Third Edition

A Short Course in PHOTOGRAPHY DIGITAL

Barbara **LONDON** | Jim **STONE**

MyArtsLab™

Third Edition

A Short Course in PHOTOGRAPHY

Digital

AN INTRODUCTION TO PHOTOGRAPHIC TECHNIQUE

Teun Hocks

Barbara London ■ Jim Stone

PEARSON

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Frontispiece: Teun Hocks, Untitled 2000
Courtesy of the artist and P·P·O·W Gallery, New York

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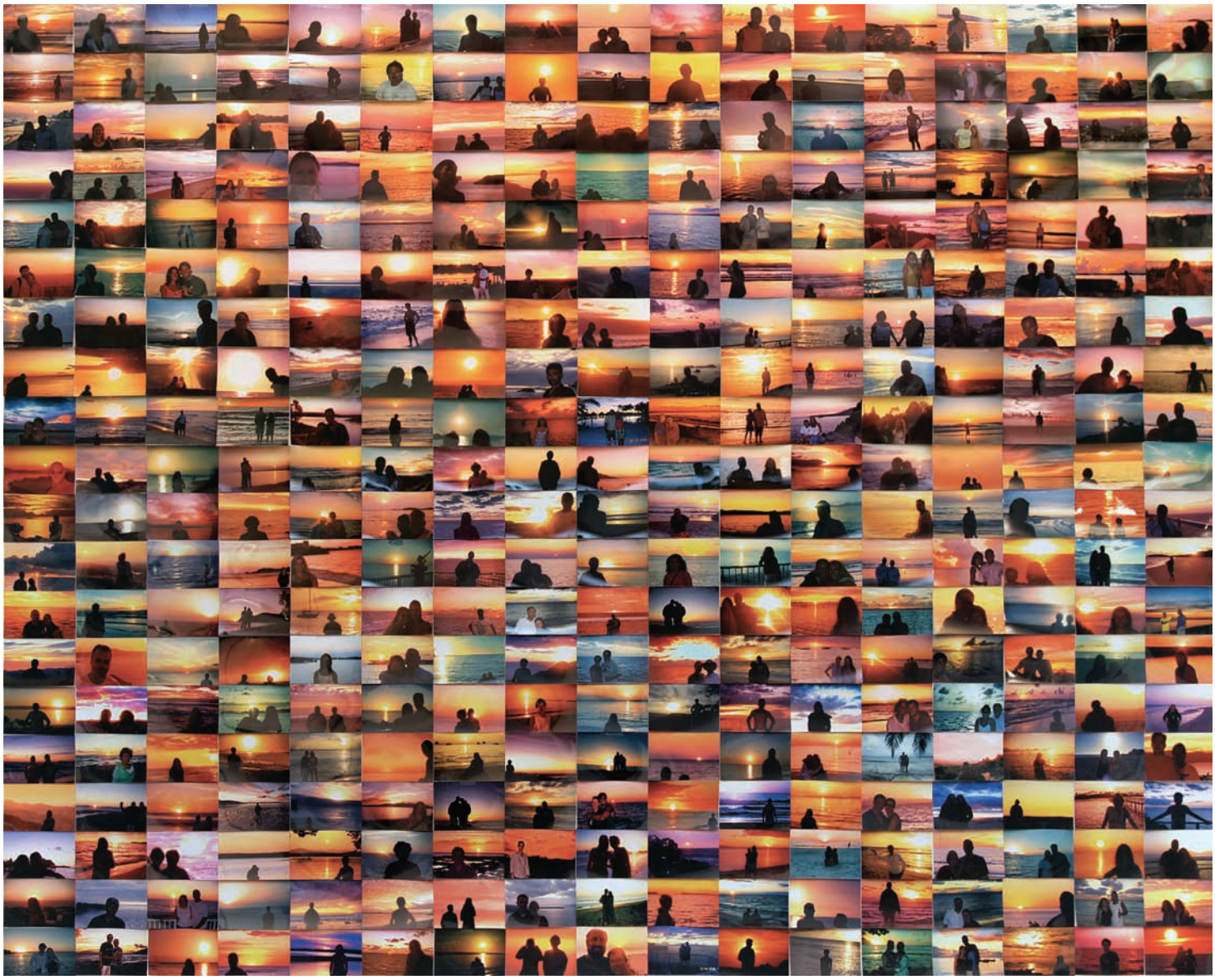
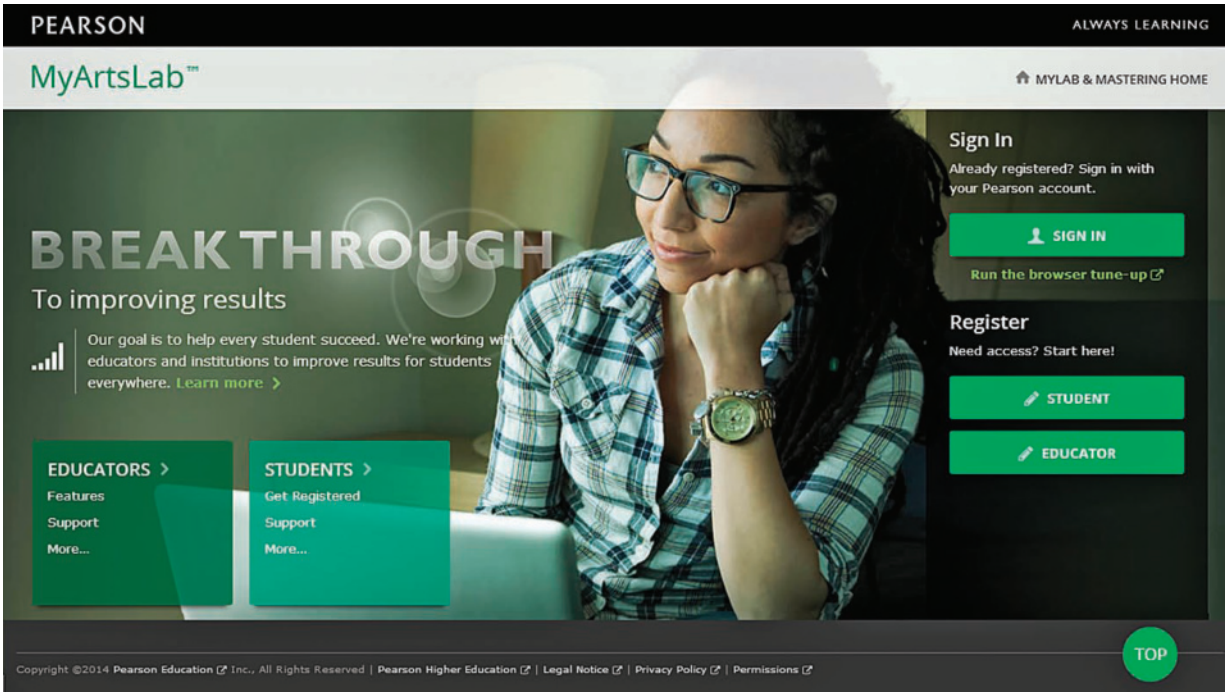


