

Laying the Foundation— Basic Digital Photography

We all need to start somewhere.

For many of us, that means buying our first digital camera and learning how to use it.

The chapters in this part of the book introduce you to the basics. Here's where you can find advice on how to determine what is the best camera for you and also learn what features are important and which ones aren't.

In Chapter 3, you also learn some of the fundamentals to better picture-making.

P A R T



In This Part

Chapter 1

What You Need to Know
to Get Started

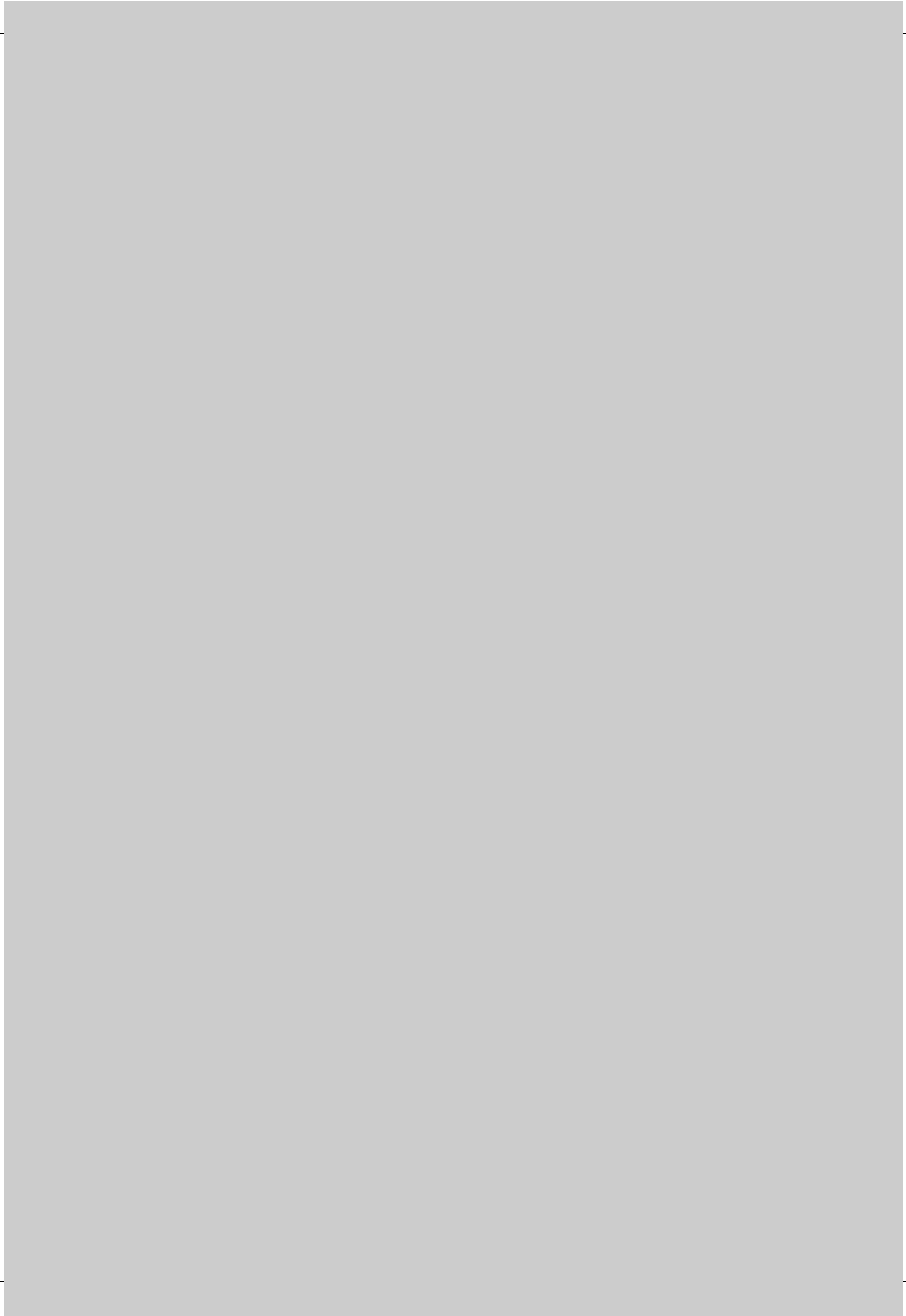
Chapter 2

Basic Camera Operation

Chapter 3

Taking Interesting
Photographs





What You Need to Know to Get Started

Digital cameras are *sexy*! Digital cameras are *exciting*! Digital cameras are *fun*!

