locked when the recessed area on the ring does not line up with the recessed area surrounding the ring.
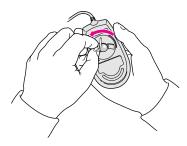
To unlock the mouse, follow these steps:

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

Insert a straightened paper clip into this hole.

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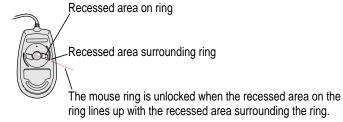
2 **Press down on the paper clip while you turn the ring counterclockwise.**

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

Recessed area on ring

Recessed area surrounding ring

The mouse ring is unlocked when the recessed area on the ring lines up with the recessed area surrounding the ring.

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

Appendix B
Installing Expansion Cards and Additional Memory

This appendix provides information about expansion cards and memory modules (including an optional High Performance Module) and explains how to install both cards and memory.

Installing an expansion card or memory involves three procedures that are described in this appendix:

- opening the computer
- inserting the card or memory module into a specific slot
- 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, and additional processing power. Slots that will fit three different kinds of expansion cards are available within your Macintosh:
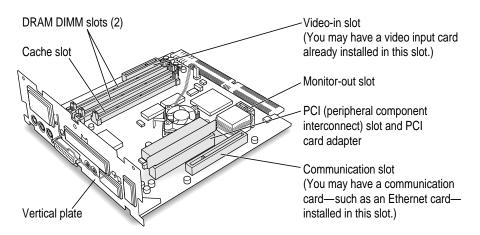
- a PCI (peripheral component interconnect) slot for most 6.88-inch cards
- a communication slot for an internal modem or Ethernet card (You may already have a card installed in this slot.)
- a video-in slot for a video input card that brings signals into the computer from a videocassette recorder (VCR), 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 computer:

- the Apple External Video Connector kit that allows video mirroring on an external monitor
- a TV or TV/FM tuner card that allows you to watch and to record TV and videos and to listen to FM radio on your computer (TV and TV/FM tuner cards you can install include the Apple TV/FM Radio System and the Apple TV System.)

Other video cards that let you perform video editing and other functions may also be available for your computer.

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

DRAM DIMM slots (2)

Cache slot

Video-in slot
(You may have a video input card already installed in this slot.)

Monitor-out slot

PCI (peripheral component interconnect) slot and PCI card adapter

Communication slot
(You may have a communication card—such as an Ethernet card—installed in this slot.)

Vertical plate

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

About memory

You can 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 128 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 in your computer.

For more information about memory, see the "Memory" topic area of Macintosh Guide (or Mac OS Guide), available in the Guide (❷) menu.

Apple recommends that you have an Apple-certified technician install additional DRAM for you. 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 in this appendix.

■ If you want an Apple-certified technician to install additional DRAM for you, 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 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. (The DIMMs must support a 1K or 2K refresh count.)

Your computer comes with either 16 or 32 megabytes (MB) of dynamic random-access memory (DRAM) preinstalled in one of the two Dual Inline Memory Module (DIMM) sockets. One DIMM slot remains for installing an additional 8 MB, 16 MB, 32 MB, or 64 MB DIMM. If you want to install the maximum amount of memory, you need to replace the preinstalled 16 or 32 MB DIMM with a 64 MB DIMM, then install a second 64 MB DIMM in the remaining slot, for a total of 128 MB of DRAM.

IMPORTANT The DIMMs should be 64-bit wide, 168-pin 5-volt (V) Extended Data Output (EDO) DIMMs, with 60-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. 3.3-V DIMMs and DIMMs that require 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 appendix.

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. If your computer did not come with one already installed, you can add a High Performance Module on the main logic board.

IMPORTANT Be sure to use a 50 MHz High Performance Module designed specifically for your computer. The 40 MHz modules used in other Macintosh computers will not work in your computer.

Instructions for installing a High Performance Module are in the section "Installing DIMMs or a High Performance Module" later in this appendix.