Penelope Umbrico. *Sunset Portraits from 8,462,359 Flickr Sunsets on 12/21/10, 2010.*
Photography can be your subject, as well as your medium. *Umbrico began searching the Web in 2006 for the most-often-photographed subject, finding it to be sunsets (541,795 pictures posted on the popular photo-sharing site Flickr at that time). Umbrico had 4 × 6-inch machine prints made from an "appropriated" selection (this 2010 piece includes only those sunsets with silhouetted figures), and exhibits them in grid form, about 8 feet tall. For a 2011 gallery show, she showed 1,058 4 × 6-inch sunset portraits; by then the total number of sunsets on Flickr had grown to 9,623,557.*

As you make your own photographs, it is worth asking yourself questions. What are the ways you can improve the photographs you are now making? If others have already photographed your subject, how will your pictures be different? If you magnify the meaning your images have for you, will you also increase the impact they have on others? Read on.

Contents

MyArtsLab



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- **Assessment** tied to videos, applications, and chapters enables both instructors and students to track progress and get immediate feedback.
- **Videos** include tutorials from *The Five Minute Photographer,* a series by Shelton Muller. These short videos include lessons on how to understand artificial lighting and electronic flash, manage digital files, and understand depth of field.
- **Closer Looks** give students insight into the compositional choices a photographer made in creating a great picture.
- **Animated demonstrations and FAQs** give students insight into camera techniques and common problems.
- **...and more.** Check MyArtsLab regularly for added content.

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Preface

If you don't know anything about photography and would like to learn, or if you want to make better pictures than the ones you are making now, *A Short Course in Photography: Digital* will help you. This book is modeled after the widely used film-and-darkroom edition of *A Short Course in Photography*, but presents the medium in its current, electronic form.

