Chapter 1

Firing Up Your iPad, iPod, or iPhone

In This Chapter

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

The iPod has evolved into a range of mobile devices — from the iPod shuffle, iPod nano, and iPod touch models to the iPhone and iPad models. Along the way, Apple has not only completely changed the way people play music, audio books, and videos, but also has changed the way people shoot photos and videos, play games, check e-mail, use computer applications, 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." 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 with rare songs by Richard Rodgers. And when Bono of U2 gave an iPod shuffle to George H. W. Bush, the former president joked, "I get the shuffle and then I shuffle the shuffle."

The iPod was first invented for playing music, but now you can download movies and TV shows and select from a library of hundreds of thousands of applications (known as *apps*) for the iPad, iPod touch, and iPhone that offer everything from soup to nuts.

This chapter introduces the iPad, iPod, and iPhone models, and includes how to power them up and connect them to your computer, which are essential tasks. (You may as well get used to the "iPad, iPod, and iPhone" phrase, as the devices share many features and functions.)

Introducing the iPad, iPod, and iPhone

The convenience of carrying music on an iPad, iPod, or iPhone is phenomenal. For example, the least expensive iPod model — the $49 2GB iPod shuffle — can hold 500 songs, which is plenty for getting around town. The 64GB iPod touch ($399) can hold about 14,000 songs as well as run apps, connect to the Internet, make FaceTime video calls, and play video on a slick screen, whereas the $249 160GB iPod classic, which is designed more for playing music, can hold around 40,000 songs — that's more than eight weeks of nonstop rock around the clock. (Prices may vary as Apple introduces new models.)

A common misconception is that your iPad, iPod, or iPhone becomes your library of music, video, and apps. Even though you can download content items directly to your iPad, iPod touch, or iPhone, storage on an iPad, iPod, or iPhone should be considered temporary — in the process of troubleshooting problems or upgrading your device's software, you may have to erase everything during a restore operation (as I describe in Chapter 21). That's why you must always sync your iPad, iPod touch, or iPhone to your iTunes library after downloading content, as I describe in Chapter 8. That way, your content is safely tucked away and managed by iTunes on Apple's iCloud storage service or on your computer's hard drive. Your library files should then be backed up to another location, such as another hard drive or other medium, as I describe in Chapter 14.

iTunes (for Mac or Windows) lets you synchronize content with your iPad, iPod, and iPhone, and the Apple TV player for your home TV and stereo. iTunes is also a portal to the online iTunes Store, where you can get free or priced content; the iBookstore, where you can get electronic books to read on your iPad, iPod touch, or iPhone; and the App Store, where you get free or priced apps for your iPad, iPod touch, or iPhone. You also use iTunes to organize your content and apps, make copies, burn CDs, and play disc jockey without discs. I introduce iTunes in Chapter 2.

The iPad, iPod touch, and iPhone all work in some respects like personal computers that let you enter data, access the Internet, and run apps as well as play content. The fourth-generation iPod touch can shoot videos and still pictures like the iPhone 3GS and iPhone 4 (whereas the original iPhone and iPhone 3G can shoot only still pictures). You can keep track of your calendar and contacts with an iPod classic (or older model iPod nano), but with an iPad, iPod touch, or iPhone, you can also enter and edit calendar and contact entries, check and send e-mail, visit your favorite websites, get maps, obtain driving directions, check the current weather, and even check your stock portfolio.

Comparing iPod Models

Introduced way back in the Stone Age of digital music (2001), each model of the iPod family has grown by several generations (see Figure 1-1), now

including the fourth-generation iPod touch, the eighth-generation iPod classic, the wearable sixth-generation iPod nano, and the tiny fourth-generation iPod shuffle.

Figure 1-1: The iPod family includes (left to right) the iPod shuffle, iPod nano, and iPod touch (iPod classic not shown).

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, including the multi-touch-sensitive screen, motion detection (such as rotation and shaking), location detection (not as accurately as an iPhone but close), the ability to download apps and content directly, as well as surf the Web and check e-mail via Wi-Fi. (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:** Following the original iPod design, this model offers the highest capacity for content (160GB).

- **The iPod nano:** The current iPod nano is small enough to clip to your clothes, comes in a variety of colors, and responds to touch gestures — and you can shake it 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 website (see the Introduction for details). For a nifty chart that shows the differences among iPod models, see the Identifying iPod Models page on the Apple iPod website (`http://support.apple.com/kb/HT1353`).

