Chapter 1

Firing Up Your iPod and iPhone

In This Chapter

- Comparing iPod and iPhone models
- Powering up your iPod or iPhone
- Using and recharging your battery

iPods and iPhones have completely changed the way people play music, audio books, and videos, and new models are changing the way people use computer applications, shoot photos and videos, play games, and use the Internet.

But don't just take my word for it. "It's hard to remember what I did before the iPod," said Grammy Award–winner Mary J. Blige in an Apple press release. "iPod is more than just a music player; it's an extension of your personality and a great way to take your favorite music with you everywhere you go." Lance Armstrong, seven-time Tour de France champion, takes his running shoes and iPod with him everywhere. "I listen to music when I run. Having my music with me is really motivating."

The iPod even plays an important role in Western culture. Pope Benedict XVI has an iPod engraved with his coat of arms. President Barack Obama gave the U.K.'s Queen Elizabeth II an iPod preloaded to play rare songs by Richard Rodgers. And when Bono of U2 gave an iPod shuffle to George H.W. Bush, the former President remarked, "I get the shuffle and then I shuffle the shuffle."

The iPod was first invented for playing music, and you can download entire albums from the iTunes Store and play them on any iPod or iPhone. You can also download movies and TV shows from the iTunes Store and play them on an iPod classic, iPod nano, iPod touch, or iPhone. With an Internet connection, you can download tunes, podcasts (which download automatically when you subscribe to them), and games directly to an iPod touch or iPhone, and also select from a library of over 75,000 applications (known as *apps*) that offer everything from soup to nuts.

This chapter introduces iPods and iPhones and tells you what to expect when you open the box. I describe how to power up your iPod or iPhone and connect it to your computer, both of which are essential tasks that you need to know how to do — your iPod or iPhone needs power, and it needs audio and video, which it gets from your computer.

Introducing the iPod and iPhone

The convenience of carrying music on an iPod or iPhone is phenomenal. For example, the 2GB iPod shuffle can hold 500 songs, which is plenty for getting around town, while the new 160GB iPod classic can hold around 40,000 songs — that's more than eight weeks of nonstop music played around the clock.

A common misconception is that your iPod or iPhone becomes your music and video library. Actually, your iPod or iPhone is simply another *player* for your content library, which is safely stored on your computer. One considerable benefit of using your computer to organize your content is that you can make perfect-quality copies of music, videos, movies, podcasts, and audio books. You can then copy as much of the content as you want, in a more compressed format, onto your iPod or iPhone and take it on the road. Meanwhile, your perfect copies are stored safely on your computer in digital files. These digital files can be copied over and over forever, just like the rest of your information, and they never lose their quality. If you save your content in digital format, you'll never see your songs or videos degrade, and you'll never have to buy the content again.

The iPod and iPhone experience includes *iTunes* (for Mac or Windows), which lets you synchronize content with your iPod and other devices, such as the Apple TV player for your home TV and stereo. Just as importantly, iTunes is the portal to the online iTunes Store, where you can purchase and download content. You also use iTunes to organize your content, make copies, burn CDs, and play disc jockey without discs. I introduce iTunes in Chapter 2.

An iPod is also a data player, and in the case of the iPod touch and iPhone, a complete personal computer that lets you enter data and run applications as well as play content. The current model iPod nano and the iPhone 3GS can also shoot videos, while the iPhone and iPhone 3G can shoot still pictures. You can keep track of your calendar and contacts with an iPod or iPhone, and with an iPod touch or iPhone, you can check and send e-mail, visit your favorite Web sites, get maps, obtain driving directions, check the current weather, and even check your stock portfolio, to name just a few things.

Comparing iPod Models

Introduced way back in the Stone Age of digital music (2001), the iPod family has grown by eight generations as of this writing (see Figure 1-1), including the popular iPod touch, the high-capacity iPod classic, the ultra-slim iPod nano that now includes a video camera, and the tiny iPod shuffle — the iPod you can clip to your belt or wear on your sleeve.

Figure 1-1: The iPod family includes (left to right) the iPod touch, iPod classic, iPod nano, and iPod shuffle.

Here's a rundown on today's iPod models:

- **The iPod touch:** The iPod touch shares the design characteristics and many of the features of its more famous cousin, the iPhone, with the same multi-touch-sensitive screen (a.k.a. Touchscreen) and Wi-Fi Internet connectivity. (Wi-Fi, which is short for *wi*reless *fi*delity, is a popular connection method for local area networks that I describe in detail in Chapter 4.)
- **The iPod classic:** The original iPod design offers a higher capacity (160GB) than other models.
- **The iPod nano:** The iPod nano comes in a variety of colors and includes a video camera for shooting videos and a motion sensor; you can shake the iPod nano to shuffle your songs!
- **The iPod shuffle:** You can clip the tiniest iPod to your sleeve, and its voice tells you the song title and artist.

