Chapter 1

Get Ready to Take Photos

Whether you are a snapshot photographer who takes several photos to record people, places, and events that are meaningful to you, or you are a passionate photographer who gets immense joy from making fine art photographs, you can always improve your photography if you do the right things before shooting.

Choosing what and where to shoot is the first step that you must take before shooting. Learn to find good events, places, and subjects to shoot by reading newspapers, books, or online resources. Look for good photo opportunities at local fairs, botanical gardens, nature preserves, national parks, or even zoos. Consider shooting still life or setting up a studio inside where you can control lighting.

When you know what you will be shooting, make sure that you know all that you can know about your digital camera. The more you know about your equipment, the more you can concentrate on getting the photographs that you want and not on learning how to use your camera. It can be very disappointing spending valuable time and money to take a trip only to find that you did not take good photos due to improper camera settings or usage.

When you go to shoot, be realistic; a day of shooting will not always result in one or more good photos. All photographers have bad days that end up with only mediocre photos — especially when the shooting conditions work against you!

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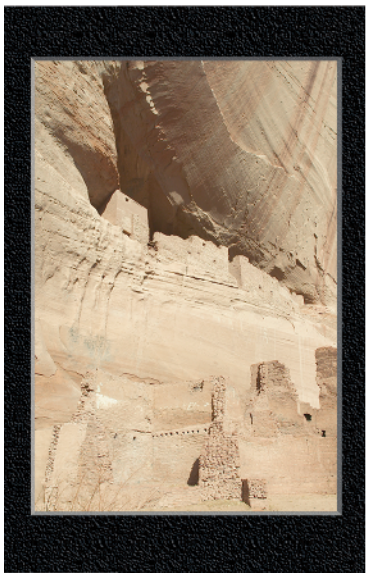
Select good PHOTO OPPORTUNITIES

Unless you have specific reasons to shoot particular scenes or subjects, the best photo opportunities for you are those things that you enjoy. If you enjoy gardening and appreciate the thousands of different variations of iris, shoot irises. Or if you are a birdwatcher and find pleasure in watching wildlife, choose places where you can find birds and other wildlife in settings that make great photographs.

When planning a trip, give yourself plenty of time to stay and take photographs. Allow yourself some time for bad weather or other shooting conditions that prevent you from photographing. You can spend an entire day or more at a site and not have good enough light to shoot. Do not fall into the trap of trying to see too much too quickly. You may miss the kinds of shots that you had hoped to capture because you saw everything and shot little. Photography takes time, and time is often the most important factor in getting truly great photographs.

When shooting well-known places such as the Grand Canal in Venice or Canyon de Chelly in Arizona, take classic photos and then shoot creatively, too.



It took several hours of waiting to get a shadow on this otherwise overly bright photograph of the White House ruins in Canyon de Chelly in Arizona.

If you are willing to hike, you may be rewarded with photos that are well worth the effort that it took to get there.

This small backyard pond offers many subjects to photograph. Being close to home, it is easy to pick the best light to shoot in.

#1

DIFFICULTY LEVEL

This frog was sunning on a rock on the edge of the pond shown in the preceding photo.

TIPS

Photo Tip!

When you find a good place to take photographs, visit it again and again. Your photographs will improve each time that you return to the location because you will learn when to visit and what to shoot.

Did You Know?

Some of the best photo opportunities may be in your own backyard. Learn to see differently and look for details, shapes, or colors that make good photographs — and then capture them.

Photo Tip!

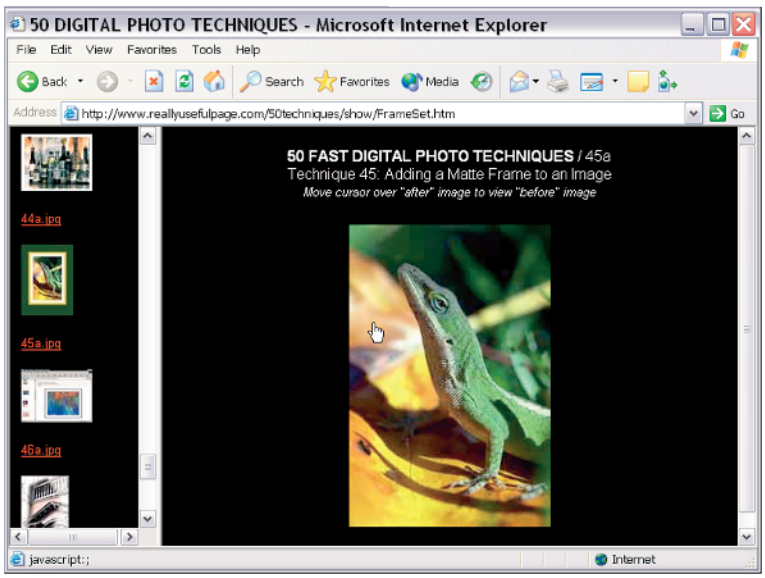
Use the Internet to learn where and when to shoot. There are many online guides and forums that provide all the information you need to find wonderful places and subjects to shoot that will suit your interests.