Fingering with the iPod touch

The iPod touch is much more than a media player. Less than a third of an inch thick and weighing less than four 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 a touch-sensitive screen with icons for launching apps, an on-screen keyboard for entering information, a Home button on the front, and built-in speaker and volume controls.

Apple offers the following sizes of iPod touch models as of this writing, and they all use the same battery that offers up to 40 hours of music playback, or 7 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 could play a full week of nonstop music.)
- **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 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, and popular social networks (such as Facebook and Twitter) offer apps to connect you with your friends. 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 6.

Many of the apps you find listed at the App store are especially designed to take advantage of new features of the fourth-generation iPod touch. Like the

iPhone 4, the fourth-generation iPod touch sports a three-axis gyro for measuring or maintaining orientation (used extensively by games) and a 3.5-inch, widescreen, multi-touch Retina display that offers a stunning 960 x 640 pixel resolution at 326 pixels per inch — so many pixels that the human eye can't distinguish individual ones. The newest iPod touch also offers a main camera on the back for recording HD (720p) video at up to 30 frames per second (with audio), and shooting photos at 960 x 720 pixel resolution. And you can use a front video camera for taking VGA-quality photos and making FaceTime video calls over the Internet.

In short, a fourth-generation iPod touch can do nearly everything an iPhone 4 can do, except make cellular-service phone calls or texting, use the 3G data network, or pinpoint its exact location with the Global Positioning System. Even so, the iPod touch can pinpoint its approximate location with Internet-based Location Services, so you can make FaceTime video calls and the equivalent of a phone call using the Skype app.

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 silver.

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.

Going mano a mano with the iPod nano

Apple brought its multi-touch technology to the smallest screen possible. The sixth-generation iPod nano is the most fashionable iPod model you can clip to your clothes — it's only about a half-inch wide and high, pencil-thin, in a full spectrum of colors. It plays music, audio podcasts, audio books, and the music portion of music videos.

This mini marvel (see Figure 1-2) offers a 1.54-inch, color thin film transistor (TFT) display with 240 x 240 pixels of resolution to show crisp images of your album cover art, and includes a motion sensor so that you can shake it to shuffle songs. Apple offers an 8GB model that holds about 2,000 songs and a 16GB model that holds about 4,000 songs. It also offers an FM tuner for listening to radio and a pedometer to keep track of your footsteps.

Each model offers a battery that can play up to 24 hours of music — all day and all of the night — or 5 hours of video.

Figure 1-2: iPod nano looks good on you and plays FM radio as well as music.

The larger fifth-generation iPod nano also includes a video camera and a built-in microphone, and plays videos. For details, visit this book's companion website.

Doing the iPod shuffle

If the regular iPod models aren't small enough to fit into your lifestyle or your budget, try the ultra-tiny 2GB iPod shuffle for $49 (see Figure 1-3). Its built-in clip lets you attach it to almost anything. The fourth-generation iPod shuffle has no display but offers buttons on the front to control playback. This design keeps the size and weight to a minimum.

Figure 1-3: An iPod shuffle is the smallest and least expensive iPod.

The iPod shuffle can also talk to you with the VoiceOver feature. Press the VoiceOver button on top of your iPod shuffle to hear the title and artist of the song. VoiceOver even tells you whether your battery needs charging.

The 2GB iPod shuffle holds about 500 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 offers up to 15 hours of power between charges.

Comparing iPhone Models

The iPhone 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 or using the cellular network if it doesn't find Wi-Fi. 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. The iPhone includes all the features of an iPod touch, and it's 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 podcasts. The iPhone 4 and iPhone 4S include cameras front and back to shoot photos and videos and make FaceTime video calls, and they can display photos and set slide shows to music.

The 8GB, 16GB, and 32GB iPhone 4 models (introduced in June 2010), and the 16GB, 32GB, and 64GB iPhone 4S models (introduced in October 2011), are slimmer and more powerful than the original iPhone, the iPhone 3G, and the iPhone 3GS. In addition to fast 3G data service, GPS mapping, and voice control, the iPhone 4 and iPhone 4S offer a visually stunning 960 x 640 pixel retina display for extremely crisp text and images, a higher resolution camera for photos that also shoots HD video, and a front-facing video camera for making FaceTime video calls over the Internet. All iPhone models incorporate flash memory just like iPod touch, iPod shuffle, and iPod nano models.