We present here, in depth, the basic techniques of photography:

- How to get a good exposure
- How to adjust the focus, shutter speed, and aperture (the size of the lens opening) to produce the results you want
- How to transfer your pictures to a computer and make sure they are organized and safe from loss
- How to use computer software to make your photographs look their best

Almost all of today's cameras incorporate automatic features, but that doesn't mean that they automatically produce the results you want. This edition of *A Short Course in Photography* devotes special attention to:

- Automatic focus and automatic exposure—what they do and, particularly, how to override them when it is better to adjust the camera manually

Some of the book's highlights include:

- Getting Started. If you are brand new to photography, this section will walk you through the first steps of selecting and installing a memory card, setting the camera's menu options, focusing sharply, adjusting the exposure, and making your first pictures. See pages 4–9.
- Projects. These projects are designed to help develop your technical and expressive skills. See page 136 or 155.
- Making Better Prints. This includes information about how to adjust your photographs with image-editing software (pages 92–111), select ink and paper for them (page 117), print them (page 118), and then display them in a mat and frame (pages 120–127).
- Types of lenses (pages 31–41), cameras (pages 10–13), lighting (pages 134–151), and software for organizing and archiving (pages 131–133).
- History of Photography. The medium has been used for documentation, persuasion, and personal expression since its 19th-century invention. See pages 180–213.

Photography is a subjective undertaking. *A Short Course in Photography* emphasizes your choices in picture making:

- How to look at a scene in the way a camera can record it
- How to select the shutter speed, point of view, and other elements that can make the difference between an ordinary snapshot and an exciting photograph
- Chapter 9, Seeing Like a Camera, explores your choices in selecting and adjusting the image and presents ways to photograph subjects such as people and landscapes.
- Chapter 10, History of Photography, shows photographs by some of the greatest artists ever to use a camera.

New in this third edition are:

- The latest camera technology and software, integration of workflow applications with Photoshop at every step, and expanded coverage of a Camera Raw workflow.
- New photographs by great contemporary artists, including Nancy Burson, Deborah Willis, Roe Ethridge, Laurisa Galvan, Martha Rosler, Stephen Shore, Rebecca Cummins, Javier Manzano, David Taylor, Penelope Umbrico, Carrie Mae Weems, William Eggleston, and Gueorgui Pinkhassov.
- The 1970s explosion of color photography is explained in the History of Photography, Chapter 10.
- Current product and technical information throughout, with updated demonstration and example photographs.

This book is designed to make learning photography as easy as possible:

- Every two facing pages completes a single topic
- Detailed step-by-step instructions clarify each stage of extended procedures
- Boldfaced headings make subtopics easy to spot
- Numerous photographs and drawings illustrate each topic

Acknowledgments

Many people gave generously of their time and effort in the production of this book. Feedback from instructors helped confirm the direction of the book and determine the new elements in this edition. Luis Peon-Casanova, University of Nebraska–Lincoln; Michael Grillo, University of Maine; Deidre Engel, Mt. San Antonio College; Michael Ensdorf, Roosevelt University; and Art Hanson, Lansing Community College, reviewed the second edition and made valuable suggestions. Amber, Jade, and Skye Stone gave their dad time to finish the book. At Pearson Eduction, Roth Wilkofsky provided editorial support; Joe Scordato supervised the production of the book from manuscript to printer. Steve Martel caught our (extremely few, of course) errors. If you have suggestions, please send them to Photography Editor, Pearson Education, 1 Lake Street, Upper Saddle River, NJ 07458. They will be sincerely welcomed.

Jim Stone
Barbara London

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Frontispiece: Teun Hocks, Untitled 2000
Courtesy of the artist and P·P·O·W Gallery, New York

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PEARSON

ANNIE LEIBOVITZ

Yo Yo Ma, 1998. ***Framing is a basic control*** *you have in making a photograph. The two photographs on this page and opposite are about music. Would you center your subject or use a corner? Do you want action or repose? Black and white or color? Horizontal, vertical, or square? Candid or posed? Showing the subject's front or back? More about framing on pages 154–155.*

Camera 1

In this chapter you'll learn…

- the basic controls of your camera and what they do.
- the categories of cameras, and their characteristics, so you can choose the right one for your purposes.
- the first steps of getting a camera ready, focusing an image, and adjusting the camera's settings.

Project:
EXPOSE SOME PICTURES

YOU WILL NEED

Camera. We suggest a single-lens reflex.

