



# Nikon D7100

From Snapshots to Great Shots



Learn the best  
ways to compose  
your pictures!

**John Batdorff**



Get great detail  
in your subjects!

Nikon D7100:  
From  
Snapshots to  
Great Shots

John Batdorff



Peachpit  
Press

## **Nikon D7100: From Snapshots to Great Shots**

John Batdorff

Peachpit Press

www.peachpit.com

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# Contents

<b>INTRODUCTION</b>	<b>x</b>
<b>CHAPTER 1: THE D7100 TOP 12 LIST</b>	<b>1</b>
<b>Twelve Tips to Make Your Shooting More Productive Right Out of the Box</b>	
1. Set the Correct White Balance	6
2. Turn Off the Auto ISO Setting	8
3. Set Your Image Quality	10
4. Set the Appropriate Image Area	12
5. Set Your Focus Point and Mode	13
6. Manual Focus	14
7. Review Your Shots	15
8. Where's the Beep? Custom Focusing Options	19
9. Custom Display Options	22
10. Shutter Delay Options	22
11. Oh, Shoot! Reset Options	23
12. Hold Your Camera for Proper Shooting	24
Chapter 1 Assignments	25
<b>CHAPTER 2: FIRST THINGS FIRST</b>	<b>27</b>
<b>A Few Things to Know and Do Before You Begin Taking Pictures</b>	
Poring Over the Picture	28
Choosing the Right Memory Card	30
Formatting Your Memory Card	31
Updating the D7100's Firmware	32
Cleaning the Sensor	34
Using the Right Format: RAW vs. JPEG	35
Lenses and Focal Lengths	40
What Is Exposure?	45
Motion and Depth of Field	49
Chapter 2 Assignments	51

<b>CHAPTER 3: THE AUTO MODES</b>	<b>53</b>
<b>Getting Started with the Scene/Special Effects Modes</b>	
Poring Over the Picture	54
Auto Mode	56
Flash Off Mode	57
Scene Modes	58
Portrait Mode	59
Landscape Mode	61
Close Up Mode	62
Sports Mode	64
Sunset Mode	65
Child Mode	66
Special Effects	70
When You May Not Want to Use Auto Mode	74
Chapter 3 Assignments	76
<b>CHAPTER 4: THE PROFESSIONAL MODES</b>	<b>79</b>
<b>Taking Your Photography to the Next Level</b>	
Poring Over the Picture	80
P: Programmed Auto Mode	82
S: Shutter Priority Mode	86
A: Aperture Priority Mode	91
M: Manual Mode	95
User Settings Mode—Saving Your Favorite Settings to the Mode Dial	99
How I Shoot: My Favorite Camera Settings	100
Chapter 4 Assignments	102
<b>CHAPTER 5: MOVING TARGET</b>	<b>105</b>
<b>How to Shoot When Your Subject Is in Motion</b>	
Poring Over the Picture	106
Stop Right There!	108
Using Shutter Priority (S) Mode to Stop Motion	112
Using Aperture Priority (A) Mode to Isolate Your Subject	115
The ISO Sensitivity Auto Control Trick	116
Keep Them in Focus with Continuous-servo Focus and AF Focus Point Selection	118
Stop and Go with 3D-Tracking AF	119