KNOW WHY
you are taking photos

Should you shoot horizontally or vertically? If you have a choice of digital cameras, which one should you use? What camera settings will you use? Will your photographs be framed or displayed on a Web page? Are you going to display your photographs in a series, or should they be shot in a particular style? Are you shooting to get backgrounds or objects to include in another photograph? Do you plan to digitally edit your photographs with an image editor such as Adobe Photoshop after you take them?

Your answers to these questions and others like them will have a substantial impact on how you should shoot. Knowing why you are taking photos before you take them can help you get the photos that you want. For example, suppose you make a once-in-a-lifetime trip and get excellent pictures. You then decide to make a calendar but cannot find enough photos to fit the horizontal format that you have chosen. Thinking about why you are taking the photographs and how they are likely to be viewed can help you to better plan your photographs.

This photo of a green anole was taken so that it could be used in a variety of media.



Minor cropping enables the photo to be displayed in a Web browser-based photo gallery.

Vertical orientation and composition makes it possible to frame this photo in standard-sized photo frames and mat boards.

2

DIFFICULTY LEVEL

Good cover design allowed the leaf on the left side of the photo to be used for the magazine's cover text.

TIPS

Photo Tip!

When you know that you will share a photo online, you can take advantage of the "multiplication factor" that you get when you crop an image from a large image. A small bird in a mostly blue sky print can become a large bird that fills the frame when it is cropped for the Web.

Did You Know?

Custom-sized frames and mat boards can be considerably more expensive than those of standard sizes. When possible, you should consider shooting so that you can use standard 4" x 6", 5" x 7", 8" x 10", and 11" x 14" frames and mat boards.

Did You Know?

A good photograph for the cover of a magazine usually needs to be shot vertically with some space on the photo where text and graphics may be placed without interfering with the composition of the subject.

MASTER YOUR CAMERA

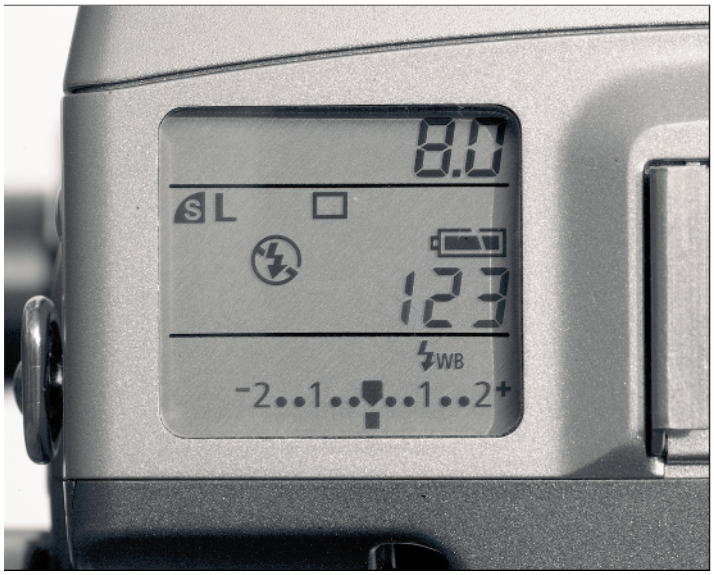
to get great photos

Today's sophisticated digital cameras enable anyone to take good, and sometimes great, photographs by simply using one of the automatic shooting modes and pressing the shutter release. However, most digital cameras offer many additional features that give serious photographers considerable creative control over how photos are taken and ensure that a higher percentage of photos are taken as you want them.