If you're one of the many people who has responded to the promises made about digital photography, you may have found yourself lured into considering the purchase of a digital camera. Let's face it, it's nice to be able to take as many pictures as you want for free, and even better, to be able to see those pictures immediately after you press the shutter release.

Yet, for many people, these promises of pure ease and simplicity are left unfulfilled. After they bring their high-tech camera home, they find things are more complicated than they thought. What looks and sounds so easy and fun in the camera ads turns out to be more complicated than it first appeared.

My intention in this first chapter is to help bring the fun and excitement back to your digital camera purchase by giving you some tips on choosing the best camera for your needs.

The Advantages of Digital Photography

Digital photography offers many advantages over film. For one, you can take as many pictures as you want without the burden of buying and processing film. In addition, most digital cameras offer a built-in LCD screen that allows you to view an image right after you've tripped the shutter.

1

C H A P T E R



In This Chapter

How to choose a digital camera

Camera basics—what's important?

Point-and-shoot versus DSLR



4 Part I ♦ Laying the Foundation—Basic Digital Photography

These factors alone make digital photography a wonderful tool for better photography. You can fire off a shot, review it on the LCD screen, and decide whether you should try to take the shot again.

Digital images also offer the advantage of perfect reproducibility. You can make as many perfect duplicates of your images as you want without trouble. This makes sharing photos much easier. You can e-mail pictures to friends, or you can upload them to online photo printers and send folks the URL to the online photo album. That way, they can order whatever prints they want.

Getting a Handle on Digital Camera Choices

Digital cameras have introduced a new wrinkle to the equipment upgrade issue: The lure of this attractive new technology causes you to want to go out and buy new gear. But this same technology is changing so quickly that it forces you to face a much faster obsolescence path than you ever witnessed in the past.

The first digital cameras on the market offered minimal resolution (640 x 480 = 640K), rapidly replaced by higher resolution (1068 x 768 = 1.4 megapixels), replaced by still higher (1600 x 1200 = 2.1 megapixels), and so on. The current high-end crop of digital cameras hits about 6 megapixels for point-and-shoot cameras and more than 10 megapixels for digital single lens reflex (DSLR) cameras. So digital camera buyers, much like computer buyers, have become conditioned to upgrading their machines every couple of years.

Even though you may be tempted to upgrade more frequently, you also get increasingly more bang for your buck as the price-to-power comparison becomes more pronounced. The 2.1 megapixel camera that cost \$1,000 when it was first introduced is replaced six months later by a 3.4 megapixel camera at half the original price. Plus, this newer model corrects some flaws in the previous version and tacks on some extra features, such as the capability to record audio or video. So suddenly, that expensive camera is a much more attractive (and affordable) purchase.

The fundamental question, then, for most prospective camera buyers is “How do I figure out which camera is right for me?” The following sections try to answer this question.

Camera Basics—What’s Important?

Auto-focus, built-in flash, video, megapixels, built-in MP3 player, PDA, built-in cell phone, TV remote, remote control garage door opener—okay, I’m kidding about the garage door opener (I think). But digital cameras come with so many features these days that it’s enough to make your head swim. How do you ever decide which features are important and which aren’t?

Chapter 1 ♦ What You Need to Know to Get Started 5

Answering this question properly, more than anything else, will determine how happy you are with your digital camera. All too often, buyers go for the fully loaded “does everything” camera and find that it’s too complicated to use and doesn’t make it very easy to do any one thing—including taking pictures—well.