Manual Focus for Anticipated Action	120
Keeping Up with the Continuous Shooting Modes	122
A Sense of Motion	124
Tips for Shooting Action	127
Chapter 5 Assignments	130
<b>CHAPTER 6: PERFECT PORTRAITS</b>	<b>133</b>
<b>Settings and Features to Make Great Portraits</b>	
Poring Over the Picture	134
Automatic Portrait Mode	136
Using Aperture Priority Mode	136
Metering Modes for Portraits	139
Using the AE Lock (Auto Exposure Lock) Feature	141
Focusing: The Eyes Have It	142
Classic Black-and-White Portraits	144
The Portrait Picture Control for Better Skin Tones	146
Detect Faces with Live View	146
Use Fill Flash for Reducing Shadows	147
Portraits on the Move	149
Tips For Shooting Better Portraits	150
Chapter 6 Assignments	159
<b>CHAPTER 7: LANDSCAPE PHOTOGRAPHY</b>	<b>161</b>
<b>Tips, Tools, and Techniques for Taking Beautiful Landscape Photographs</b>	
Poring Over the Picture	162
Sharp Focus: Using a Tripod	164
Selecting the Proper Iso	166
Using Noise Reduction	167
Selecting a White Balance	168
Using the Landscape Picture Control	171
Taming Bright Skies with Exposure Compensation	173
Shooting Amazing Black-and-White Landscapes	175
The Golden Light	176
Where to Place Your Focus	177
Focusing with Live View	178
Smooth Water	180



Directing the Viewer's Eye: A Word About Composition	181
Advanced Techniques to Explore	186
Chapter 7 Assignments	192
<b>CHAPTER 8: MOOD LIGHTING</b>	<b>195</b>
<b>Shooting When the Lights Get Low</b>	
Poring Over the Picture	196
Raising the ISO	198
Using Very High ISOs	200
Stabilizing the Situation	201
Focusing in Low Light	203
Shooting Long Exposures	206
Using the Built-in Flash	208
Compensating for Flash Exposure	212
Reducing Red-eye	214
Flash and Glass	215
A Few Words about External Flash	216
Chapter 8 Assignments	216
<b>CHAPTER 9: CREATIVE COMPOSITIONS</b>	<b>219</b>
<b>Better Photography Starts with Better Composition</b>	
Poring Over the Picture	220
Depth of Field	222
Angles	224
Point of View	225
Patterns	226
Color	226
Contrasting and Complementing	228
Leading Lines	229
Splitting the Frame	231
Frames within Frames	232
Chapter 9 Assignments	233
<b>CHAPTER 10: LIGHTS, CAMERA, ACTION</b>	<b>235</b>
<b>Getting the Most Out of the D7100's Video Capabilities</b>	
Recording with Live View	236
Dedicating a Second Card to Video	237
Video Quality	238
Sound	240

Playback	242
Focusing	243
Editing	244
Chapter 10 Assignments	245
<b>CHAPTER 11: ADVANCED TECHNIQUES</b>	<b>247</b>
<b>Impress Your Family and Friends</b>	
Poring Over the Picture	248
Spot Meter for More Exposure Control	250
Manual Mode	253
Avoiding Lens Flare	256
Bracketing Exposures	257
Macro Photography	259
Active D-Lighting	261
Conclusion	262
Chapter 11 Assignments	263
<b>INDEX</b>	<b>264</b>

# Introduction

Welcome to your new camera! I know how exciting it is to get a new piece of equipment, so let me start off by telling you a little bit about how this book is going to help you master that new camera. You already know that you have *the* guide to your camera because it came right in the box: the owner's manual. But don't worry, *Nikon D7100: From Snapshots to Great Shots* is not a rehash of the manual. It is a resource to teach photographic concepts using the wonderful technology of the D7100, with instructional photos and insights from my own work as a professional photographer. I have put together a short Q&A to help you get a better understanding of just what it is that you can expect from this book.

## **Q: IS EVERY CAMERA FEATURE GOING TO BE COVERED?**

A: Nope, just the ones I think you need to know about in order to start taking great photos. As I said, you already own a great resource that covers every feature of your camera: the owner's manual. (I know, we all hate reading manuals—we want to grab our new camera and start shooting. But if you look at your manual more closely, you'll realize it can actually help you.) A book that just rephrases this information would have been a waste of your time and money. What I did want to write about was how to harness certain camera features to benefit your photography. As you read through this book, you will also see references to specific pages in your owner's manual that are related to the topic being discussed. For example, in Chapter 6 the AE-L button is discussed, but there is more information available on this feature in the manual. I cover the function that applies to our specific needs and give you the page numbers in the manual to explore this function further.