One major advantage of most digital cameras is that you can review the image and camera settings on an LCD screen immediately after taking the photo. This enables you to check that you have composed the photo as you like and that the camera settings were set as you expected. Some digital cameras even provide a *histogram* to give you a graphical view of the exposure. These review features are well worth using.

To get the best photos, learn all that you can about your digital camera. You must master your camera, or it will limit your success.

This dial on a Canon PowerShot G2 controls the shooting modes.



The Canon PowerShot G2 LCD screen shows important camera settings at a glance.

Important camera settings are controlled on the Canon PowerShot G2 via multiple menus.

#3

DIFFICULTY LEVEL

The LCD screen on the Canon PowerShot G2 shows a screen with camera settings, a histogram, and a thumbnail image.

TIPS

Did You Know?

The more you learn about and use different features on your camera, the more likely it will be that you will forget which settings you have changed and will shoot using the wrong settings. Learn how to quickly check your settings or to set them to the default settings in order to avoid shooting with the wrong settings. Many photos are ruined because of improper camera settings. The most common settings that cause problems are exposure compensation, white balance, auto-ISO change, and image size.

Caution!

Many digital cameras have shooting modes that automatically choose a faster ISO setting (see Task #6) if there is not sufficient light. Make sure that you know which shooting modes allow this to avoid taking photos that have too much digital noise.

CHOOSE THE IMAGE FILE FORMAT

to suit your needs

Each time that you press the shutter release, you capture an image on the image sensor. The image is then written to a file in a user-selected format with or without your chosen camera settings being applied. Most digital cameras offer three formats: JPEG (.jpg), TIFF (.tif), and RAW format.

The most commonly used format is the JPEG format. It offers a nice balance between image file size and image quality. The JPEG format is a *lossy* format; it uses a mathematical algorithm to reduce the file size while losing minimal image quality. The TIFF format is a *nonlossy* format, which means that no image quality is lost, but files are also considerably larger.

Unlike JPEG and TIFF files, RAW image files are proprietary files that do not have most of the camera settings applied to them. For greater creative flexibility, the photographer can use a RAW image converter, such as Adobe Camera RAW (see Task #61), and apply camera settings to the files *after* the photos have been taken.

RAW format images are digital "negatives" that need to be converted to be viewed and edited.

Approximate Image File Sizes

Image Size	*TIFF*	*JPEG*	*RAW*
5-Megapixel Image	14.5MB	1.5MB	7.8MB
Compression Ratio	1:1	10:1	2:1

These file sizes are from a Nikon CoolPix 5700. File sizes from other digital cameras will vary.

JPEG versus RAW File Format	
JPEG	RAW
- All camera settings are applied to the file	+ Image stored as captured by sensor, allowing post-shoot changes
+ Smaller file size	- Larger file size
+ Easily viewable images	- Requires RAW conversion software
+ Quick to view	- Slower to view
- 8-bit image (less picture information)	+ Wider bit range (12 or 14 bits yield more picture information)

#4

Did You Know?

The RAW format is the best image format to use if you want to get the best possible pictures from your digital camera. Camera settings such as white balance, contrast, saturation levels, sharpening, and other settings are not applied to a RAW image file. After you shoot, you have control over these settings when processing them with a RAW image converter such as Adobe Camera RAW (see Task #61) or one provided by your camera manufacturer. Many serious photographers shoot in RAW format most of the time.

Did You Know?

RAW image file converters enable you to change exposure compensation to your photos after you have taken them by up to plus or minus two f-stops! That alone makes it worthwhile to shoot in RAW format.

Set the IMAGE RESOLUTION AND COMPRESSION LEVEL

In addition to letting you choose a file format for your photos, most digital cameras enable you to choose the image resolution. If you have chosen the JPEG file format, many cameras also enable you to specify the compression level. Image resolution is expressed in terms of pixels, such as 2,560 x 1,920 pixels. If you multiply these two numbers together, you get the total pixel count — for example, 2,560 x 1,920 = 4,915,200, or just about 5 megapixels. More pixels in a picture enable you to print a larger print, which is the primary reason to buy a more expensive digital camera with a higher megapixel rating.

There is a tradeoff, however, between the number of pixels and the image file size — the more pixels, the larger the file. To fit more digital photos on digital photo storage media, the JPEG file format enables you to select the level of compression, which reduces file size. Unfortunately, the more an image is compressed, the lower the image quality. To choose the optimal settings for your photography, you need to balance the tradeoffs between image size (resolution), compression level, image quality, and possible print size.