Output. To evaluate your work, it's good to see exactly what you did. Your digital pictures can be viewed on the camera's small monitor but they are easier to evaluate on a computer screen. Pages 8 and 88 tell you how to download photographs from your camera to a computer. Once they are on a computer, your unedited photographs can also be displayed large with a digital projector or on a wide-screen television so you can easily see small details and imagine what they might look like printed at a large size. If you shoot 35mm film you can take it to the photo lab in a drug store or supermarket chain for overnight processing and printing.

Pencil and notepad to keep track of what you do. Optional, but highly recommended for all the projects.

PROCEDURE See pages 4–9 if you are just beginning to photograph. Those pages walk you through the first steps of setting up your camera, focusing an image sharply, adjusting the camera settings so your photographs won't be too light or too dark, and making your first pictures. See pages 10–13 for more about the kinds of cameras.

Have some variety in the scenes when you shoot. For example, photograph subjects near and far, indoors and outside, in the shade and in the sun. Photograph different types of subjects, such as a portrait, a landscape, and an action scene. Page 9 gives some suggestions.

HOW DID YOU DO? Which pictures did you like best? Why? Were some different from what you expected to get? Did some of your camera's operations cause confusion? It helps to read your instruction book all the way through or to ask for help from someone familiar with your camera.

All cameras have four things in common: an image-forming lens; a light-sensitive surface (film or a digital sensor) to record the light that forms an image; a light-tight container (the camera's body) to keep other light out; and two important controls to adjust the amount of picture-making light (the exposure) that reaches the light-sensitive surface.

This chapter describes those light controls and how you can take charge of them, instead of letting them control you. Almost all current cameras are equipped with automatic exposure and automatic focus, and most have automatic flash. If you are interested in making better pictures, however, you should know how your camera makes its decisions, even if the automatic features can't be turned off. If they can, you will want to override your camera's automatic decisions from time to time and make your own choices.

- You may want to blur the motion of a moving subject or freeze its motion sharply. Pages 18–19 show how.
- You may want a scene sharp from foreground to background or the foreground sharp but the background out of focus. See pages 44–45.
- You may want to override your camera's automatic focus mechanism so that only a certain part of a scene is sharp. Page 43 tells when and how to do so.
- You may decide to silhouette a subject against a bright background, or perhaps you want to make sure that you don't end up with a silhouette. See page 72.

Most professional photographers use cameras with automatic features, but they know how their cameras operate manually as well as automatically so they can choose which is best for a particular situation. You will want to do the same because the more you know about how your camera operates, the better you will be able to get the results you want.

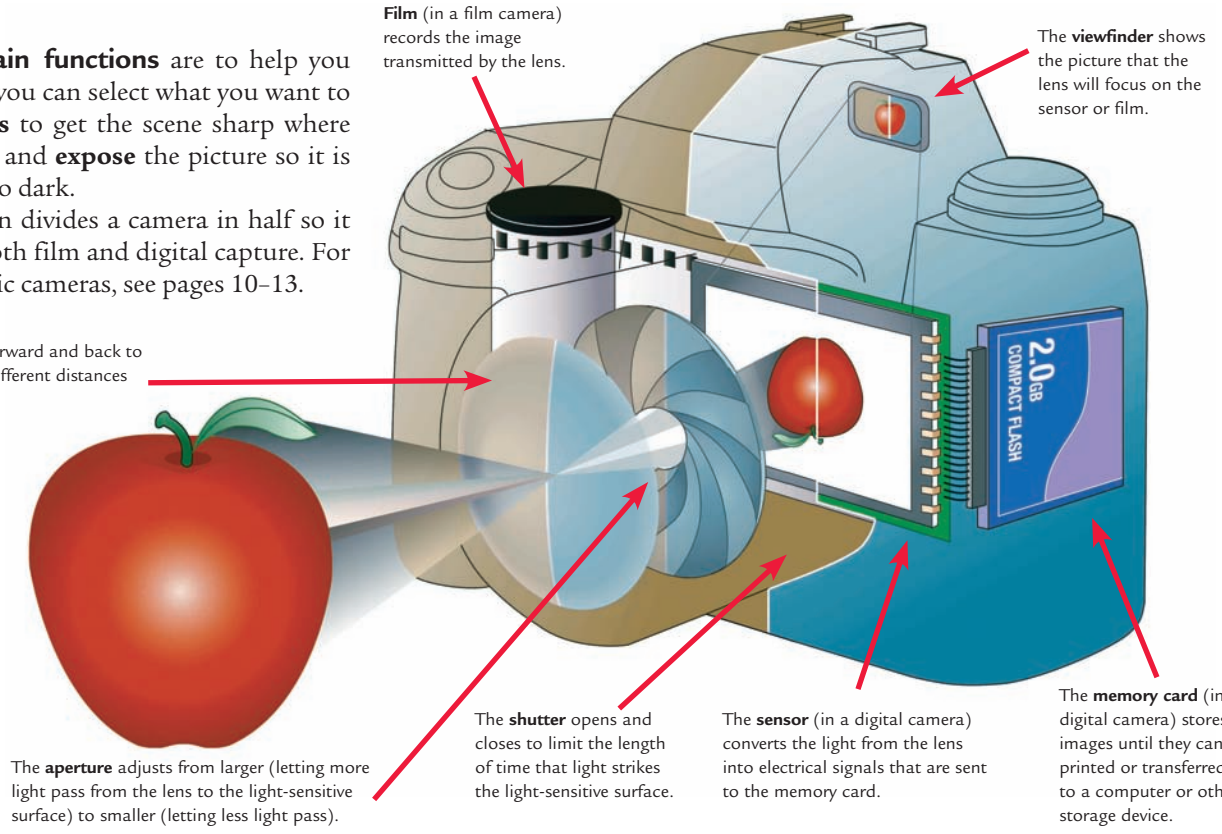
David Scheinbaum. *Erykah Badu, Sunshine Theater, Albuquerque, New Mexico, 2003.*