The iPhone 4 and iPhone 4S built-in rechargeable lithium-ion battery offers up to 14 hours of talk time using the slower "E" (also known as Edge or 2G) cell network or 7-8 hours using the faster 3G cell network (with up to 200 hours on standby). The iPhone 4 and iPhone 4S also offer up to 9 hours browsing the Internet on Wi-Fi or 6 hours using 3G, up to 10 hours playing video, and up to 40 hours playing music. All models offer Bluetooth for using wireless headphones and microphones when making phone calls.

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

Comparing iPad Models

Douglas Adams, in the bestseller *The Hitchhiker's Guide to the Galaxy* (conceived in 1971 and published in 1979), introduced the idea of a handy travel guide that looked "rather like a largish electronic calculator," with a hundred tiny flat press buttons and a screen on which any one of a million "pages" could be summoned at a moment's notice.

The iPad is an interstellar hitchhiker's dream come true. It's a new category of device — located somewhere between a Mac laptop and an iPod touch or iPhone in terms of its capabilities — that evolved from the iPhone design and

uses the iPhone Operating System (iOS). The iPad and iPad 2 models offer all of the features of an iPod touch, and all the features of an iPhone except telephony. The iPads also have the following differences:

- The larger touch-sensitive display size (1,024 x 768 pixels), which supports all of the iPhone OS gestures, also supports multi-finger gestures — apps can recognize multiple fingers (either yours or more than one user).
- The connection features are the same as the iPod touch and iPhone (except no phone calls) — all iPad models offer Wi-Fi (like an iPod touch), and the Wi-Fi + 3G models offer both Wi-Fi and 3G Internet access (like an iPhone 4).
- Motion and location detection act the same way as an iPod touch or iPhone: All iPad models offer Internet-based location (like an iPod touch) with an assist from a digital compass, whereas the Wi-Fi + 3G models include GPS hardware (like an iPhone 4).

The iPad 2 models, shown in Figure 1-5, use the same battery as the original iPad models — it offers up to 10 hours of using the Internet on Wi-Fi (9 hours on 3G), listening to music, or watching video.

Figure 1-5: The iPad includes all the features of an iPod touch with a much larger screen.

The iPad 2 models also include two cameras (front and back) for FaceTime and HD video recording. The back camera records HD video (up to 720p) at up to 30 frames per second with audio and also works as a low-resolution still camera (1280 x 720 pixels with 5x digital zoom). The front camera records VGA video at up to 30 frames per second with audio and can take VGA-quality still pictures. The iPad 2 models are also twice as fast with the dual-core A5 chip, and graphics and animation can run up to nine times faster.

All iPad models come with the following flash memory capacities:

- **The 16GB model** holds about 3,500 songs, 20,000 photos, or about 20 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.

Thinking Inside the Box

Don't destroy the elegantly designed box while opening your iPad, iPod, or iPhone. Before going any further, check the box and make sure that all the correct parts came with it. Keep the box in case, heaven forbid, you need to return the iPad, 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 a Dock Connector–to–USB cable. The cable connects your iPad, 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 iPad, iPod, or iPhone. The iPod shuffle includes a special cable to connect to a USB power adapter or to your computer. The iPhone models come with a power adapter for recharging the battery, and the iPad comes with a special 10W power adapter.

The iPod touch, iPod classic, iPod nano, and iPhone are also supplied with stereo earphones (often called *earbuds*). (The iPad doesn't come with earphones, but you can use any of the earphones that work with an iPod or iPhone. The iPhone earphones include a microphone, which you can use with FaceTime and the Skype app to make video calls.)

Outside the box

You may want to have a few things that are not in the box. For example, even though you don't really need an AC power adapter or dock — you can connect iPod models 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 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 (`http://store.apple.com/us`), a physical Apple Store, or other stores such as Amazon.com, Best Buy, 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

Although you can store your apps, content library, personal information, and settings for an iPad, iPod touch, or iPhone in Apple's iCloud service, you may still want to use a computer and iTunes to manage these things and keep your iPad, iPod touch, or iPhone in sync with them. You need a computer and iTunes to manage and back up the content on an iPod nano, iPod shuffle, or iPod classic.

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 iPad, 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.