To find out more about previous generations of iPods, including detailed information about cables and connections, visit this book's companion Web site. For a nifty chart that shows the differences among iPod models, see the Identifying Different iPod Models page on the Apple iPod Web site (`http://support.apple.com/kb/HT1353`).

Fingering the iPod touch

The iPod touch is much more than a media player. Less than a third of an inch thick and weighing only 4 ounces, the iPod touch is really a pocket computer — it uses a flash memory drive and an operating system that can run applications. Just like the iPhone, it offers the same Touchscreen with icons for launching apps, the same on-screen keyboard for entering information, the same Home button on the front, and the same built-in speaker and volume controls on the left side.

Apple offers the following sizes of iPod touch models as of this writing, and they all use the same battery that offers up to 36 hours of music playback, or 6 hours of video playback:

- **The 8GB model** holds about 1,750 songs, 10,000 photos, or about 10 hours of video.
- **The 32GB model** holds about 7,000 songs, 40,000 photos, or about 40 hours of video. (With 7,000 songs, you would have more than a week of nonstop music played around the clock.)
- **The 64GB model** holds about 14,000 songs, 90,000 photos, or about 80 hours of video.

Like the iPhone, the iPod touch lets you access the Web over a Wi-Fi Internet connection. After it finds one or more networks, the iPod touch lets you choose one to connect to the Internet, and it can remember the settings for that network so that it can automatically choose the same network again.

After you're on Wi-Fi, you can then use the Safari app to browse the Web and interact with Web services, and the Mail app to send and receive e-mail. Stocks, Maps, and Weather are apps that show information from the Internet. You can also use the YouTube app to play YouTube videos on the Web. All these apps are supplied with your iPod touch, and you can download more apps by connecting to Wi-Fi and the Internet as I describe in Chapter 4, and touching the App Store icon, as I describe in Chapter 7.

You also use apps to connect to the Internet in other ways than browsing. For example, popular social networks such as Facebook and MySpace offer

apps to connect you with your friends on those services. Google offers an array of services through the Google Mobile app, including the ability to edit documents and spreadsheets, use the Gmail service, and share calendars and photos. The Twitterific app lets you post tweets on Twitter, and the WhosHere and Loopt apps can connect you directly to other iPod touch and iPhone users for chatting.

Many of the apps you'll find listed at the App store are especially designed to take advantage of three distinct features of the iPod touch: its multi-touch display; its accelerometer (which detects acceleration, rotation, motion gestures, and tilt); and its capability to detect its physical location.

For example, Motion X Poker — actually a dice game — uses the accelerometer to let you roll the dice by shaking the iPod touch. The Flick Fishing app senses motion so that you can cast a fishing line with a flick of the wrist. And for really precise motion, try rolling a steel ball over a wooden labyrinth of holes in the free Labyrinth Lite app.

Sensing your iPod touch's location is a very useful feature. The Showtimes app uses your iPod touch's location to show the closest movie theaters to you. The Eventful app uses your location to display local events and venues, and the Lethal app can tell you the dangers that could surround you — the hostile animals, the likelihood of crimes, the prevalence of disease, and the potential for accidents and disasters.

In short, an iPod touch can do nearly everything an iPhone can do, except make cellular-service phone calls, use the 3G data network, shoot pictures, and pinpoint its exact location with the Global Positioning System. Even so, the iPod touch can pinpoint its approximate location with Internet-based Location Services, and you can make phone calls using the Skype app, a Wi-Fi connection, and an external microphone.

Twirling the iPod classic

The eighth-generation iPod classic model uses the same click wheel and buttons as the seventh-, sixth-, and fifth-generation models, combining the scroll wheel with pressure-sensitive buttons underneath the top, bottom, left, and right areas of the circular pad of the wheel. As of this writing, Apple provides a slim, 4.9-ounce 160GB model in black or gray.

The eighth-generation 160GB model holds about 40,000 songs, 25,000 photos, or about 200 hours of video, and its battery offers up to 36 hours of music playback, or 6 hours of video playback. The seventh-generation 120GB model holds about 20,000 songs or about 150 hours of video.

Mano a mano with iPod nano

The iPod nano, pencil thin and only 1.5 inches wide by 3.5 inches high, weighs only 1.3 ounces. Its curved, all-aluminum design and fine array of colors make it the most fashionable iPod.

This mini marvel (see Figure 1-2) offers a 2-inch color LCD that crisply shows iPod menus, album artwork, and video in either vertical or horizontal orientation, and includes a motion sensor so that you can rotate it quickly to change orientation and shake it to shuffle songs. Apple offers an 8GB model that holds about 2,000 songs or up to 8 hours of video (or 7,000 photos) and a 16GB model that holds about 4,000 songs or up to 16 hours of video (or 14,000 photos).

As part of the eighth-generation of the iPod family, the fifth-generation iPod nano includes a video camera and a built-in microphone, as well as an FM tuner for listening to radio and a pedometer to keep track of your footsteps.