So the first step in figuring out what kind of camera you should buy is to determine your photographic needs. The following list can help you make this determination:

- ♦ **Output:** What kind of output are you looking for? Most people prefer 4 x 6 prints. If it’s been more than a year since you last had a picture blown up to an 8 x 10 or larger, guess what? You’re normal. The average person takes a bunch of pictures, gets 4 x 6 prints, and puts them in a photo album designed to hold 4 x 6 prints.
- ♦ **Resolution:** If you fall into the *normal* category, a camera capable of creating 2 to 3 megapixel images will meet your needs just fine. In fact, it will give you some quality to spare, just in case you do decide you want to get an enlargement made.



See Chapter 15 for some advice on how you can stretch those pixels even further.

- ♦ **Hype:** So why all the hype about 4, 5, and 6 megapixel cameras? Well, it helps manufacturers sell cameras, for one thing. And there are some people who really do want to make big prints. If your budget allows for the extra money, buying a higher resolution camera can offer you practical advantages over one with the minimum requirements. On the other hand, if your budget is tight, save a few bucks and skimp a little on resolution. It’s okay, you can spare it.

If you are one of the few who expect to regularly produce quality enlargements, then by all means look toward the higher resolution cameras.

Decisions, Decisions: Point-and-Shoot versus DSLR

As prices drop on DSLRs, more and more people are choosing them over their point-and-shoot counterparts. How big an advantage are interchangeable lenses, and are there any other advantages to using a DSLR over a point-and-shoot camera? The following sections compare the two so that you can make the right decision for your situation.

Point-and-shoot cameras

Most people find that a good point-and-shoot does an adequate job. Certainly, if taking pictures at a gathering or an event isn’t your first priority, a small,

6 Part I ♦ Laying the Foundation—Basic Digital Photography

versatile point-and-shoot digital camera may provide all the photographic capability you need.

Even sophisticated amateurs can find high-end point-and-shoot digital cameras, such as the Canon G series and the Nikon Coolpix, that are capable of delivering professional quality images and giant enlargements. Many of these cameras also accept add-on lenses to extend their wide-angle and telephoto range and have powerful accessory flash units available.

These cameras pack a lot of photographic power into small, lightweight packages that are easy to carry and use. This can be a real boon for older photographers. The weight of a heavy camera bag and the stress of handholding a big lens and camera combination can aggravate joint pains and afflictions such as Carpal Tunnel Syndrome.

DSLR cameras

As terrific as point-and-shoot cameras are, they still don't provide the versatility and control available in a good interchangeable lens DSLR.

Through their use of interchangeable lenses, DSLRs provide you with a huge range of options. Most camera manufacturers offer not only a variety of focal lengths, but also provide multiple choices for the most popular lens types. Third-party lens makers such as Sigma, Tamron, and Tokina provide even more options with their lens lines.

With the many lens choices offered by DSLR manufacturers, you can tailor your camera bag to meet the needs of a particular shoot. If your passion is close-up photography, you can choose from close focusing and macro lenses, as well as a whole range of other tools, such as extension tubes, bellows, and add-on close-up lenses (not to be confused with filters, even though they look like filters). All these tools mean that you can take your photography beyond the norm, one of the secrets to producing memorable images.

Figure 1-1 shows an example of a photograph I took using my DSLR and some special tools. I was out photographing the flowers in a springtime display at a botanical garden. Wanting to try something different, I brought out a 400mm telephoto lens (normally used for sports and wildlife photography) and a set of extension tubes.



Don't forget, you can see each figure in full color on this book's web site at www.wiley.com/compbooks/simon.

By using an extreme telephoto as a close-up lens (made possible by the extension tubes), I was able to create an entirely different look for these daffodils. Such an image would have been impossible for most point-and-shoot cameras, but a DSLR handled the challenge fairly easily.

Chapter 1 ♦ What You Need to Know to Get Started 7



You can read more about lens choices in Chapter 4 and extension tubes in Chapter 5.