The newest version of iTunes (as of this writing) is version 10.5, which is an update to version 10. You should use the newest version, especially to activate any iPhone, iPad, or iPod touch model, or to set up any iPod model. You also need the following:

- **A PC or Mac to run iTunes:** On a PC, iTunes version 10.5 and newer versions require Windows XP (with Service Pack 2) or a 32-bit edition of Windows 7 or Windows Vista. (You can use a 64-bit version of Windows Vista or Windows 7 if you also run the iTunes 64-bit installer, which you can download from the iTunes download page.) Although you can run iTunes 10 and newer versions on a PC with a 1 GHz Intel or AMD processor and a minimum of 512MB of RAM, you need at least a 2 GHz Intel Core 2 Duo or faster processor and at least 1GB of RAM to play HD-quality videos, an iTunes LP, or iTunes Extras from the iTunes Store. You also need a DirectX 9.0–compatible video card with 32MB of video RAM (64MB recommended) to watch video.

  With a Mac, iTunes version 10.5 and newer versions require Mac OS X Version 10.5 or newer (Leopard, Snow Leopard, or Lion), and full iCloud support requires Lion. Although you can run iTunes on a Mac with an Intel, PowerPC G5, or PowerPC G4 processor and at least 512MB of RAM, you need at least a 1 GHz PowerPC G4, PowerPC G5, or Intel processor to play Standard Definition video. You need at least a 2 GHz Intel Core

2 Duo or faster processor and at least 1GB of RAM to play HD-quality videos, an iTunes LP, or iTunes Extras from the iTunes Store.

- **USB connection:** Your computer needs to support USB 2.0 (also called a *high-powered USB*) in order to connect your iPad, iPod, or iPhone to it.

  For details about using USB or FireWire cables with older models, visit this book's companion website.

- **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 older versions of iTunes. You can download a newer version at any time to replace it.

- **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 (or compatible third-party disc burner) to burn your own discs.

Applying Power

All iPad, 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.) For an iPad, you may need to use the AC power adapter because many computers don't provide enough power through the USB connection to recharge the iPad battery.

Connecting your iPad, iPod, or iPhone

On the bottom of the iPad, iPod touch, iPod classic, iPod nano, or iPhone, you find a large connection called the *dock connection*. The dock connection mirrors the connection on the end of a dock — your iPad, iPod, or iPhone fits snugly in a dock, and the dock offers a dock connection for the cable to your computer or to the optional AC power adapter.

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

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.

A dock can be convenient as a base station when you're not traveling with your iPad, iPod, or iPhone because you can remove any travel case and just slip it into the dock without connecting cables. Just connect it to an Apple or a third-party dock and then use the cable supplied with your iPad, iPod, or iPhone to connect the dock to your computer or power adapter. You can pick up a dock at an Apple Store, order one online, or take advantage of third-party dock offerings. Some docks, such as the Apple Universal Dock, keep your iPod classic or iPod nano in an upright position while connected, and the iPad Keyboard Dock keeps an iPad in an upright position and includes a physical keyboard for typing and activating features. Some docks also provide connections for a home stereo or headphones, and some docks offer built-in speakers.

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. When you first connect your iPad, iPod, or iPhone to the computer, iTunes starts up and begins the setup and syncing process (see Chapter 2). After syncing, the computer continues to provide power through the USB 2.0 port to the iPad, iPod, or iPhone (although it may not be enough power to recharge an iPad).

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 sync an iPad, iPod, or iPhone with your computer. Although you can use a low-speed USB 1.0 or 1.1 connection to sync an iPod or iPhone, it's slower than molasses on a subzero morning for syncing.

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

Don't use another USB device in a chain, and don't use a USB hub to connect your iPad, iPod, or iPhone unless the hub is a *powered* hub — a hub with a separate power source, in other words. Note that although Apple's current wired keyboards act as USB 2 hubs, other USB keyboards may act like USB 1.1 hubs, and older ones can't provide power to an iPad, iPod, or iPhone.

Turning it on and off

Touch any button to turn on an iPod classic. To turn off an iPod classic, press and hold the Play/Pause button. To keep an iPod classic from turning on by accident, you can lock it with the Hold switch on the top. 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.

If your 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).

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. With the three-way switch or On/Off switch, iPod shuffle models don't need a Hold switch.

To turn on a sixth-generation iPod nano, press the Sleep/Wake button on top. Press it again to turn it off. To conserve battery life, the screen goes dark anyway if you don't touch it for a while — press the Sleep/Wake button to turn it back on.