Figure 1-2: iPod nano can shoot videos as well as play audio and video content.

Each model offers a battery that can play up to 24 hours of music — all day and all of the night — or 4 hours of video.

The earlier-generation iPod nano models are the smallest that can serve up videos, podcasts, photos, and musical slide shows as well as your personal calendar and contacts. Each model uses the same style of click wheel and buttons as the iPod classic. Unlike the smaller iPod shuffle, the iPod nano models are full-featured iPods with loads of accessories tailored specifically for it.

Doing the iPod shuffle

If the regular iPod models aren't small enough to fit into your lifestyle, try the ultra-tiny 2GB or 4GB iPod shuffle (see Figure 1-3), which is only 1.8 inches tall and 0.3 inches thin. Its built-in clip lets you attach it to almost anything. It has no display, but that's actually a good thing because this design keeps the size and weight to a minimum.

Figure 1-3: An iPod shuffle is so small that its controls are on the earbud cable.

For the third-generation of this tiny iPod, Apple moved its controls to the right earbud cord (refer to Figure 1-3) so that you can navigate through your songs easily without looking at the controls. A single button click starts music playing, and a single click pauses the music that's already playing. Click twice to go to the next track or three times to go to the previous track. You can use the earbud control while running, driving, skiing, snowboarding, or even skydiving.

Another cool feature makes it even easier to use these earbud controls: The iPod shuffle talks to you with the VoiceOver feature. Press and hold the center button to hear the title and artist of the song, or hold it longer until you hear a tone, and then release to hear the names of playlists. After hearing the playlist you want, click once to select it (if you copied over multiple playlists, as I describe in Chapter 9). VoiceOver even tells you whether your battery needs charging.

The 2GB iPod shuffle holds about 500 songs, and the 4GB iPod shuffle holds about 1,000 songs, assuming an average of 4 minutes per song, using the AAC format at the High Quality setting for adding music (as described in Chapter 8). The battery is the same for both models, offering up to 12 hours of power between charges.

Unlike other iPods, iPod shuffle can't play tunes in the highest-quality Audio Interchange File Format (AIFF) or Apple Lossless formats, which consume a lot of storage space. See Chapter 8 for details on adding music to your iTunes library.

To find out more about audio encoding formats, and about converting music from one format to another, visit the Tips section of the author's Web site at `www.tonybove.com`.

The Innovative iPhone

The iPhone, which includes all the features of an iPod touch, can not only phone home, but also monitor all your e-mail and browse the Internet with a full-page display, using a Wi-Fi network when it senses one. The Touchscreen (see Figure 1-4) provides a rich set of icons for launching apps, and includes a full on-screen keyboard for entering text, numbers, and special symbols. And the iPhone is no slouch when it comes to acting like an iPod: It can play music, audio books, videos (such as TV shows, music videos, and even feature-length movies), and even podcasts. You can also display photos and slide shows set to music.

The 8GB iPhone 3G, (introduced in July 2008), is slimmer and more powerful than the original iPhone, adding fast 3G data wireless technology, GPS mapping, and the capability for enterprises to push virtual private network (VPN) and Wi-Fi configurations out to all their iPhones in the field. The iPhone 3GS, introduced in June 2009 in 16GB and 32GB models, offers faster 3G data service, a higher-resolution camera for photos that also shoots videos, as well as voice control and longer battery life. Both incorporate flash memory just like an iPod touch, iPod shuffle, or iPod nano. The iPhone 3.5-inch, widescreen, multi-touch display offers 480-x-320–pixel resolution at 160 dots per inch for crisp video pictures, and it can display multiple languages and characters simultaneously.

The iPhone 3GS built-in rechargeable lithium-ion battery offers up to 12 hours of talk time using 2G or 5 hours using 3G (with 300 hours on standby); the iPhone 3G offers the same except only 10 hours of talk time using 2G. The iPhone 3GS also offers up to 9 hours browsing the Internet on Wi-Fi or 5 hours using 3G, up to 10 hours playing video, and up to 30 hours playing music. The iPhone 3G offers 6 hours of Wi-Fi, 5 hours of 3G, 7 hours of video, and 24 hours of music. Both offer Bluetooth for using wireless headphones and microphones when making phone calls.