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 or memory and closed the computer. Additionally, move the logic board as little as possible while it is outside the computer case.
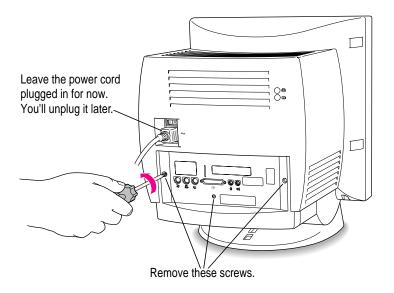
1   **Turn off your computer following the instructions in "Turning the Computer Off" in Chapter 1 of this manual.**

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

    Press the side of the switch marked with the ○ symbol.
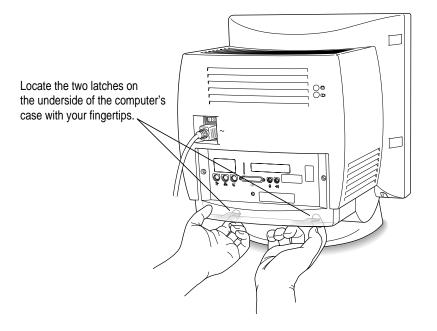
3   **Unplug all the cables except the power cord from the computer (including the cable that connects your keyboard to the computer).**

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

4   **Remove the security screws from the computer's back panel with a screwdriver.**

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

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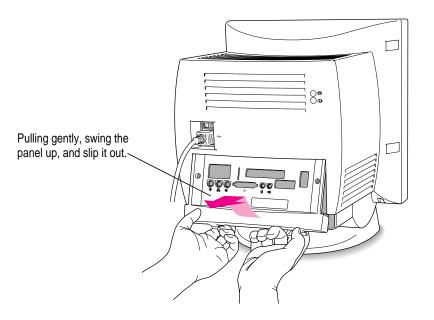
5 **With your fingertips, find the two latches on the underside of the computer's case.**

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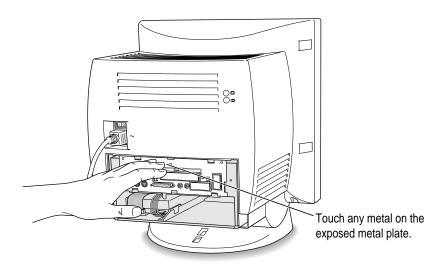
6 **Pull gently on the latches.**

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

Set the panel aside.

Pulling gently, swing the
panel up, and slip it out.
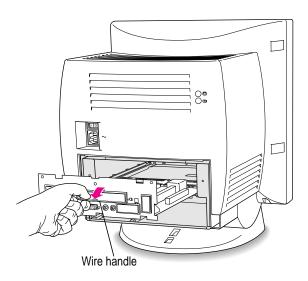
8 **To discharge static electricity from your body that could damage the components inside
the computer, touch the metal panel on the back of the computer.**

Touch any metal on the
exposed metal plate.
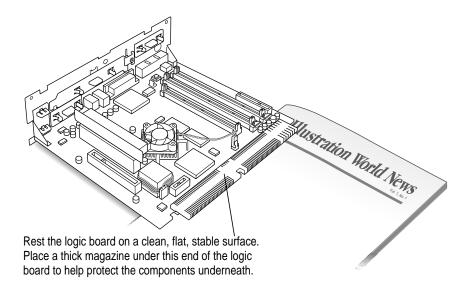
9 **Unplug the power cord from the back of the computer.**

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

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

Wire handle

11 **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 (cache). Skip to the section that pertains to the item you are installing.

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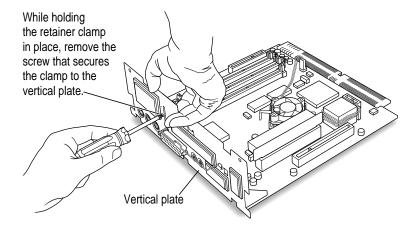
This section contains instructions for installing a peripheral component interconnect (PCI) card or a communication card. (To install a video input card or a TV or TV/FM tuner card, follow the instructions that came with the card.)