## **Q: SO IF I ALREADY OWN THE MANUAL, WHY DO I NEED THIS BOOK?**

A: The manual does a pretty good job of telling you how to use a feature or turn it on in the menus, but it doesn't necessarily tell you *why* and *when* you should use it. If you really want to improve your photography, you need to know the *whys* and the *whens* to put all of those great camera features to use. To that extent, the manual just isn't going to cut it. It is, however, a great resource on the camera's features, and for that reason I treat it like a companion to this book. You already own it, so why not get something of value from it?

### **Q: WHAT CAN I EXPECT TO LEARN FROM THIS BOOK?**

A: My hope is that you will learn how to take great photographs. My goal, and the reason the book is laid out the way it is, is to guide you through the basics of photography as they relate to different situations and scenarios. By using the features of your D7100 and this book, you will learn about aperture, shutter speed, ISO, lens selection, depth of field, and many other photographic concepts. You will also find plenty of large full-page photos that include shooting data and comments from me so you can see how all of the photography fundamentals come together to make great images. Meanwhile, you will be learning how your camera works and how to apply its functions and features to your photography.

### **Q: DO I REALLY NEED TO DO THE ASSIGNMENTS?**

A: In the shooting assignments, at the end of the chapters, I give you some suggestions on how you can apply the lessons of the chapter to help reinforce everything you just learned. Can I make you do them? No, but let's face it—using the camera is much more fun than reading about it, so the assignments are a way of taking a little break after each chapter, having some fun, and trying out your new chops.

### **Q: SHOULD I READ THE BOOK STRAIGHT THROUGH, OR CAN I SKIP AROUND FROM CHAPTER TO CHAPTER?**

A: Here's the easy answer: yes and no. No, skipping around the whole time isn't the best idea, because the first four chapters give you the basic information that you need to know about your camera. These are the building blocks of using the D7100. After that, yes, you can move around the book as you see fit, because the following chapters are written to stand on their own as guides to specific types of photography or shooting situations. So you can bounce from portraits to landscapes and then maybe to a little action photography. It's all about your needs and how you want to address them. Or, you can read the book straight through. The choice is up to you.

### **Q: IS THAT IT?**

A: One last thought before you dive into the first chapter. My goal in writing this book has been to give you a resource that will help you create great photographs with your Nikon D7100. Learning the basics is vital, but playing with them is what makes the photographer. Photography, like most things, takes time to master and requires practice. It has been a part of my life since I got my first Kodak 110 when I was seven years old, and I am still learning. Always remember, it's not the camera but the person using it who makes beautiful photographs. Have fun, make mistakes, and then learn from them. In no time, I'm sure you will transition from someone who takes nice snapshots to a photographer who makes great shots.

# 4



ISO 100  
1/125 sec.  
f/9  
35mm lens



# The Professional Modes

## TAKING YOUR PHOTOGRAPHY TO THE NEXT LEVEL

If you talk to professional photographers, you will find that the majority of them use a few selective modes that offer the greatest amount of control over their photography. To anyone who has been involved with photography for any period of time, these modes are the backbones of the art. They allow you to influence two of the most important factors in taking great photographs: *aperture* and *shutter speed*. To access these modes, you simply turn the Mode dial to one of the letter-designated modes and begin shooting. But wouldn't it be nice to know exactly what those modes control and how to make them do our bidding? Well, if you really want to take that next step in controlling your photography, it is essential that you understand not only how to control these modes but why you are controlling them. So let's move that Mode dial to the first of our professional modes, or as I like to think of it, professional light: Programmed Auto mode.



## PORING OVER THE PICTURE

Bulb mode was a must here, since I needed to create an exposure over 30 seconds long.

I used a low ISO with a tripod to guarantee a high-quality image free of camera shake.

The wide-angle lens allowed me to fill the frame while being close to the subject.