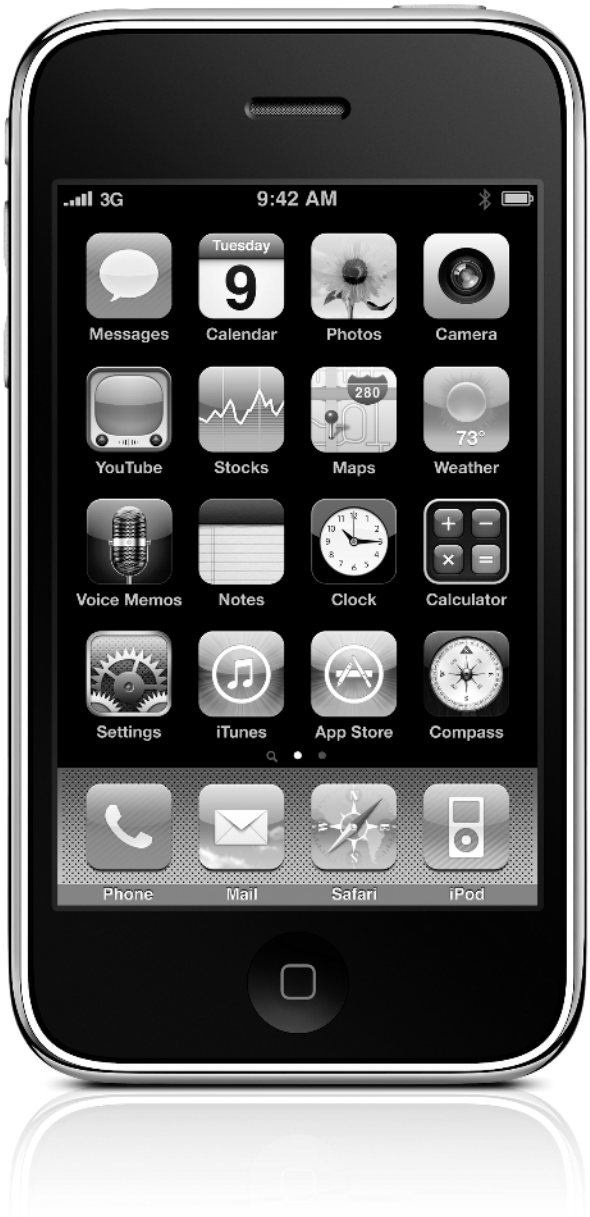

Figure 1-4: The iPhone 3GS includes all the features of an iPod touch and can also phone home and shoot videos.

Thinking Inside the Box

Don't destroy the elegantly designed box while opening it. Before going any further, check the box and make sure that all the correct parts came with your iPod or iPhone. Keep the box in case, heaven forbid, you need to return the iPod or iPhone to Apple — the box ensures that you can safely return it for a new battery or replacement.

The iPod touch, iPod classic, iPod nano, and iPhone are each supplied with

- Stereo headphones (often called *earbuds*)
- A dock adapter fitted for the optional Apple Universal Dock (not included)
- A Dock Connector–to–USB cable

The cable connects your iPod or iPhone (or its dock) to your computer or to the AC power adapter using a USB (Universal Serial Bus) connection — a way of attaching things to computers and bussing data around while providing power. The cable has a USB connector on one end and a flat dock connector on the other end to connect either to a dock or directly to an iPod or iPhone.

The iPod shuffle comes with earbuds and a special cable to connect to a power adapter or your computer. Older iPod shuffle models come with earbuds and a special smaller dock to connect to a power adapter or your computer.

The iPhone also comes with a power adapter for recharging the battery. You will want to get a power adapter for your iPod (not in the box but available from the Apple Store) if you want to use AC power, rather than your computer, to supply power to recharge your iPod.

Outside the box

There are a few things you may want to have around that are not in the box. For example, even though you don't really need an AC power adapter or dock — you can connect the iPod or iPhone directly to your computer to recharge your battery — a power adapter or dock is useful for keeping the battery charged without having to connect the iPod or iPhone to your computer.

The earbuds supplied with your iPod or iPhone may not suit your tastes, but you can find a hundred other headphone products that might. You can get all kinds of accessories, including headphones, speakers, the Apple Universal Dock, other docks, and AC power adapters, from the online Apple Store (`www.apple.com/store`), the physical Apple Store, or other stores such as Amazon.com and Fry's. Docks of various sizes, shapes, and functions are also available from vendors such as Belkin, Monster, and Griffin.

Computer and software not included

You still need a computer and iTunes to manage the content on your iPod or iPhone. These things are not in the box, obviously.

You've seen requirements before — lots of jargon about MB (megabytes), GB (gigabytes), GHz (gigahertz), and RAM (random access memory), sprinkled with names like Intel, AMD, and Mac OS X. Skip this section if you already know that your iPod or iPhone works with your computer and you already have iTunes. But if you don't know whether it will work, and you don't have iTunes yet, read on.

You need the following:

- **A PC or Mac to run iTunes:** On a PC, iTunes version 9 requires Windows XP (with Service Pack 2) or a 32-bit edition of Windows Vista, running on a 1-GHz Intel or AMD processor with a QuickTime-compatible audio card and a minimum of 512MB of RAM; 1GB is required to play HD-quality videos, an iTunes LP, or iTunes Extras from the iTunes Store. You need a DirectX 9.0–compatible video card with 32MB of video RAM (64MB recommended) to watch video, and a 2-GHz Intel Core 2 Duo or faster processor to play HD-quality videos, an iTunes LP, or iTunes Extras. 64-bit editions of Windows Vista require the iTunes 9 64-bit installer, available for downloading from the iTunes download page.