This photo was taken with a 3.1-megapixel camera with an image size of 2,160 x 1,440 pixels.

This 800 x 600 pixel image was taken from the center of the preceding image. It makes an excellent “full-size” Web page photo.

Print Size		
Megapixels	*Image Resolution*	*Print Size**
2	1,200 x 1,600	5" x 6.7"
3	1,512 x 2,016	6.3" x 8.4"
4	1,704 x 2,272	7.1" x 9.5"
5	1,944 x 2,592	8.1" x 10.8"
6	2,048 x 3,072	8.5" x 12.8"

* This assumes that the optimal printing is 240PPI. Good images and proper image editing techniques may allow considerably larger prints to be made.

Did You Know?

By reducing the image resolution to store more photos, you lose the benefits of image cropping and the ability to get a larger print later. As digital photo storage media prices continue to drop, you can buy one or more extra cards so that you can store your images at the maximum image resolution and with the least image compression. This decision enables you to avoid getting a prized shot that is too small or has too much compression to make a good print.

Did You Know?

Each time you save a JPEG file after editing it, your image degrades. Therefore, if you need to open, edit, and save a JPEG image more than once, you should save all but the final images in an uncompressed image format such as TIFF, bitmap (.bmp), or Photoshop (.psd).

CONTROL YOUR CAMERA'S LIGHT SENSITIVITY

with the ISO setting

In traditional film photography, you choose film based upon an *ISO rating* (the new term for the *ASA setting*), such as ISO 100 or ISO 400, depending on how much light you expect to have when you shoot. Photographers consider film with a low ISO rating such as ISO 100 to be a slower film than ISO 400 because it takes a longer shutter speed to properly expose the film than film with a higher ISO rating, which enables an image to be recorded more quickly.

Digital cameras also enable you to change the ISO setting between each shot. Choosing an ISO setting is one of the most important settings that you can make. Although a faster ISO setting, such as ISO 400 or 800, enables you to shoot in lower-light settings without image blur due to long exposure times, you will end up with considerably more digital noise in your digital photos. Digital noise is similar to grain in traditional photography and is generally an undesirable tradeoff that you get when using higher ISO settings.

This photo was shot at ISO 800 to enable a faster shutter speed, avoiding image blur in the low light.

Digital noise is easily visible in most of this photo.

No digital noise appears in this photo, which was shot at ISO 100.

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DIFFICULTY LEVEL

ISO 800 was used to achieve a traditional film grain effect in this black-and-white photo.

TIPS

Did You Know?

You generally get the best picture quality by using the lowest ISO setting your camera offers, such as ISO 50 or 100. A higher setting such as ISO 400 or 800 will have considerably more digital noise.

Photo Tip!

Although digital noise is generally an unwanted characteristic of a digital photo, you can use it as a creative design element. Digital noise gives a photo a grainy effect similar to the grain found in traditional photographic prints.

Did You Know?

When you edit a digital photo with an image editor, such as Adobe Photoshop Elements, you are likely to get more pronounced digital noise when you perform steps such as increasing contrast, increasing image size, and sharpening an image.

Improve color with the WHITE BALANCE SETTING

One of the more significant challenges facing digital photographers is to take photographs with accurate color. A common problem is getting a photo that has an undesirable *color cast,* which means that the photo has too much of a certain color, such as red, blue, or green. An improper white balance setting often causes this problem. An in-camera white balance setting enables you to record correct colors when shooting under a variety of different lighting conditions such as incandescent light, tungsten light, sunshine, or clouds.

Besides letting you choose an appropriate white balance setting, many digital cameras have a custom white balance setting that can record very accurate colors after you first take a photo of a white card. If your camera offers such a feature, it is worth learning about and using. One of the more consistent ways to get accurate color is to shoot in RAW mode, which enables you to change the white balance setting using a RAW converter long after you take the photo. Most RAW converters, such as Adobe Camera RAW, have controls that can be used to fine-tune the white balance (see Task #61).

This photo was taken outdoors on a cloudy day with the white balance set incorrectly to tungsten.

This photo was taken outdoors on a cloudy day with the white balance set correctly to cloudy.

This photo was taken outdoors on a cloudy day with the camera's white balance set to auto white balance.

This photo was taken outdoors on a cloudy day using the RAW format, which enabled the photographer to select accurate color after the shot was taken.