ISO 100  
240 sec.  
f/22  
24mm lens



Cloud's Gate, affectionately known by Chicago locals as "the Bean," is one of my favorite subjects to shoot in downtown Chicago. The Bean is made up of 168 stainless steel plates welded together, ground, and then polished to create very reflective surfaces. The trick with this shot is finding the right time of day to photograph when no one is around. After spending nearly four hours on location, I finally got lucky and captured the image I was looking for.

Killer tip—If you're not sure what settings to use, consider placing your camera in Auto mode and referencing the settings the camera uses. This is a great way to create a baseline to start from.





## P: PROGRAMMED AUTO MODE



I call Programmed Auto mode, or P mode, “professional light” because it’s a great mode to become familiar with as you transition from the automatic or scene modes (**Figure 4.1**) to Aperture Priority, Shutter Priority, or Manual mode. There is a reason that Programmed Auto mode is only one click away from the automatic modes: With respect to apertures and shutter speeds, the camera is doing most of the thinking for you. So if that is the case, why even bother with P mode?

First, let me say that I rarely use Programmed Auto mode, because it just doesn’t give as much control over the image-making process as the other professional modes. However, we all start somewhere, and much like many of you, I started fully automatic, moved to Programmed Auto mode, and now hang out in Aperture Priority most of the time. There are still occasions when Programmed Auto mode comes in handy, like when I am shooting in widely changing lighting conditions and I don’t have the time to think through all of my options, or I’m not very concerned with having ultimate control of the scene. Think of a picnic outdoors in a partial shade and sun environment. I want great-looking pictures, but I’m not looking for anything to hang in a museum. If that’s the scenario, why choose P mode over one of the scene modes? Because it gives me choices and control that none of the scene modes can deliver.



**FIGURE 4.1**

Use Programmed Auto mode for flexible control and as a great place to start learning professional modes.

### Manual Callout

To see available settings for each mode, check out the table on pages 47–54 of your owner’s manual.

## WHEN TO USE PROGRAMMED AUTO (P) MODE INSTEAD OF THE AUTOMATIC SCENE AND EFFECTS MODES

It's graduation time, and you're ready to move on to a more advanced mode but not quite ready to jump in with both feet. When does Programmed Auto mode come in handy?

- When shooting in a casual environment where quick adjustments are needed.
- When you want more control over the ISO.
- If you want to make corrections to the white balance.
- When you want to take advantage of the Flexible Program mode and change shutter speeds via aperture. Move the main Command dial to the left for small apertures to increase depth of field, or rotate the dial to the right for large apertures to create a shallow depth of field.

Let's go back to our picnic scenario. As I said, the light is moving from deep shadow to bright sunlight, which means that the camera is trying to balance our three photo factors (ISO, aperture, and shutter speed) to make a good exposure. From Chapter 1, we know that Auto ISO is generally not what we want except when shooting in Auto mode, so we have already turned that feature off (you did turn it off, didn't you?). Well, in P mode, you can choose which ISO you would like the camera to base its exposure on. The lower the ISO number, the better the quality of the photographs, but the less light sensitive the camera becomes. It's a balancing act, with the main goal always being to keep the ISO as low as possible—too low an ISO, and we will get camera shake in our images from a long shutter speed; too high an ISO, and we will have an unacceptable amount of digital noise (**Figures 4.2** and **4.3**). For now, let's go ahead and select ISO 400 so that we provide enough sensitivity for those shadows while allowing the camera to use shutter speeds that are fast enough to stop motion.



**FIGURE 4.2**  
Look closely and you'll notice the image is grainy, or has small pixels. That's digital noise. Now, look at the same image taken at a lower 100 ISO.