  With a Mac, iTunes version 9 runs on all versions of Mac OS X Leopard and Snow Leopard or newer versions, and on the older Mac OS X Tiger version 10.4.11 or newer version. You need a 500-MHz processor or better (Intel or PowerPC) and at least 512MB of RAM; 1GB of RAM is required to play HD-quality videos, an iTunes LP, or iTunes Extras from the iTunes Store. You also need an Intel PowerPC G5 or a 1-GHz PowerPC G4 or faster processor, with 16MB of video RAM, to play videos, and a 2-GHz Intel Core 2 Duo or faster processor to play HD-quality videos, an iTunes LP, or iTunes Extras.

- **USB connection:** You need support for USB 2.0 (also called a *high-powered USB*) for iPod classic, iPod nano, iPod shuffle, iPod touch, iPhone, and sixth- and fifth-generation iPods. However, you can use FireWire (IEEE 1394) with older iPod models.

  

  For details about using USB or FireWire cables, visit this book's companion Web site.

- **iTunes:** Make sure that you have the current version of iTunes — use the Automatic Update feature, which I describe in Chapter 2, to keep your iTunes software up to date. You can also download iTunes for Windows or the Mac from the Apple site (`www.apple.com/itunes/download`); it's free. See Chapter 2 for instructions.

  Older iPod models, still available in stores and online, might include versions of iTunes on CD-ROM as old as version 4.5, which is fine

because version 4.5 works. (It just doesn't have all the features of the current version.) You can download a newer version at any time to replace it.

- **QuickTime:** QuickTime comes with iTunes. The iTunes installer for the PC installs the newest version of QuickTime for Windows (version 7.6.2 as of this writing), replacing any older version you might have. Macs have QuickTime preinstalled (version 7.6.2 as of this writing), and Mac OS X automatically updates QuickTime if you use the Software Update feature of System Preferences on the Apple menu.
- **Internet connection:** Apple recommends a broadband Internet connection to buy content and stream previews from the iTunes Store, although it is possible with a dialup connection. At a minimum, you need some kind of Internet connection to download iTunes itself.
- **CD-R or DVD-R drive:** Without a disc burner, you can't burn your own discs. On a PC, you need a CD-R or DVD-R drive. On a Mac, you need a Combo or Super Drive to burn your own discs.

Applying Power

All iPod and iPhone models come with essentially the same requirement: power. You can supply power to your iPod or iPhone (and charge your battery at the same time) by using the provided cable and your computer, or you can use an optional AC power adapter that works with voltages in North America and many parts of Europe and Asia. (See Chapter 5 for information about plugging into power in other countries.)

Connecting your iPod or iPhone

On the bottom of the iPod touch, iPod classic, iPod nano, or iPhone, you find a large connection called the Dock Connector. The Dock Connector mirrors the connection on the end of a dock — your iPod or iPhone fits snugly in a dock, and the dock offers the Dock Connector for your computer.

To connect your iPod or iPhone to your computer, plug the flat connector of the cable into the iPod or iPhone Dock Connector (or the connector on the dock holding your iPod or iPhone) and then plug the USB connector on the other end of the cable into the USB port on your computer.

The iPod shuffle is supplied with a special USB cable that plugs into the headphone connection of the iPod shuffle and draws power from the USB connection on the computer or from a USB power adapter. Plug one end of the included cable into the headphone connection of iPod shuffle and the other end into a USB 2.0 connection on your computer or power adapter.

Older iPod shuffle models are supplied with a mini-dock with a USB cable attached — insert your iPod shuffle into the mini-dock, and connect the unattached end of the cable to a USB 2.0 connection on your computer or power adapter.

Do you want your iPod or iPhone to stand upright? Just connect it to an Apple or a third-party dock and then use the cable supplied with your iPod or iPhone to connect the dock to your computer or power adapter. The dock keeps your iPod or iPhone in an upright position while connected and also provides connections for a home stereo or headphones. Some docks offer built-in speakers. A dock can be convenient as a base station when you're not traveling with your iPod or iPhone because you can slip it into the dock without connecting cables. You can pick up a dock at an Apple Store, order one online, or take advantage of third-party dock offerings.

You can connect the USB end of the supplied cable to either the Apple (or third-party USB) power adapter for power, or to the computer's USB 2.0 port for power. As soon as you connect it to the computer, iTunes starts up and begins syncing the iPod or iPhone (see Chapter 9). After syncing, the computer continues to provide power through the USB 2.0 port to the iPod or iPhone.

Why USB 2.0? What happened to 1.0? Most PCs and all current Macs already have USB 2.0, which is all you need to provide power and to sync an iPod or iPhone with your computer. Although you can use a low-speed USB 1.0 or 1.1 connection to sync your iPod or iPhone, it's slower than molasses on a subzero morning for syncing.