#7

DIFFICULTY LEVEL

Although accurate color means that white is pure white, sometimes you want a color cast such as the golden glow of sunset found in this cat photo.

TIPS

Photo Tip!

Sometimes you can add a preset white balance setting to add a favorable color tone to a photo. For example, using a cloudy white balance setting can add warmth to an otherwise cold or blue-toned scene.

Did You Know?

Most digital image editors offer several color-correction tools. However, many of them work best if you have a pure white or neutral gray tone in your image. When you are concerned about getting accurate color and you do not have a pure white or neutral gray tone in the composition, consider placing a white card in the photo. After you use the white area for color correction purposes, you can remove it with your digital image editor.

Shoot for DIGITAL EDITING

Taking a photograph with a digital camera is one small part — albeit a significant part — of the entire digital photography process. If you shoot digitally without considering the possibilities of what you can do later in an image editor, you will dramatically limit your creativity and your picture-making ability.

To take advantage of the new world of digital photography, you should become as familiar with an image editor such as Adobe Photoshop Elements as you are with your camera. Learn how your image editor enables you to combine, fix, distort, correct, tint, or otherwise change your photos to become more than they were. Digitally stitching multiple images together into a single panoramic photograph, increasing tonal range and image contrast, and creating photographs with a full dynamic range are just a few of the wonders you can achieve when you become proficient with an image editor.

Although a digital image editor provides you with tremendous image-manipulation power, do not forget that you can always do more with well-taken photos than you can with marginally acceptable ones. Great image editing always begins with an excellent photograph.

This photo of tree bark was taken to use as a background for another photo.

This simple photo of a tree was taken to combine with a background photo.

This image was made by combining the two preceding photos.

Adobe Photoshop Elements filters and plug-ins were used to create this painting-like image of the tree.

A row of old trucks was transformed into this image with Adobe Photoshop.

#8

DIFFICULTY LEVEL

Five separate photos were combined to create this image of kids and seagulls flying over the coast.

TIPS

Photo Tip!

After you have purchased a digital camera and some digital photo storage media, taking photos does not cost anything, so shoot often — and then shoot again. Learn to try different exposure settings and compositions, and shoot plenty of shots so that you have a choice between several good ones.

Did You Know?

You can use an image editor like Adobe Photoshop Elements to remove or add photographic elements such as telephone lines, sky, clouds, people, and so on. If you have composed a photo that has a distracting element, shoot anyway and fix it later in your image editor (see Task #63). Just remember that it is usually easier to shoot a photo that does not need correction in an image editor than it is to have to edit it later.

PACK
for a successful and enjoyable shoot

Patiently waiting is often a key part of photography. Depending on your shooting conditions, you may have to wait for better light, less or more rain, a subject to appear, a cloud to move, or even the sun to rise or set. In any event, patience can be the most important personality trait a photographer can have to get good photographs. The best way to strengthen that trait is to bring along items that will make your outing more enjoyable, productive, and safe.

If you are too hot or too cold, hungry, or tired, or you are being bitten by bugs, you are likely to take fewer good photos than if you are happy and comfortable. Before you head off for a shoot, carefully consider what you should take with you in addition to your photography equipment. A few nutrition bars, water, a lightweight folding chair, sunscreen, and a hat can unquestionably contribute to your taking better photographs.

A lightweight folding tripod chair makes it easy for this photographer to quietly wait for a bullfrog to pop his head above water.

Water, sunscreen, insect repellent and bite medication, and snacks are just a few things that will make your picture-taking time more enjoyable.

A compass and a schedule of sunrise and sunset and the moon's path will make it easier for you to be in the right place at the right time to get great photographs.

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DIFFICULTY LEVEL

Take a hat to protect yourself from the sun and use a headlamp, such as the Princeton-Tec headlamp, to make your walks safe when walking in the dark.

TIP

Did You Know?

Some of the most useful information for photographers is found on the Internet.

Sunrise/Sunset/Twilight/Moonrise/Moonset/Phase information: http://aa.usno.navy.mil/data/docs/RS_OneDay.html

Weather: www.weather.com or www.weatherbug.com

Hiking equipment: www.rei.com

Online mapping service: www.mapquest.com

Best state parks: http://usparks.about.com/cs/stateparks/a/bestparks.htm

All-encompassing outdoor page: http://gorp.com