Installing a PCI card

This section contains general instructions for installing a PCI card. You should also refer to any instructions that came with the card. PCI cards for your computer must be 6.88 inches long. Here's how to install one:
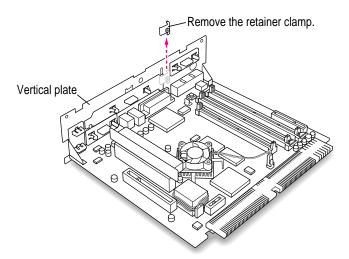
1 **Unscrew the retainer clamp screw from the front of the vertical plate, while holding the clamp in place in back of the vertical plate.**

Avoid letting the retainer clamp fall onto the logic board.

While holding
the retainer clamp
in place, remove the
screw that secures
the clamp to the
vertical plate.

Vertical plate
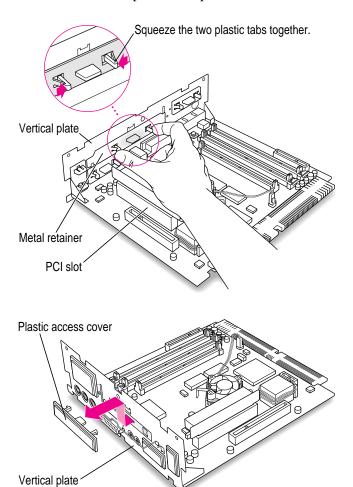
2 **Lift out the retainer clamp and set it aside.**

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

Remove the retainer clamp.

Vertical plate
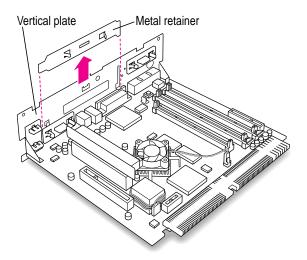
3 **If your PCI card has ports for connecting equipment, remove the plastic access cover from the vertical plate.**
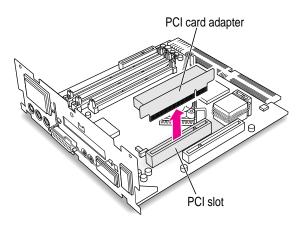
On the inside of the computer, squeeze together the two plastic tabs holding the access cover in place, then pull the access cover off from the outside.

Squeeze the two plastic tabs together.

Vertical plate

Metal retainer

PCI slot

Plastic access cover

Vertical plate

4 **Remove the metal retainer from the inside of the computer.**

Vertical plate   Metal retainer
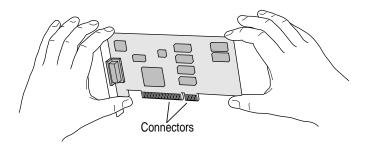
5 **Remove the PCI card adapter from the main logic board.**

PCI card adapter

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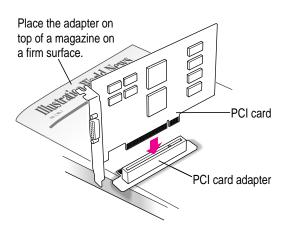
6   Remove the PCI card from its static-proof bag.

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

Connectors
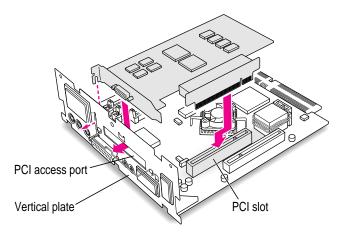
7   Connect the PCI card and the PCI card adapter.
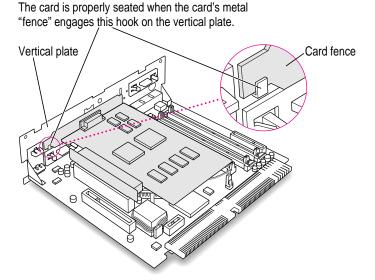
Place the adapter on a firm surface, then press the card firmly into the adapter. You may find it helpful to place the card and adapter near the edge of a table with the metal edge of the card hanging over the end of the table so it doesn't block the card from being inserted completely into the adapter.

Place the adapter on top of a magazine on a firm surface.