To find out more about previous generations of iPods, including detailed information about USB and FireWire cables and connections, visit this book's companion Web site.

Don't use another USB device in a chain, and don't use a USB hub to connect your iPod or iPhone unless the hub is a *powered* hub — a hub with a separate power source, in other words. Note that many USB keyboards (such as current Apple keyboards) that offer USB connections don't provide power to the iPod or iPhone.

Turning it on and off

Touch any button to turn on an iPod nano or iPod classic. To turn off an iPod nano or iPod classic, press and hold the Play/Pause button. To keep an iPod nano or iPod classic from turning on by accident, you can lock it with the Hold switch on the top (or on the bottom next to the dock connection on early iPod nano models). The Hold switch locks the iPod buttons so that you don't accidentally activate them — slide the Hold switch so that it exposes an

orange layer underneath. To unlock the buttons, slide the Hold switch so that it hides the orange layer underneath.

To turn on an iPod shuffle, slide the three-way switch to expose the green layer underneath. To turn it off, slide the three-way switch to hide the green layer. Older iPod shuffle models provide an On/Off switch, located on top next to the word OFF. Slide this switch away from OFF to turn it on, or toward OFF to turn it off. With the three-way switch or On/Off switch, iPod shuffle models don't need a Hold switch.

To turn on the iPod touch or iPhone, press the Sleep/Wake (On/Off) button on top, or the Home button on the front. The screen shows the message `Slide to unlock` — slide your finger across this message to unlock your iPod touch or iPhone.

To put an iPod touch or iPhone to sleep, press the Sleep/Wake (On/Off) button. This reduces the power consumption to a tiny trickle (just enough to allow the software to respond to a quick touch, and in the case of the iPhone, to respond to phone calls). Putting the iPod touch or iPhone to sleep also locks its controls just like a Hold switch.

To awaken the iPod touch or iPhone again, press the Sleep/Wake (On/Off) button or Home button.

You can turn the iPod touch or iPhone completely off by holding down the Sleep/Wake (On/Off) button for about two seconds, until you see the Slide to Power Off slider; then slide your finger across the slider to turn it off. You can then turn it back on by pressing and holding the Sleep/Wake (On/Off) button. To save battery power, you should plug the iPod touch or iPhone into AC power or your computer before turning it back on from a completely off state. (For battery details, see the next section in this chapter.)

If your iPod nano or iPod classic shows a display but doesn't respond to your button-pressing, don't panic. Just check the Hold switch and make sure that it's set to one side so that the orange layer underneath disappears (the normal position).

You might notice that an iPod classic or iPod nano display turns iridescent when it gets too hot or too cold, but this effect disappears when its temperature returns to normal. iPods can function in temperatures as cold as 50 degrees and as warm as 95° F (Fahrenheit), but they work best at room temperature (closer to 68° F).

If you leave your iPod or iPhone out in the cold all night, it might have trouble waking from Sleep mode, and it might even display a low-battery message. Plug the iPod or iPhone into a power source, wait until it warms up, and try it again. If it still doesn't wake up or respond properly, try resetting the iPod or iPhone, as I describe in Chapter 22.

Facing Charges of Battery

You can take a six-hour flight from New York City to California and listen to your iPod the entire time — and, with some models, listen all the way back on the return flight — without recharging. All current iPod models use the same type of built-in, rechargeable lithium-ion (Li-Ion) battery with the following power specs:

- The iPod shuffle offers 10 hours of music-playing time.
- The iPod nano offers 24 hours of music-playing time or 4 hours of video or photo display with music.
- The iPod classic offers 36 hours of music playback or 6 hours of video or photo display with music.
- The iPod touch offers 36 hours of music-playing time, or 6 hours of video, browsing the Internet using Wi-Fi, or displaying photo slide shows with music.
- The iPhone models offer up to 30 hours of music-playing time, 10 hours of video-playing time, or 6 hours of photo display with music. However, depending on your network settings, practical battery time can vary widely. The iPhone models can operate for 300 hours on standby (waiting for calls) if you do nothing else with them. You also find different power requirements for different networks:
  - All iPhone models offer the AT&T 2G network in the United States for calling and data transfer, and give you about 10 hours of talk time (12 hours on an iPhone 3GS).

    Note that the iPhone 3G offers both 2G and 3G modes for calling and data transfer, and gives you about 5 hours of talk time in 3G mode. You can turn off 3G to use 2G by choosing Settings➪General➪Network and tapping the On button for the Enable 3G option.
  - The iPhone 3GS offers 9 hours of browsing the Internet using Wi-Fi (the iPhone 3G offers 6 hours), and both the iPhone 3G and 3GS offer 5 hours of browsing using 3G.

To find out more about the batteries in previous generations of iPods, visit this book's companion Web site.