An iPad 2 with a Smart Cover awakens when you open the cover. To turn on or awaken an iPad (without a Smart Cover), an iPod touch, or an iPhone, press the Sleep/Wake button on top, or the physical Home button on the front. The screen shows the message `Slide to unlock` — slide your finger across this message to unlock the iPad, iPod touch, or iPhone. If this is the first time you are starting up an iPad, iPod touch, or iPhone, the screen shows the message `Slide to configure` — slide your finger across this message to set up the device (see Chapter 2 for details).

To put an iPad, iPod touch, or iPhone to sleep, press the Sleep/Wake button (with an iPad 2 with a Smart Cover, you can just close the cover). 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 iPad, iPod touch, or iPhone to sleep also locks its controls just like a Hold switch.

You can turn the iPad, iPod touch, or iPhone completely off by holding down the Sleep/Wake 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 button. To save battery power, you should plug the iPad, 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.)

After awakening but before unlocking your iPad, iPod touch, or iPhone, you can press the physical Home button twice quickly to display music controls. Slide the volume control to set the volume, and tap the play/pause, previous/rewind, or next/fast-forward buttons to control playback (for details on music playback, see Chapter 15). On an iPad 2, iPod touch, or iPhone, you can also tap a camera icon to launch the Camera app. See Chapter 17 for details on taking photos and videos.

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 iPad, iPod, or iPhone out in the cold all night, it might have trouble waking, and it might even display a low-battery message. Plug the iPad, 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 iPad, iPod, or iPhone, as I describe in Chapter 21.

Facing Charges of Battery

The iPad, iPod, and iPhone models are supplied with built-in rechargeable batteries that are based on the most innovative battery technologies for portable devices:

- The iPod shuffle uses a lithium-polymer battery that offers 10 hours of music-playing time.
- The iPod nano uses a lithium-ion battery that offers 24 hours of music-playing time.
- The iPod classic uses a lithium-ion battery that offers 36 hours of music playback or 6 hours of video or photo display with music.
- The iPod touch uses a lithium-ion battery that offers 40 hours of music-playing time, or 7 hours of video, browsing the Internet using Wi-Fi, or displaying photo slide shows with music.
- The iPhone models use lithium-ion batteries. The iPhone 4 and iPhone 4S offer up to 40 hours of music-playing time, 10 hours of video-playing time, or 6 hours of slide shows with music; the iPhone 3GS offers 30 hours of music-playing time and the same for video and slide shows. However, depending on your network settings, practical battery time can vary widely. The iPhone models can operate for 200 hours on standby (waiting for calls) if you do nothing else with them. You also find different power requirements for different methods of connecting:
    - The iPhone 4 and iPhone 4S give you about 14 hours of talk time; you get 12 hours on an iPhone 3GS or 10 hours on an iPhone 3G.
    - The iPhone 4 and iPhone 4S offer 9 hours of browsing the Internet using Wi-Fi and 6 hours using 3G; the iPhone 3GS offers 9 hours

and the iPhone 3G 5 hours using Wi-Fi, and both the iPhone 3G and 3GS offer 5 hours of browsing using 3G. You can turn off 3G by choosing Settings➪General➪Network and tapping the On button for the Enable 3G option.

- The iPad (all models) use a mammoth 25-watt-hour lithium-polymer battery — about five times larger than the iPhone battery — that offers up to 10 hours of playing music, watching videos, and browsing the Internet using Wi-Fi or 9 hours using 3G.

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

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

Recharging your battery

The iPad, 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 4 hours to recharge the battery fully from a drained state (less if partially charged) for all iPad, iPod classic, and iPhone models, and only 3 hours for an iPod nano or iPod shuffle. Note, however, that it may take longer to recharge an iPad when it is connected to your computer. The fastest way to recharge an iPad is with the included 10W power adapter. It will also recharge, but more slowly, when attached to a computer through a high-power USB connection (as found on recent Macs) or with an iPhone power adapter. When attached to a computer through a standard USB (most PCs or older Macs), the iPad recharges, but only when it's in sleep mode.

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

A battery icon with a progress bar in the upper-right corner of the iPad, 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 also display the battery power percentage in the icon on an iPad, or next to the icon on an iPhone, by choosing Settings➪General➪Usage, and tapping the Off button for Battery Percentage to turn it on (tap On to turn it off).

You can check the battery 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.

To hear the VoiceOver feature speak your battery status ("full," "75 percent," "50 percent," "25 percent," or "low"), click and hold the center button of the earbud controls.