Getting Started

GETTING YOUR CAMERA READY

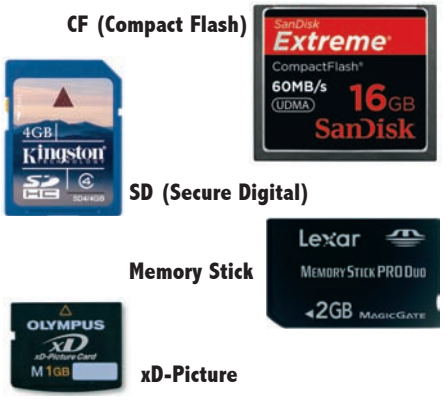
A camera's main functions are to help you **view** the scene so you can select what you want to photograph, **focus** to get the scene sharp where you want it to be, and **expose** the picture so it is not too light or too dark.

This illustration divides a camera in half so it shows parts for both film and digital capture. For more about specific cameras, see pages 10–13.



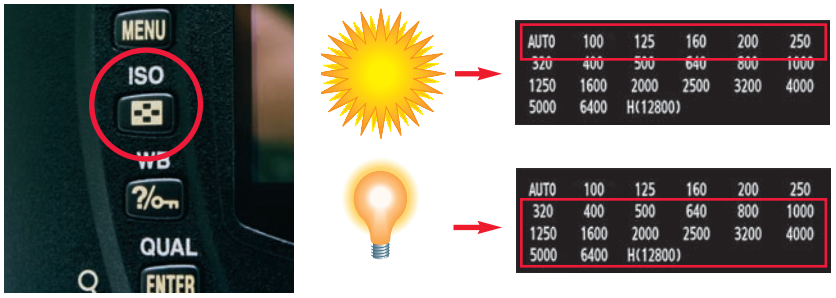
More about camera controls on pages 14–27.

Choose a Memory Card



Digital cameras store pictures on memory cards that vary in capacity and speed. Because there are several types that are not interchangeable, make sure you have one that fits your camera.

Select an ISO



ISO speed (100, 200, 400, and so on) describes a sensor's (or film's) sensitivity to light. The higher the number, the less light it needs for a correct exposure (one that is not too light or too dark). With a digital camera, you may select an ISO setting within that camera's range. You may choose a different ISO for each picture. Lower numbers will generally result in higher-quality pictures (see Noise, page 75).

Set an ISO of 50 to 400 for shooting outdoors in sunny conditions. In dimmer light, such as indoors, use an ISO of 400 or higher. Film is made with a fixed ISO; an entire roll must be exposed at that speed.

Check the Batteries

Make sure your camera's batteries have a fresh charge. No digital cameras and few film cameras will operate without power. A half-empty symbol will let you know when the battery is low. Carry a fully-charged spare if you can.