Keep in mind that playback battery time varies depending on how you use your iPod or iPhone — if you mix Web browsing and picture-taking with video playback on an iPod touch or iPhone, you'll have less battery time than if you just played music.

Recharging your battery

The iPod or iPhone battery recharges automatically when you connect it to a power source. For example, it starts charging immediately when you insert it into a dock that's connected to a power source (or to a computer with a powered USB connection). It takes only four hours to recharge the battery fully for all models, and only three hours for an iPod nano or iPod shuffle.

Need power when you're on the run? Look for a power outlet in the airport terminal or hotel lobby and plug in your iPod with your AC power adapter — the iPod nano battery fast-charges to 80 percent capacity in 1.5 hours, and the other models and iPhone fast-charge in 2 hours. After the fast-charge, the battery receives a trickle charge until fully charged.

Don't fry your iPod or iPhone with some generic power adapter. Use *only* the power adapter from Apple or a certified iPod adapter, such as the power accessories from Belkin, Griffin, Monster, XtremeMac, and other vendors.

A battery icon with a progress bar in the upper-right corner of the iPod or iPhone display indicates how much power is left. When you charge the battery, the battery icon displays a lightning bolt. The battery icon is completely filled in when the battery is fully charged, and it slowly empties into just an outline as the battery is used up.

You can use your iPod or iPhone while the battery is charging, or you can disconnect it and use it before the battery is fully charged.

You can check the battery status of an iPod shuffle by turning it on or by connecting it to your computer. You can check the battery status without interrupting playback by quickly turning the iPod shuffle off and then on again. The tiny battery status light next to the headphone connector tells you how much charge you have:

- **Green:** The iPod shuffle is fully charged (if connected to a computer) or charged at least 50 percent.
- **Orange:** The iPod shuffle battery is still charging (if connected to a computer) or is as low as 25 percent. If the iPod shuffle is connected to your computer and blinking orange, this means that iTunes is synchronizing it — don't disconnect the iPod shuffle until it stops blinking.
- **Red:** Very little charge is left, and you need to recharge it.

If no light is visible, the iPod shuffle is completely out of power, and you need to recharge it to use it.

On the newest iPod shuffle models, you can click and hold the center button to hear the VoiceOver feature tell you your battery status: "full," "75 percent," "50 percent," "25 percent," or "low."

In iTunes, the battery icon next to your iPod shuffle's name in the Devices section of the Source list shows the battery status. The icon displays a lightning bolt when the battery is charging and a plug when the battery is fully charged.

The iPod's or iPhone's built-in, rechargeable battery is, essentially, a life-or-death proposition. After it's dead, it can be replaced, but Apple charges a replacement fee plus shipping. If your warranty is still active, you should have Apple replace it under the warranty program (which may cost nothing except perhaps shipping). Don't try to replace it yourself unless you don't mind invalidating the warranty.

Keeping an iPod or iPhone in a snug carrying case when charging is tempting but also potentially disastrous. An iPod or iPhone needs to dissipate its heat, and you could damage the unit by overheating it and frying its circuits, rendering it as useful as a paperweight. To get around this problem, you can purchase one of the heat-dissipating carrying cases available in the Apple Store. Alternatively, MARWARE (`www.marware.com`) offers a variety of sporty cases for about $30 to $40. See Chapter 5 for more on accessories.

If you don't use your iPod or iPhone for a month, even if it is connected to power and retaining a charge, it can still become catatonic. Perhaps it gets depressed from being left alone too long. At that point, it may not start — you have to completely drain and recharge the battery. To drain the battery, disconnect your iPod or iPhone from power for 24 hours. Then, to fully recharge the battery, connect it to power for at least 4 hours without using it (or longer if you are using it).

Saving power

The iPod classic and older models include a hard drive, and whatever causes the hard drive to spin causes a drain on power. iPod nano, iPod shuffle, iPod touch, and iPhone models use a flash drive, which uses less power but still uses power when playing content. The iPod touch and iPhone also use power accessing the Internet, running applications, and in the case of the iPhone, making and receiving calls and using Bluetooth devices. Keeping these activities to a minimum can help you save power.

Maintaining battery mojo

You have several ways to keep your battery healthy. I recommend a lean diet of topping off your iPod or iPhone battery whenever it is convenient.

Using and recharging 100 percent of battery capacity is called a *charge cycle.* You can charge the battery many times, but there is a limit to how many full-charge cycles you can do before needing to replace the battery.

Each time you complete a charge cycle (100 percent recharge), it diminishes battery capacity slightly. Apple estimates that the battery loses 20 percent of its capacity (meaning it holds 80 percent of the charge) after 400 full-charge cycles. Recharging your battery when it's only half empty does not count as a full-charge cycle, but as half a charge cycle. That means you can use half its power one day and then recharge it fully, and then use half the next day and recharge it fully again; this would count as one charge cycle, not two.