PCI card

PCI card adapter

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

PCI access port

Vertical plate

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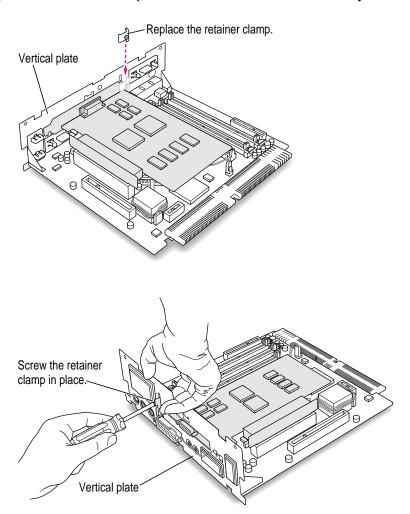
9   **Insert the adapter into the PCI slot on the main logic board. Make sure the metal fence on the PCI card engages the hook on the vertical plate and that any connectors on the card protrude through the PCI access port opening.**

The card is properly seated when the card's metal
"fence" engages this hook on the vertical plate.

Vertical plate

Card fence

Don't force the adapter. 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.**

Replace the retainer clamp.

Vertical plate

Screw the retainer clamp in place.

Vertical plate
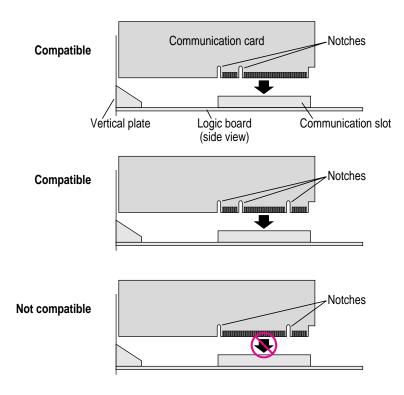
11 **If you have a communication card, DIMMs, or a High Performance Module to install, skip ahead to those instructions in this chapter. If you are finished installing items in your computer, proceed to "Closing the Computer," later in this chapter.**

Installing a communication card

This section contains instructions for installing an Ethernet or internal modem card in the communication slot in your computer. You use an Ethernet card to communicate with other computers through a local area network (LAN). For example, you can print on a shared printer and access documents on a server (a centralized computer that provides shared resources to other computers on a network). You use an internal modem card to connect to online services or the Internet.

Note: If you install an internal modem card in the communication slot and also want to connect to an Ethernet network, buy and install the kind of Ethernet card that goes in your computer's PCI slot, then follow the instructions in "Installing a PCI Card" earlier in this section.
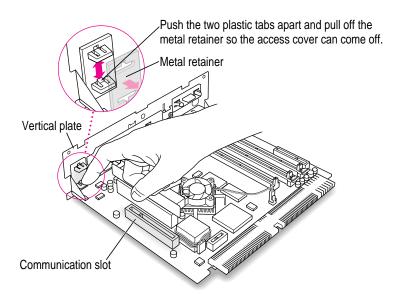
Some communication cards designed for other communication slots are not compatible with your computer and cannot be installed here. You can tell by examining the placement of the notches on the card. Use the following illustration as a guide if you're not sure you have the correct type of card for the slot.

Compatible

Communication card — Notches

Vertical plate   Logic board (side view)   Communication slot

Compatible

Notches

Not compatible

Notches

To install a communication card, follow these steps:

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

Save the access cover—if you ever remove the communication card from your computer, you'll need to cover the open port again.

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

Metal retainer

Vertical plate

Communication slot

2   **Remove the communication card from its static-proof bag.**
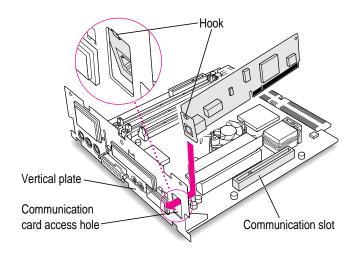
Hold the card by its upper edges to avoid touching its connectors.

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

The communication slot is the rightmost slot on the logic board as you face the vertical plate.
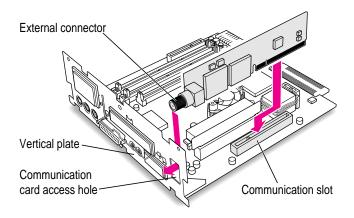
4 **Check the external connector on your card, see which of the following two illustrations matches the card you have, and install the card according to the illustration.**

■ If the card has a hook, make sure it catches between the layers of the vertical plate before you push the card into the 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.