Figure 1-1: Close-ups are usually made with modest focal lengths. As this picture shows, you can make a striking close-up image with a long telephoto lens.

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The downside to going the DSLR route includes higher costs and carrying more weight when you're out shooting. Still, if photography is your primary reason for leaving the house, it's hard to beat a good DSLR system.



Project: Choosing a digital camera

Choosing the right digital camera can be a challenge. All too often, camera buyers obsess more over what brand to choose than what features they need. The first step is to think about how you plan to use your camera. For most people, a general-purpose camera will do quite nicely. There are, however, some uses that cry out for more specialized equipment. To help you determine what type of camera best fits your photography needs, work through the following steps:

1. Consider the kind of photography you will use the camera for most of the time. The following list explains some of the types of photography you may want to consider:
 - **Sports photography:** Taking photographs of sporting events requires long focal lengths, fast shutter speeds, and high-speed motor drives, if possible. Although you can create memorable

Continued

8 Part I ♦ Laying the Foundation—Basic Digital Photography



Project (*continued*)

action photos without a fast motor drive (five frames-per-second or better), it does make your job more difficult. The Fujifilm FinePix S5000 Z has a 5fps motor drive and 370mm focal length at the long end of its zoom.

- **Nature photography:** Photographing birds in flight and animals in their native surroundings are a couple of the most difficult photographic challenges. Wildlife pros rely on top-of-the-line cameras and lenses costing thousands of dollars. If you're planning to do this kind of photography as a hobby, and you're on a more limited budget, look for a camera with a longer zoom range (preferably greater than 300mm with the capability to accept add-on lenses). Keep in mind, another option popular with amateur wildlife photographers is something known as *digiscoping*. Digiscoping involves mating a camera and spotting scope to greatly boost the reach of the camera lens. Cameras such as the Kodak DX6490 and Canon PowerShot S1 IS offer such capabilities.



To find out more about digiscoping, see Appendix B.

- **Underwater photography:** Specialized underwater digital cameras are available for the scuba or snorkeling enthusiast. These cameras are either built to be watertight or come with their own custom housings. It's frequently more economical to buy a digital camera specifically designed for underwater photography (such as the Sony DSC-U60) than it is to buy a camera and underwater housing separately. One thing to watch out for is the distressingly low maximum resolutions (1.3 megapixels) some of these cameras offer. Such a low maximum resolution means you can put a lot of images on a memory card, which is no small thing since changing memory cards under water isn't really an option. Unfortunately, it also means that you won't be able to do much in the way of enlargements if you just happen to capture the Loch Ness monster swimming by while on her Caribbean vacation. Even using some of the pixel-stretching options I discuss in later chapters, it's doubtful that you'll ever be able to do any better than an 8 x 10 or maybe an 11 x 14 print.



You can find more information about pixel-stretching options in Chapter 15.

- **Architectural photography:** It's possible to use a point-and-shoot digital camera for basic architectural photography provided that you can finish the process in the digital darkroom with an image-editing program such as Adobe Photoshop or Photoshop Elements. These programs can be

Chapter 1 ♦ What You Need to Know to Get Started 9

used to manipulate and correct images in all sorts of ways. Keep in mind, however, that photographing skyscrapers on crowded city blocks calls for very wide-angle lenses. Even more important, the lens needs to be wide enough to provide the necessary extra space around the building in order to correct the *keystone* effect. This effect makes the building look like it's falling away from you when you tilt the camera up to fit the entire structure in the image. DSLRs that accept special tilt/shift lenses to control this problem can offer better results than you can achieve with a point-and-shoot camera.



To find out more about the keystone effect, see Chapters 15 and 19.