**FIGURE 4.3**  
Notice the detail in the black plastic and how little noise is in the image.

## STARTING POINTS FOR ISO SELECTION

Many years ago camera manufacturers were racing to create cameras with more megapixels. Today the digital race is all about higher ISO. Photographers want to be able to shoot in lower light conditions without the risk of digital noise. There is a lot of discussion concerning ISO in this and other chapters, but it might be helpful if you know where your starting points should be for your ISO settings. The first thing you should always try to do is use the lowest possible ISO setting. Your D7100 has a working range of 100–6400. That being said, here are good starting points for your ISO settings:

- 100: Bright, sunny day
- 200: Hazy or outdoor shade on a sunny day
- 400: Indoor lighting at night or cloudy conditions outside
- 800: Late night, low-light conditions or sports arenas at night
- 1600: Very low light; possibly candlelight or events where no flash is allowed
- 3200–6400: Extreme low light (some digital noise will be present; however, less than ever before)

These are just suggestions; you'll have to adjust as necessary. Your ISO selection will depend on a number of factors that will be discussed later in the book.

With the ISO selected, we can now make use of the other controls built into Programmed Auto mode. By rotating the main Command dial, we now have the ability to shift the program settings. Remember, your camera is using the internal meter to pick what it deems suitable exposure values, but sometimes it doesn't know what it's looking at and how you want those values applied (**Figures 4.4 and 4.5**). With the program shift, you can influence what the shot will look like. Do you need faster shutter speeds in order to stop the action? Just turn the main Command dial to the right. Do you want a smaller aperture so that you get a narrow depth of field? Turn the dial to the left until you get the desired aperture. The camera shifts the shutter speed and aperture accordingly to get a proper exposure.

You will also notice that a small star will appear above the letter P in the viewfinder and the rear display if you rotate the main Command dial. This star is an indication that you modified the exposure from the one the camera chose. To go back to the default Programmed Auto exposure, simply turn the dial until the star goes away or switch to a different mode and then back to P mode again.



ISO 200  
1/800 sec.  
f/5.6  
58mm lens

**FIGURE 4.4**  
This image was shot using the Programmed Auto mode. In this image the shutter was faster because the image is lighter than Figure 4.5. Because the image is lighter, the camera needs less time to expose, so the shutter opens and closes very quickly—in this case, 1/160 of a second quicker.



ISO 200  
1/640 sec.  
f/5.6  
105mm lens

**FIGURE 4.5**  
When we zoom in on the bronze statue, our image becomes darker than in Figure 4.4 because there is less of the bright blue sky. The camera needs more light to properly expose the image, so the shutter is left open longer.

Let's set up the camera for Programmed Auto mode and see how we can make all of this come together.

## SETTING UP AND SHOOTING IN PROGRAMMED AUTO MODE

1. Turn your camera on and then turn the Mode dial to align the P with the indicator line.
2. Select your ISO by pressing and holding the ISO button on the back left of the camera while rotating the main Command dial with your thumb.
3. The ISO will appear on the top display. Choose your desired ISO, and release the ISO button on the left to lock in the change.
4. Point the camera at your subject and then activate the camera meter by depressing the shutter button halfway.
5. View the exposure information in the bottom area of the viewfinder or by looking at the top display panel.
6. While the meter is activated, use your thumb to roll the main Command dial left and right to see the changed exposure values.
7. Select the exposure that is right for you and start clicking. (Don't worry if you aren't sure what the right exposure is yet. We will work on making the right choices for those great shots beginning with the next chapter.)



## S: SHUTTER PRIORITY MODE



S mode is what we photographers commonly refer to as Shutter Priority mode.

Just as the name implies, it is the mode that prioritizes or places major emphasis on the shutter speed above all other camera settings (**Figure 4.6**).

Just as with Programmed Auto mode, Shutter Priority mode gives us more freedom to control certain aspects of our photography. In this case, we are talking about shutter speed. The selected shutter speed determines just how long you expose your camera's sensor to light. The longer it remains open, the more time your sensor has to gather light.



**FIGURE 4.6**

Shutter Priority mode is great for freezing or showing motion. Use this mode when your shutter speed is of utmost importance.

The shutter speed also, to a large degree, determines how sharp your photographs are. Even though an image may appear sharply in focus, any movement by the subject or the camera while the shutter is open can blur the image. If you think about it, when you are trying to show motion, you want a slower shutter speed because it blurs the image.