Many cameras use proprietary battery packs that must be recharged with the manufacturer's matching charger. Some compact cameras have built-in batteries that limit your shooting while they recharge.

Some cameras use standard batteries that you can buy nearly anywhere. Most conventional sizes are available in money-saving rechargeable versions.

Insert a Memory Card

Insert the memory card only with the camera's power turned off. Then turn on the camera. Make sure you are using the right kind of card for your camera; cards intended for another camera may not operate correctly in yours.

Keep cards protected when they are not in the camera. Memory cards are vulnerable to dust and moisture as well as magnetic fields, heat, and shock.

Display the Menu

Open the options menu. Turn the camera on and press the button to display the menu on the camera's monitor.

Review the defaults. In your camera's manual, read through the list of settings that can be changed by the operator. Decide which of them you would like to change from the camera's defaults, the way the camera's options have been set by the factory.

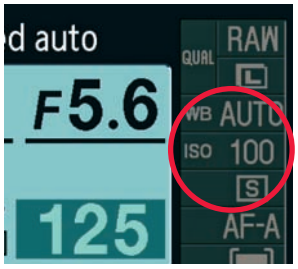
Select a menu item with the control wheel on the camera's back, then use the jog dial (also on the back) to reveal a list of settings or choices for that item.

Getting Started

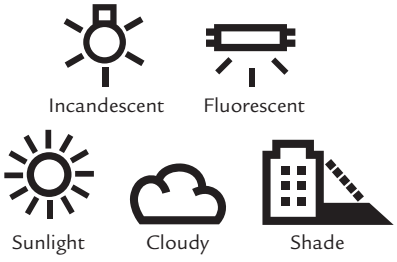
FOCUSING AND SETTING THE EXPOSURE

Set Basic Menu Options

Select the file type and resolution. The menu item may be called "image quality," because visual fidelity is affected by your choice. A lower resolution or compressed file lets you store more pictures on your memory card, but at some loss of quality. Saving pictures in the camera's raw format, at its highest resolution, keeps the quality highest.



Choose an ISO speed. It can be different for each picture. Higher numbers let you shoot in lower light but produce an image with more noise (see page 75).

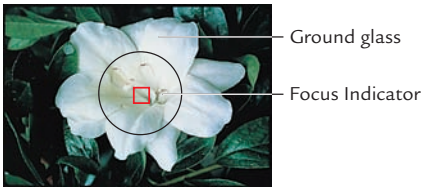


Select the white balance (color temperature) of the dominant light source in which you are shooting, such as incandescent (tungsten) bulbs, sunlight, or outdoor shade. A camera set on automatic makes these adjustments for you. If your camera has a raw format option, it leaves the white balance choice until you edit the file.

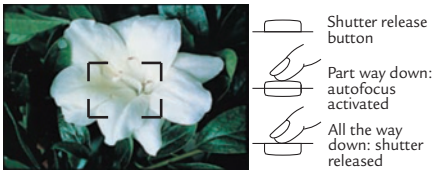
More about ISO speed on page 75.

Focus

Focus on the most important part of your scene to make sure it will be sharp in the photograph. Practice focusing on objects at different distances as you look through the viewfinder so that you become familiar with the way the camera focuses.



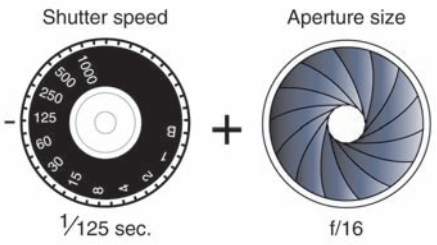
Manual focusing. As you look through the viewfinder, rotate the focusing ring at the front of the lens. The viewfinder of a single-lens reflex camera has a ground-glass screen that shows which parts of the scene are most sharply focused. Some cameras also have a microprism, a small ring at the center of the screen in which an object appears coarsely dotted until it is focused. An advanced or *system* DSLR may offer a choice of focusing screens.

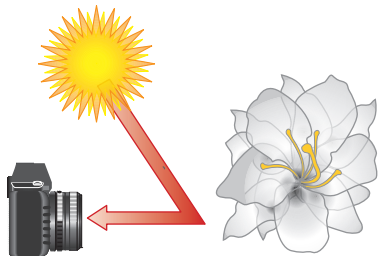


Automatic focusing. Usually this is done by centering the focusing brackets (visible in the middle of the viewfinder) on your subject as you depress the shutter release part way. The camera adjusts the lens for you to bring the bracketed object into focus. Don't push the shutter release all the way down until you are ready to take a picture.