2. Think about what, if any, extra features you want your digital camera to have. If you're not planning to engage in any of the specialized uses mentioned in Step 1, then it's just a matter of looking for a basic camera. Although manufacturers hype extra features such as the camera's capability to record video or serve as an MP3 player, you're better off focusing on whether the camera is easy to operate and can take the kind of pictures you want it to. Even if the camera can record video, how good is the quality, and how likely is it that you will ever do anything with that video? Using your camera to play MP3s ties up memory capacity, drains batteries, and is all too frequently a more complicated process than the average person wants to be bothered with.
3. Determine some of the other requirements you have for your digital camera. Here are some of the most important items to consider:
 - **Lens choice:** Point-and-shoot digital cameras come with a built-in lens, so once you buy the camera, you're pretty much stuck with that optic. Low-end cameras may have only a fixed focal length lens or a basic 3-to-1 zoom, which means that the longest telephoto setting is three times the focal length of the widest wide-angle setting.



Two terms you'll see when looking at digital camera optics are *optical* and *digital* zooms. The optical zoom is the actual physical zoom range of the lens and is what you should really be concerned with. Digital zooms are nothing more than in-camera *cropping* (cutting out unnecessary portions of the image) followed by some interpolation (educated guesses by the camera's software) to increase the image resolution to what you were originally supposed to be getting.

- **Memory:** Choosing a camera based on the kind of memory it uses isn't a bad idea. When you figure that you might change cameras every two or three years, amassing a collection of

Continued

10 Part I ♦ Laying the Foundation—Basic Digital Photography**Project (continued)**

memory cards that you can't use in your next camera isn't the best decision. Compact Flash cards are the most popular and least expensive, so picking a camera that uses this type of memory is worth considering.



Some types of memory cards, such as Smart Media cards, require the camera to provide the card controller. If you buy a card that has a larger capacity than your camera is aware of, you have to send the camera back to the manufacturer for a firmware upgrade in order for the camera to recognize your media.

- **Buffer:** A buffer is a form of temporary parking for images that haven't yet been written to your memory card. Without a memory buffer, the camera has to finish writing the image to the memory card before you can take another photo. If you're using a camera with a decent size buffer, you can take multiple shots (important if you're using a motor drive function and shooting a sequence) before the camera has to stop shooting to write data. Buffer capacity is particularly important if you're using a camera that relies on mini-CDs as its memory because the CD writing process can be relatively slow.
 - **Batteries:** Does the camera use a convenient type of battery, such as AA or AAA, or are you required to buy the camera maker's proprietary battery, which is usually a lot more expensive? DSLRs frequently rely on specialized batteries that only the manufacturer makes, although third-party equivalents are sometimes available that are cheaper and offer more power.
 - **LCD screen:** Low-end cameras frequently come without an LCD screen (see Figure 1-2) for reviewing photos. Although this lack of screen makes for a very inexpensive camera, it eliminates one of the most powerful tools a digital camera has to offer—the capability to review an image immediately after you've created it. It's hard to overestimate how valuable this feature is for improving your photographs. Save money somewhere else—this is one feature you really have to have.
4. Using the criteria presented in the preceding steps, you should be narrowing down your requirements and getting a handle on the features you really need in a digital camera. Next, you need to be sure that your home computer can handle its end of the process. Theoretically, it's possible to own a digital camera without owning a home computer. You can just pull your memory card out of the camera and take it to many of the photo processing centers or home printers that can make prints directly from the media.

Chapter 1 ♦ What You Need to Know to Get Started 11



Figure 1-2: LCD viewers give you a vital tool for improving your photography.

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Still, that approach limits the benefits of digital photography. Using your home computer to manage your digital images makes the full power of the digital process possible. Your home computer lets you edit, manage, and manipulate your images in a way never possible with film. When considering specific computer requirements, keep in mind that if you're a hobbyist, you generally aren't manipulating files quite as large or as complex as those handled by a professional photographer, so your system requirements aren't as great. Here are some things to consider as you evaluate whether your home computer is up to the digital processing task:

- **RAM:** Photo editing programs such as Photoshop benefit from lots of RAM. The good news is that computer memory is very cheap these days; so maximizing out your home computer's

Continued

12 Part I ♦ Laying the Foundation—Basic Digital Photography



Project (*continued*)

RAM (if necessary) won't break the bank. A home system with 256MB of RAM should work for most people, but even less RAM can do the trick, just not as quickly.