A good rule of thumb for avoiding blurry images is to always use a shutter speed as fast as your focal length. For instance, if I'm out photographing my daughter with an 80mm lens, then I'll want to make sure my shutter speed is at least 1/120 of a second, taking into account that the camera is not full frame, so the actual focal length is greater than the focal length of the lens. Anything less than that might cause camera shake (even if you're equipped with biceps as big as Popeye's). The D7100 has a 1.3x magnification, so if your focal length is 100mm, you shouldn't shoot less than 1/150 of a second.

### SHUTTER SPEEDS

A *slow* shutter speed refers to leaving the shutter open for a long period of time—like 1/30 of a second or more. A *fast* shutter speed means that the shutter is open for a very short period of time—like 1/250 of a second or less. A faster shutter speed is used to stop motion, and a slower shutter speed is used to show motion.

## WHEN TO USE SHUTTER PRIORITY (S) MODE

- When working with fast-moving subjects and you want to freeze the action (**Figure 4.7**); much more on this is in Chapter 5
- When you want to emphasize movement in your subject with motion blur (**Figure 4.8**)
- When you want to use a long exposure to gather light over a long period of time (**Figure 4.9**); more on this is in Chapter 8
- When you want to create that smooth-looking water in a waterfall or rapids in a creek or river (**Figure 4.10**)



### FIGURE 4.7

Whenever I'm planning on freezing motion, I always make sure I'm shooting with a fast shutter speed. I knew the rodeo would be giving me lots of opportunities for that kind of action, so I set my speed to be very fast so that I could capture every movement of the horse and the rider.