More about focus and when and how to override automatic focus on page 43.

Set the Exposure



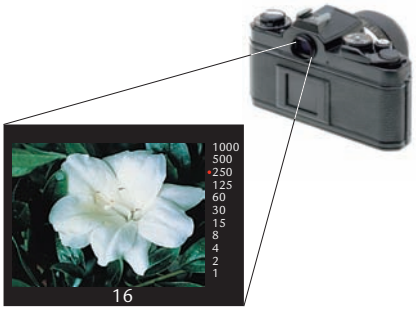


To get a correctly exposed picture, one that is not too light (overexposed) or too dark (underexposed), you—or the camera—must set the shutter speed and the aperture according to the selected ISO sensitivity and how light or dark your subject is. The shutter speed determines the length of time that light strikes the sensor; the aperture size determines how bright the light is that passes through the lens and shutter to the light-sensitive surface.

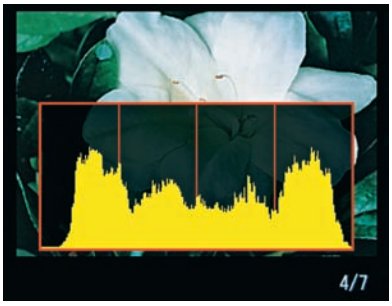
More about shutter speed and aperture on pages 18–27 and about exposure and metering on pages 62–73.

Exposure Readout

A data panel appears on the body of some cameras, displaying shutter speed and aperture settings (here, 1/250 sec. shutter speed, f/16 aperture), as well as other information.

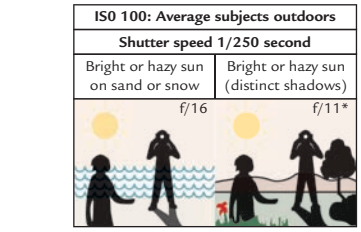


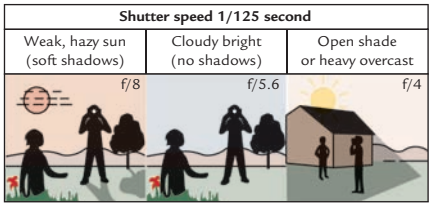
The shutter speed and aperture settings appear in the viewfinder of some cameras (here, 1/250 sec. shutter speed, f/16 aperture).



A histogram is a very accurate reading of exposure that most cameras can display on the monitor after you take each photograph. If your subject is not moving or is otherwise cooperative, make a test exposure of the scene first. Over- or underexposed tests can be deleted. More about histograms on pages 60–61.

Manually Setting the Exposure





*f/5.6 for backlighted close-up subjects. Subject shaded from sun but lighted by a large area of sky.

With manual exposure, you set both the shutter speed and aperture yourself. How do you know which settings to use? At the simplest level you can use a chart like the one above. Decide what kind of light illuminates the scene, and set the aperture (the f-number shown on the chart) and the shutter speed accordingly.

Notice that the recommended shutter speed on the chart is 1/250 sec. or 1/125 sec. These relatively fast shutter speeds make it easier for you to get a sharp picture when hand holding the camera (when it is not on a tripod). At slow shutter speeds, such as 1/30 sec. or slower, the shutter is open long enough for the picture to be blurred if you move the camera slightly during the exposure.

You can use a camera's built-in meter for manual exposure. Point the camera at the most important part of the scene and activate the meter. The viewfinder will show whether the exposure is correct. If it isn't, change the shutter speed and/or aperture until it is. Here, plus numbers signal overexposure, minus means underexposure. Lining up the red arrow with the dot in the center indicates the exposure is right.

To prevent blur caused by the camera moving during the exposure (if the camera is not on a tripod), select a shutter speed of at least 1/60 sec. A shutter speed of 1/125 sec. is safer.

Automatically Setting the Exposure

With automatic exposure, the camera sets the shutter speed or aperture, or both, for you.

With programmed (fully automatic) exposure, each time you press the shutter release button, the camera automatically meters the light, then sets both shutter speed and aperture.

With shutter-priority automatic exposure, you set the shutter speed and the camera sets the aperture. To prevent blur from camera motion if you are hand holding the camera, select a shutter speed of 1/60 sec. or faster.

With aperture-priority automatic exposure, you set the aperture and the camera sets the shutter speed. To keep the picture sharp when you hand hold the camera, check that the shutter speed is 1/60 sec. or faster. If it is not, set the aperture to a larger opening (a smaller f-number).