- **Hard drive space:** Image files start adding up after a while, and having enough hard drive space to manage them can make life easier. Because both internal and external hard drives have gotten pretty cheap, it's not that difficult to add another hard drive if your system needs one. If you're an amateur just getting started in digital photography, an extra 10 or 20 gigabytes (GB) of hard drive space will meet your needs for a year or two.
- **CD/CDRW/DVD:** You need some kind of removable storage medium for sharing images and for making backup copies of your precious files. Of the three types, don't use CDRW for backup purposes because they usually aren't as dependable as the other two. CDs and the various flavors of DVD can offer dependable storage if properly cared for. They need to be kept in a fairly cool environment away from exposure to the sun. Never leave a CD lying out in sunlight for extended periods of time. Try to buy good quality CDs rather than the cheapest media you can find. There's some debate over the life span of home-burned CDs (which use a different process than commercially made ones), but 10 years is a reasonable expectation. Make more than one backup copy of important images. That's a big advantage of digital imaging, you can make as many perfect copies of a photo as you like!
- **Card readers:** You can transfer images from your camera to your computer (a process known as *capturing*) in several ways. One of the easiest is through a card reader that plugs into your machine via either a USB port (version 1 or 2.0) or a Firewire (also known as IEEE 1384 and iLink) connection. If you're using an older machine, you may also have a serial or parallel port option. A card reader reads the images off your memory card.

If you don't anticipate capturing a lot of images at any one time, USB version 1 works just fine for digital photography. Serial and parallel ports can also be serviceable if you can find the right adapters or an older card reader to work with these ports. Far and away the best and fastest choices, however, are FireWire and USB 2.0 (USB 2.0 has to go through a USB 2.0 port without any earlier USB 1 devices tied in), particularly if you have a lot of data to move.

Are card readers the best option? I think so. They're inexpensive, many are compatible with several different types of media so that they should work with your next camera, and they save you and your camera from the hassle of trying to use the camera as a transfer device (usually needing some kind of software). A similar device—the PCMCIA card adapter—can be

Chapter 1 ♦ What You Need to Know to Get Started 13

used to capture images into your laptop computer. This is also a good option provided you have a laptop computer that can use these adapters.

- **Miscellaneous accessories:** There are lots of other nice gadgets you can add to your computer to help with digital photo processing, such as a pressure sensitive pen and drawing tablet and a bigger or extra monitor, but these things aren't vital. Odds are, if you purchased a home computer in the past year or two, it's more than capable of handling digital photography without you having to buy more RAM, hard drive space, or other gear.

Don't be sidetracked by all the extra features and handy gadgets that are available for digital cameras. The most important considerations when choosing the right digital camera are your budget and what you're going to do with the images. As heretical as it sounds, I'm going to tell you *not* to obsess over which manufacturer you choose unless you're buying a DSLR.

The truth is, any of the big name camera makers produce a number of high-quality cameras capable of making great photographs. It's all about finding a camera that's easy for you to understand, feels good in your hands, and has the basic features you need. The story is a bit different, of course, if you're considering an interchangeable lens camera. Then, your purchase decision involves a bit more of a commitment. Once you start buying lenses and accessories, it becomes harder to switch to a different line later. So be sure to take the time you need upfront to determine whether a point-and-click or DSLR camera is right for you!

Summary

Making the move to digital isn't really that hard. It's just understanding what you need a camera to do. Today's cameras are smaller, lighter, and more powerful than many of their film predecessors. Best of all, they free you from the cost of film and processing.

This chapter looked at the basics of choosing a digital camera and tried to help you understand the features that make a camera useful. The bottom line is to choose a camera that is easy to work with and gives you the options you need to shoot the kind of photos you most often want to take. Sometimes people obsess too much about what brand of camera to buy. Relax. Look for one that feels right and will help you make good digital pictures.