It's a good idea to *calibrate* the battery once soon after you get your iPod or iPhone. That is, run it all the way down (a full discharge) and then charge it all the way up (which takes four hours for an iPod touch, iPhone, or iPod classic, or three hours for an iPod nano or iPod shuffle). Although this doesn't actually change battery performance, it does improve the battery gauge so that the gauge displays a more accurate reading. This calibration occurs anyway if you fully recharge the battery, but if you've never done that, you can calibrate it by disconnecting the iPod or iPhone from power for 24 hours to make sure that the battery is empty, and then fully recharging the battery.

Lithium-ion batteries typically last three years or more and are vulnerable to high temperatures, which decrease their life spans considerably. Don't leave your iPod or iPhone in a hot place, such as on a sunny car dashboard, for very long.

For a complete description of how Apple's batteries work, see the Apple Lithium-Ion Batteries page at `www.apple.com/batteries`.

If you use the AIFF or WAV formats for adding music to your iTunes library, don't use them with your iPod or iPhone. AIFF and WAV take up way too much space on the iPod or iPhone and fill the cache too quickly, causing skips when you play them and using too much battery power because the hard drive or flash drive is accessed more often. (See Chapter 8 for details on adding music.)

To find out more about audio encoding formats and about converting music from one format to another, visit the Tips section of the author's Web site at `www.tonybove.com`.

The following are tips on saving power while using your iPod or iPhone:

- **Pause.** Pause playback when you're not listening to music or watching video. Pausing (stopping) playback is the easiest way to conserve power, especially with an iPod shuffle.

- **Lock it (with the iPod touch or iPhone).** Press the Sleep/Wake button on top of the iPod touch or iPhone to immediately put it to sleep and lock its controls to save battery power. You can set your iPod touch or iPhone to automatically go to sleep by choosing Settings➪General➪Auto-Lock from the Home menu, and choosing 1 Minute, 2 Minutes, 3 Minutes, 4 Minutes, or 5 Minutes (or Never, to prevent automatic sleep).
- **Hold it (with the iPod classic or iPod nano).** Flip the Hold switch on iPod classic and iPod nano models to the locked position (with the orange layer showing underneath) to make sure that controls aren't accidentally activated. You don't want your iPod playing music in your pocket and draining the battery when you're not listening.
- **Back away from the light.** Turn down the brightness on an iPod touch or iPhone by choosing Settings➪Brightness and dragging the brightness slider to the left. Use the backlight sparingly on iPod classic and iPod nano models. Select Backlight Timer from the iPod Settings menu to limit backlighting to a number of seconds, or set it to Off. (Choose Settings from the main menu.) Don't use the backlight in daylight if you don't need it.
- **Forget where you are (with an iPod touch or iPhone).** Turn off Location Services if you aren't using apps that need it. Choose Settings➪General from the Home screen, and touch On for the Location Services option to turn it Off. See Chapter 4 for details.
- **Let the postman ring twice (with an iPod touch or iPhone).** Check e-mail less frequently. You may want to change Push and Fetch settings to be less frequent. See Chapter 20 for details.
- **Turn off 3G (with an iPhone 3G or iPhone 3GS).** Turn off 3G in any areas that don't offer a strong 3G signal: Choose Settings➪General➪Network and tap the On button for the Enable 3G option to turn it off. You can still make and receive calls with the 2G network, but the iPhone will stop using so much power continually searching for 3G.
- **Tune out Bluetooth (with an iPhone).** Turn off Bluetooth (choose Settings➪General➪Bluetooth and touch the On button to turn it off) if you're not using a Bluetooth device.
- **Drop in from the Internet (with an iPod touch or iPhone).** Turn off Wi-Fi when not browsing the Internet: Choose Settings➪Wi-Fi and touch the On button to turn it off.
- **Turn it off completely.** To turn an iPod nano or iPod classic completely off, press and hold the Play/Pause button. To turn off an iPod shuffle, slide the switch to the off position, hiding the green layer underneath the switch. You can turn the iPod touch or iPhone completely off by holding down the Sleep/Wake (On/Off) button for about two seconds, until you see the Slide to Power Off slider; then slide your finger across the slider to turn it off. You can then turn it back on by pressing and holding the Sleep/Wake (On/Off) button.

Keep in mind that starting up an iPod touch or iPhone that was completely turned off takes quite a bit of power — more than if it woke from sleep. If you do turn it off, plug it into AC power or your computer before turning it back on.

- **You may continue.** Play songs continuously without using the iPod or iPhone controls. Selecting songs and using Previous/Rewind and Next/Fast Forward require more energy. Also, turn off your iPod or iPhone equalizer (EQ) if you don't need it (see Chapter 16).

Always use the latest iPod and iPhone software, and update your software when updates come out. Apple constantly tries to improve how your iPod and iPhone models work, and many of these advancements relate to power usage.