Hook

Vertical plate

Communication card access hole

Communication 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 an external connector that protrudes through the opening; others, like the one shown here, have a flatter external connector.) 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.

External connector

Vertical plate

Communication
card access hole

Communication slot

5 **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 both the manual that came with the card and Chapter 6, "Connecting Your Computer to a Network" for more information.

6 **If you have DIMMs or a High Performance Module to install, go to those instructions next in this appendix. If you are finished installing items, proceed to "Closing the Computer."**

Installing DIMMs or a High Performance Module (level 2 cache)

There are specific types of DIMMS and High Performance Modules that work in your computer. Refer to the information provided earlier in this appendix and to the *Technical Information* booklet that came with your computer for information about the kinds of DIMMs and High Performance Module you can use in your computer model.

WARNING Although instructions for installing DRAM DIMMs and a High Performance Module (level 2 cache) 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.
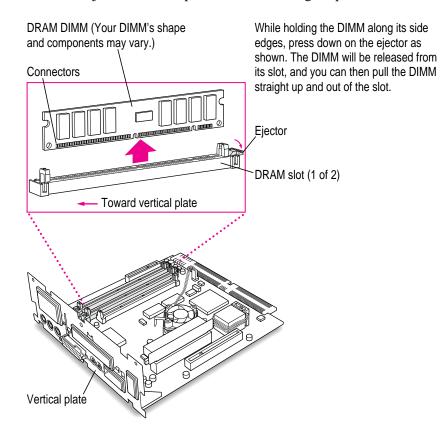
Removing a DRAM DIMM

To upgrade your computer to the maximum amount of memory, you may want to replace the DRAM DIMM that comes preinstalled in your computer with one of a higher capacity. To do this, you'll need to remove the existing DIMM following the instructions provided in this section, then install a higher capacity DIMM following the instructions in "Installing a DRAM DIMM," next in this appendix.

To remove a DRAM DIMM, follow these instructions:
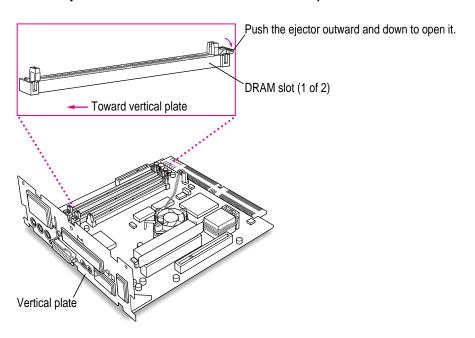
1 **Press down on the ejector to release the DRAM DIMM from its slot as pictured in the following illustration.**

When the ejector releases, pull the DIMM straight up and out of the slot.

DRAM DIMM (Your DIMM's shape
and components may vary.)

Connectors

While holding the DIMM along its side
edges, press down on the ejector as
shown. The DIMM will be released from
its slot, and you can then pull the DIMM
straight up and out of the slot.

Ejector

DRAM slot (1 of 2)

Toward vertical plate

Vertical plate
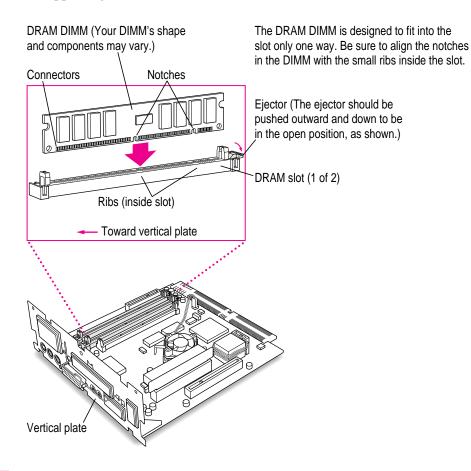
Installing a DRAM DIMM

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

Push the ejector outward and down to open it.