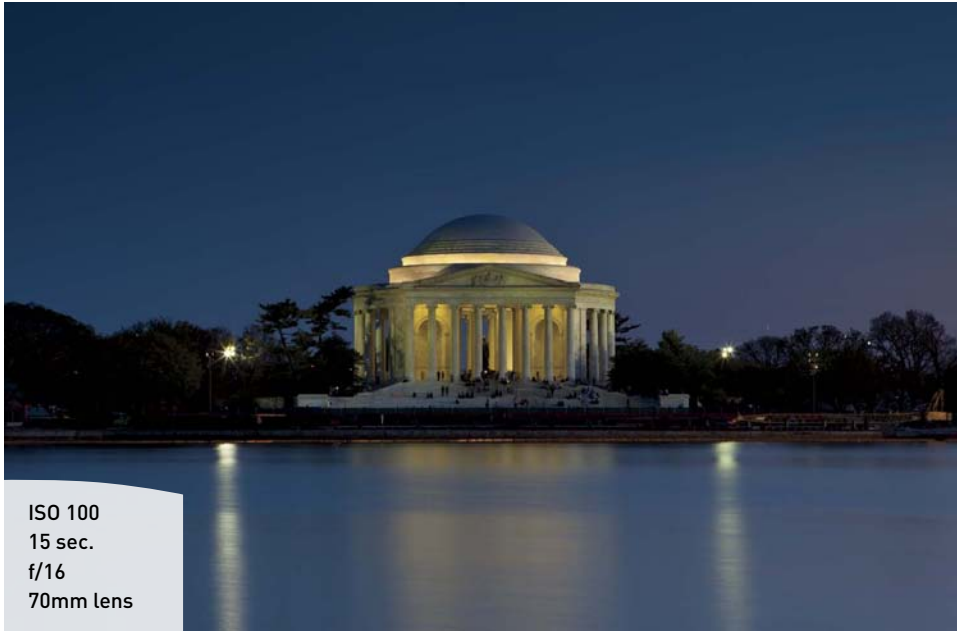
ISO 400  
1/200 sec.  
f/4  
280mm lens

### FIGURE 4.8

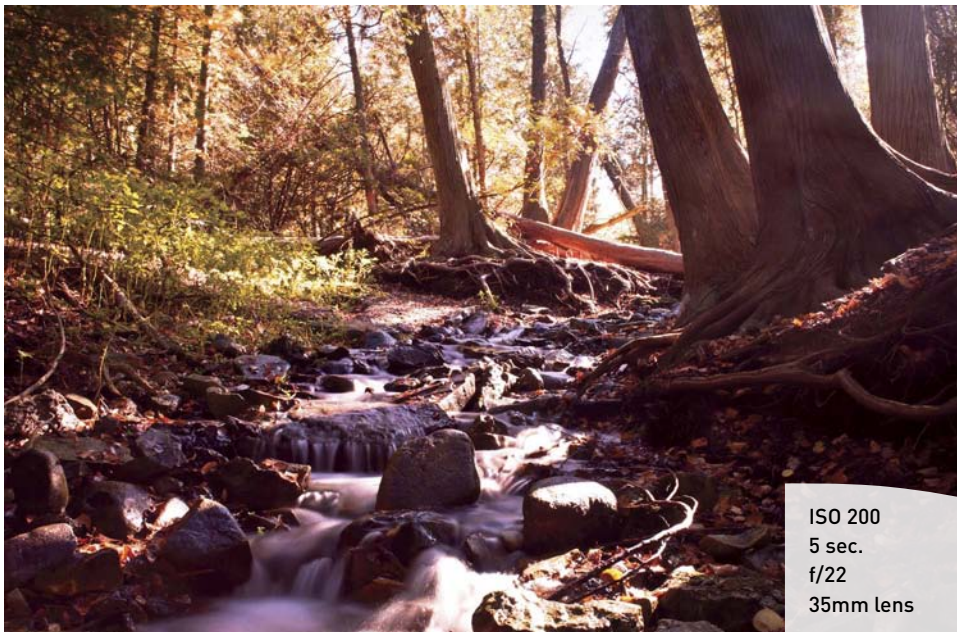
If you're photographing a fast-moving subject and wish to convey a sense of motion, always use a slower shutter. In this image I wanted to blur the background while freezing the subject, so it required me to use a slower shutter while following, or "panning," with the subject in focus.



ISO 250  
1/25 sec.  
f/9  
38mm lens



**FIGURE 4.9**  
I took this very long exposure of the Jefferson Monument in Washington, DC, using a tripod and a cable release. There's no way I could have held the camera steady for 15 seconds! A tripod is a must for long exposures.



**FIGURE 4.10**  
I used a cable release and tripod to photograph this small creek on Mackinac Island, Michigan. I was able to create a smooth look to the water by increasing the length of the exposure using Shutter Priority mode.



As you can see, the subject of your photo usually determines whether or not you will use Shutter Priority mode. It is important that you be able to previsualize the result of using a particular shutter speed. The great thing about shooting with digital cameras is that you get instant feedback by viewing your shot on the LCD. But what if your subject won't give you a do-over? Such is often the case when shooting sporting events. It's not like you can go ask your daughter to score another goal in her soccer game because your photograph was blurry from a slow shutter speed. This is why it's important to know what those speeds represent in terms of their capabilities to stop the action and deliver a blur-free shot.

First, let's examine just how much control you have over the shutter speeds. The D7100 has a shutter speed range from 1/8000 of a second all the way down to 30 seconds. With that much latitude, you should have enough control to capture almost any subject. The other thing to think about is that Shutter Priority mode is considered a semiautomatic mode. That means that you are taking control over one aspect of the total exposure while the camera handles the other. In this instance, you are controlling the shutter speed and the camera is controlling the aperture. This is important, because there will be times that you want to use a particular shutter speed but your lens won't be able to accommodate your request.

For example, you might encounter this problem when shooting in low-light situations: If you are shooting a fast-moving subject that will blur at a shutter speed slower than 1/125 of a second but your lens's largest aperture is f/3.5, you might find your aperture display in your viewfinder and the rear LCD panel will display the word "Lo." This is your warning that there won't be enough light available for the shot—due to the limitations of the lens—so your picture will be underexposed. Your only remedy is to increase your ISO to accommodate the shutter speed needed.