More about how to override automatic exposure on page 66.

Getting Started

EXPOSING IMAGES

Hold the Camera Steady

For horizontal photographs (sometimes called *"landscape"* mode), keep your arms against your body to steady the camera. Use your right hand to hold the camera and your right forefinger to press the shutter release. Use your left hand to help support the camera or to focus or make other camera adjustments.

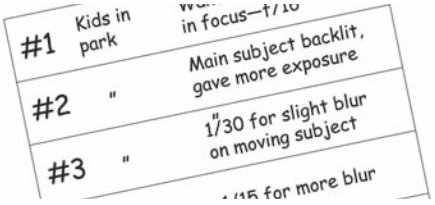
For vertical photographs (*"portrait"* mode), support the camera from below in either your right or left hand. Keep that elbow against your body to steady the camera.

A tripod steadies the camera for you and lets you use slow shutter speeds for night scenes or other situations when the light is dim. Make sure to use a cable release, remote trigger, or self-timer with it.

Expose Some Images

Make an exposure. Recheck the focus and composition just before exposure. When you are ready to take a picture, stabilize your camera and yourself and gently press the shutter release all the way down. Most cameras prefocus automatically when you press the shutter button halfway down. If your subject cooperates, try several different exposures of the same scene, perhaps from different angles.

An LCD monitor shows exact framing and lets you check to see that the picture is not too light or too dark after you take it. Most digital cameras will also let you zoom in the monitor display on a small part of the picture to check precise focus.



You'll learn faster if you keep a record as you are shooting. Digital cameras automatically save camera and exposure information—like the aperture, shutter speed, and ISO—and store it with each picture. But it helps to note the reasons for those choices: the way a subject was moving, for example, or the direction and quality of light. This will let you identify the paths to your successful images and help you make great pictures more often.

Download the Pictures

Transfer your pictures to another storage device, usually a computer's hard drive, at the end of a day's shooting or whenever you want to review them in detail. This transfer is called *downloading*. You can remove the memory card and plug it into a card reader, as shown above, or connect the camera and computer directly with a cable, below. Some cameras can transfer images wirelessly.

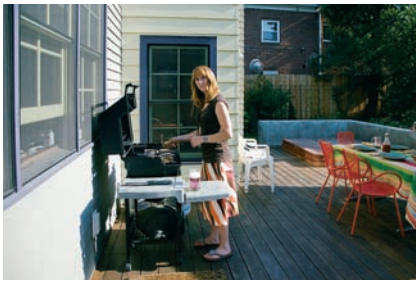
Download your pictures directly to a computer if it's convenient. If you are shooting on location you can transfer them to a portable hard drive or other device made for reading cards. Don't erase the memory card until you are sure all your images are secure and—if possible—duplicated in at least two places.

You can delete unwanted images from the card using the camera, but—unless you are running out of room on the card during a shoot—it is safer to save that editing step until after all your images have been downloaded.

WHAT WILL YOU PHOTOGRAPH?

Bob Simons

Where do you start? One place to start is by looking around through the viewfinder. A subject often looks different isolated in a viewfinder than it does when you see it surrounded by other objects. What interests you about this scene? What is it that you want to make into a photograph?



Get closer (usually). Often people photograph from too far away. What part of the scene attracted you? Do you want to see the whole deck, the whole back yard, or are you more interested in the person cooking? Do you want the whole wall of a building, or was it only the graffiti on it that caught your attention?

Kyle Bajakian

Try a different angle. Instead of always shooting from normal eye-level height, try getting up high and looking down on your subject or kneeling and looking up.

Look at the background (and the foreground). How does your subject relate to its surroundings? Do you want the subject centered or off to one side to show more of the setting? Is there a distraction (like bright sunlight or a sign directly behind someone's head) that you could avoid by changing position? Take a look.

More about backgrounds and the image frame on pages 154–157.

Karl Baden

Check the lighting. At first, you are more likely to get a good exposure if you photograph a more or less evenly lit scene, not one where the subject is against a very light background, such as a bright sky.

More about lighting on pages 134–151.

Karl Baden

Ray K. Metzker

Don't be afraid to experiment, too. Include a bright light source or bright sky in the picture (just don't stare directly at the sun through the viewfinder). In the resulting photograph, darker parts of the scene may appear completely black, or the subject itself may be silhouetted against a brighter background.