In iTunes, the battery icon next to your iPod shuffle's name in the Devices section of the source pane 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 built-in, rechargeable battery in an iPad, iPod, or iPhone is, essentially, a life-or-death proposition. After it is 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 — and with AppleCare service, even the shipping may be free). Don't try to replace it yourself unless you don't mind invalidating the warranty.

Keeping an iPad, iPod, or iPhone in a snug carrying case when charging is tempting but also potentially disastrous. The device needs to dissipate its heat, and you could damage it 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. See Chapter 5 for more on accessories.

Maintaining battery mojo

You have several ways to keep your battery healthy. I recommend a lean diet of topping off your iPad, 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 for an iPod or iPhone, or 1,000 full-charge cycles for an iPad. 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 iPad, iPod, or iPhone. That is, run it all the way down (a full discharge) and then charge it all the way up (which takes at least 4 hours for an iPad, iPod touch, iPhone, or iPod classic, or 3 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 iPad, iPod, or iPhone from power for 24 hours to make sure that the battery is empty and then fully recharging the battery.

iPad, iPod, and iPhone batteries typically last three years or more, but are vulnerable to high temperatures, which decrease their life spans considerably. Don't leave your iPad, iPod, or iPhone in a hot place, such as on a sunny car dashboard, for very long (don't leave it out in the rain, either — water can easily damage it).

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

If you don't use your iPad, 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 iPad, iPod, or iPhone from power for 24 hours. Then, to recharge the battery fully, 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, iPad, and iPhone models use a flash drive, which uses less power but still uses power when playing content. The iPad, iPod touch, and

iPhone also use power accessing the Internet, running applications, receiving push notifications (see Chapter 19 for details), using Bluetooth devices, and in the case of the iPhone, making and receiving calls. Keeping these activities to a minimum can help you save power.

The following are tips on saving power while using your iPad, 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 iPad, iPod nano, iPod touch, or iPhone).** Press the Sleep/Wake button on top to immediately put it to sleep and lock its controls to save battery power. You can set your iPad, iPod touch, or iPhone to automatically go to sleep by choosing Settings➪General➪Auto-Lock from the Home screen 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).** Flip the Hold switch on the iPod classic 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 tapping Settings➪Brightness, on an iPod nano by tapping Settings➪General➪Brightness, or on an iPad by tapping Settings➪Brightness & Wallpaper, and dragging the brightness slider to the left. Use the backlight sparingly on the iPod classic — 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.
- **Don't ask and don't tell where you are (with an iPad, iPod touch, or iPhone).** Turn off Location Services if you aren't using apps that need it. Choose Settings➪Location Services from the Home screen (Settings➪General➪Location Services from the iPod touch Home screen), and touch On for the Location Services option at the top to turn it Off. (You can also turn on or off Location Services for each app that uses it — see Chapter 4 for details.)
- **Let the postman ring twice (with an iPad, iPod touch, or iPhone).** Check e-mail less frequently. You may want to disable Push and Fetch settings to check e-mail less frequently, as I describe in Chapter 19. Turn off instant notifications from Facebook and other sources — see Chapter 3 for details.

- **Turn off 3G (with an iPad 3G, iPad 2 Wi-Fi + 3G, iPhone 3G, iPhone 3GS, or iPhone 4).** Turn off 3G in any areas that don't offer a strong 3G signal.
  - On an iPhone 3G, 3GS, or 4, 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 carrier's cellular network, but the iPhone will stop using so much power continually searching for 3G.
  - On an iPad 3G or iPad 2 Wi-Fi + 3G, choose Settings➪Cellular Data and tap the On button for the Cellular Data option to turn it off.
- **Tune out Bluetooth (with an iPad, iPod touch, or 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 iPad, iPod touch, or iPhone).** Turn off Wi-Fi when not browsing the Internet or using Maps: Choose Settings➪Wi-Fi and touch the On button to turn it off.
- **Turn it off completely.** To turn off an iPod nano, press the Sleep/Wake button. To turn off an iPod classic, 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. Although you can put an iPad, iPod touch, or iPhone to sleep by pressing the Sleep/Wake button, you can also turn it completely off by holding down the Sleep/Wake 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.

  

  Keep in mind that starting up an iPad, 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 iPad, iPod, or iPhone controls. Selecting songs and using Previous/Rewind and Next/Fast Forward require more energy. Also, turn off your iPad, iPod, or iPhone equalizer (EQ) if you don't need it (see Chapter 15).