DRAM slot (1 of 2)

Toward vertical plate

Vertical plate

2 **With the ejector in the "open" position, align the DRAM DIMM in the DRAM slots as pictured.**

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

DRAM DIMM (Your DIMM's shape and components may vary.)

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

Connectors   Notches

Ejector (The ejector should be pushed outward and down to be in the open position, as shown.)

DRAM slot (1 of 2)

Ribs (inside slot)

← Toward vertical plate

Vertical plate

3 **Push down on the DIMM until it snaps into place.**

The ejector closes automatically.
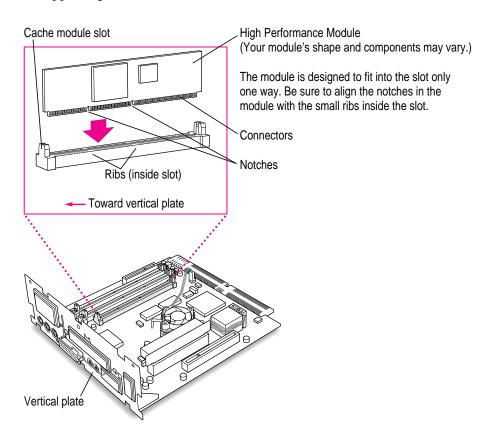
4 **Repeat steps 1–3 if you have another DRAM DIMM to install.**

5 **If you have a High Performance Module to install, proceed to the next section, "Installing the High Performance Module." If you are finished installing items in your computer, proceed to the section "Closing the Computer" later in this chapter.**

Installing the High Performance Module (level 2 cache)

1   Align the notches in the High Performance Module with the small ribs inside the module slot, and insert the module into the slot as pictured.

The module is designed to fit into the slot only one way. Be sure to align the notches in the module with the small ribs inside the slot.
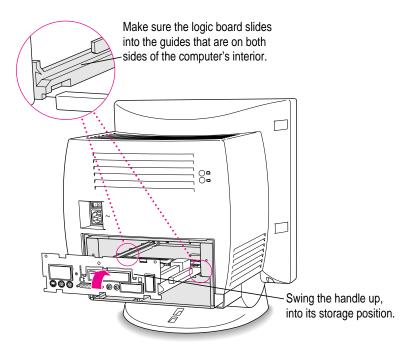
IMPORTANT Do not touch the module's connectors. Handle the module only by the upper edges.

Cache module slot

High Performance Module
(Your module's shape and components may vary.)

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

Connectors

Notches

Ribs (inside slot)

Toward vertical plate

Vertical plate
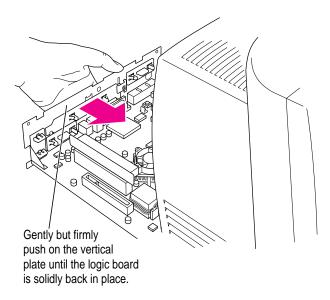
2   If you are finished installing items in your computer, proceed to "Closing the Computer," next.

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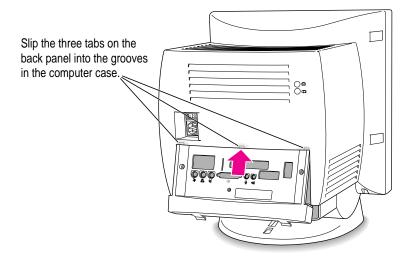
1 **Slip the base of the logic board into the guide rails inside the computer's case, and swing the wire handle back into its storage position.**

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

Swing the handle up, into its storage position.

2   Slide the logic board back into the computer.

Gently but firmly
push on the vertical
plate until the logic board
is solidly back in place.
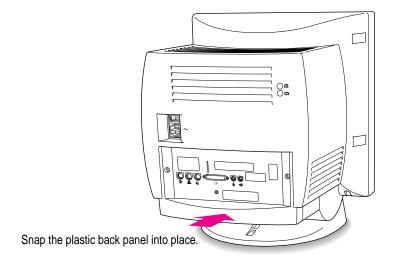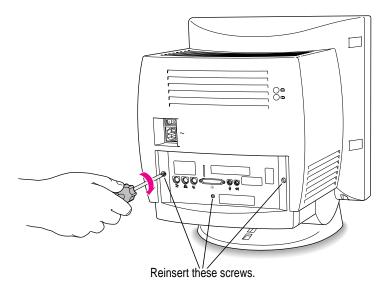
3   Slip the three tabs at the top of the back panel into the grooves in the computer's case.

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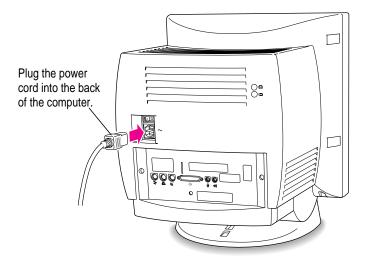
4 **Snap the base of the back panel into place.**

Snap the plastic back panel into place.

5 **Reinsert the three security screws.**

Reinsert these screws.

6 **Plug the cables back into the computer.**

Plug the power
cord into the back
of the computer.

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.

Note: If your computer will not start after you've installed an expansion card, DRAM, or the High Performance Module, you may need to press the reset button on the main logic board. See the instructions listed under the symptom "The computer does not start and you have just installed DIMMs, a High Performance Module, or expansion cards" in "Solutions to Common Problems With Your Computer" in Chapter 8 of this manual.

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

Appendix C
Special Keys on Your Keyboard

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

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

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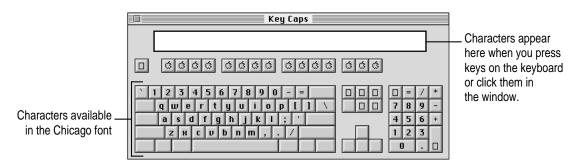
Special keys on Apple keyboards *(continued)*

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.
Numeric keys		Use to produce numbers and mathematical symbols; some programs use these keys as function keys to initiate actions.
Option key		Use in combination with other keys to produce special characters or modify 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.
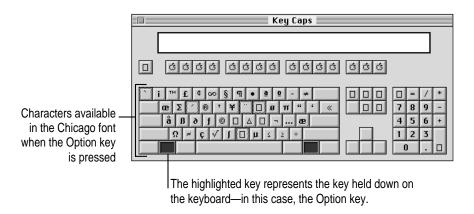
Typing special characters and symbols

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.

Characters available in the Chicago font

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

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

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

The highlighted key represents the key held down on the keyboard—in this case, the Option key.

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

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

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

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

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

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

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

Special key combinations

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

To do this …	… press this key combination
Force a program to quit	⌘-Option-Esc
Force the computer to restart	⌘-Control–Power key
Start the computer from a CD-ROM disc	C key (while starting up)
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)

Index

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Power Macintosh
User's Manual

Includes setup, troubleshooting, and important health-related information for Power Macintosh 5500 series computers

Apple Computer, Inc.

Contents

• • • • • •

Communications regulation information

FCC declaration of conformity

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. 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.

Responsible party: Robert Steinfeld, Apple Computer, Inc., 1 Infinite Loop, Cupertino, CA 95014-2084, 408-974-2618.

Industry Canada statement

This Class B device meets all requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la Class B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

VCCI Class 2 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、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づく第二種情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。

取扱説明書に従って正しい取り扱いをしてください。

Laser information

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

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

If you have an internal Apple CD-ROM drive in your computer, your computer is a Class 1 laser product. The Class 1 label, located 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 LASER PRODUCT
LASER KLASSE 1
APPAREIL A RAYONNEMENT
LASER DE CLASSE 1

Class 1 label

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENZIONE - RADIAZIONE LASER INVISIBLE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.
PRECAUCIÓN - RADIACION LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.
VARO! - AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING! - OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL! - USYNLIG LASER STRÅLING, NÄR DENNE ER ÅBEN. UNNGÅ BESTRÅLING.
ADVARSEL - USYNLIG LASERSTRÅLING NÄR DEKSEL ÅPNES. UNNGÅ EKSPONERING FOR STRALEN.
注 意 - このカバーの内部では不可視レーザー光が放射されています。レーザー光にさらされないようにしてください。

Service warning label

Welcome to Power Macintosh

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

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

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