Another case where you might run into this situation is when you are shooting moving water. To get that look of smooth, flowing water, it's usually necessary to use a shutter speed at least as slow as 1/15 of a second. If your waterfall is in full sunlight, you may get a message that reads "Hi" because the lens you are using only stops down to f/22 at its smallest opening. In this instance, your camera is warning you that you will be overexposing your image. There are workarounds for these problems, which we will discuss later, but it is important to know that there can be limitations when using Shutter Priority mode.

## SETTING UP AND SHOOTING IN SHUTTER PRIORITY MODE

1. Turn your camera on and then turn the Mode dial to align the S with the indicator line.
2. Select your ISO by pressing and holding the ISO button on the back left of the camera while rotating the main Command dial with your thumb.
3. The ISO will appear on the top display. Choose your desired ISO, and release the ISO button on the left to lock in the change.
4. Point the camera at your subject and then activate the camera meter by depressing the shutter button halfway.
5. View the exposure information in the bottom area of the viewfinder or by looking at the top display panel.
6. While the meter is activated, use your thumb to roll the main Command dial left and right to see the changed exposure values. Roll the dial to the right for faster shutter speeds and to the left for slower speeds.



## A: APERTURE PRIORITY MODE



Probably the mode most widely used by professional photographers, Aperture Priority is one of my personal favorites, and I believe that it will quickly become one of yours. Aperture Priority mode is also deemed a semiautomatic mode because it allows you to once again control one factor of exposure while the camera adjusts for the other (**Figure 4.11**).

Why is this one of my favorite modes? It's because the aperture of your lens dictates depth of field. Depth of field, along with composition, is a major factor in how you direct attention to what matters in your image. It is the controlling factor of how much area in your image is sharp. If you want to isolate a subject from the background, such as when shooting a portrait, you can use a large aperture (low f-stop number) to keep the focus on your subject and make both the foreground and background blurry. If you want to keep the entire scene sharply focused, as with a landscape scene, then using a small aperture (high f-stop number) will render the greatest amount of depth of field possible.



**FIGURE 4.11**

Use Aperture Priority mode when you need to control depth of field. This is my favorite shooting mode.

## WHEN TO USE APERTURE PRIORITY (A) MODE

- When shooting portraits or wildlife (**Figure 4.12**)
- When shooting most landscape photography (**Figure 4.13**)
- When shooting in bright skies consider silhouetting an image (**Figure 4.14**)
- When shooting cityscape photography, which often benefits from a large depth of field (**Figure 4.15**)

### FIGURE 4.12

The lizard was very still so I was able to use a tripod and zoom in tight. The large aperture helped create a smooth, blurry background, also known as bokeh.



### FIGURE 4.13

The smaller aperture setting brings sharpness to near and far objects.





ISO 160  
1/640 sec.  
f/22  
27mm lens

#### FIGURE 4.14

Using a very small aperture on a clear blue day, I was able to create this sunburst. Typically  $f/16$  or higher will do the trick! Give it a try. The key ingredient is a clear sky, because clouds will diffuse the sun.



ISO 100  
1/50 sec.  
f/10  
80mm lens

#### FIGURE 4.15

I wanted the foreground as well as the background in focus, so I used a wide-angle lens combined with a small aperture to maintain focus throughout the image. This is called a deep depth of field.

## F-STOPS AND APERTURE

As discussed earlier, the numeric value of your lens aperture is described as an *f-stop*. The *f-stop* is one of those old photography terms that, technically, relates to the focal length of the lens (e.g., 200mm) divided by the effective aperture diameter. These measurements are defined as “stops” and work incrementally with your shutter speed to determine proper exposure. Older camera lenses used one-stop increments to assist in exposure adjustments, such as 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, and 22. Each stop represents about half the amount of light entering the lens iris as the larger stop before it. Today, most lenses don’t have *f-stop* markings, since all adjustments to this setting are performed via the camera’s electronics. The stops are also now typically divided into 1/3-stop increments to allow much finer adjustments to exposures, as well as to match the incremental values of your camera’s ISO settings, which are also adjusted in 1/3-stop increments.

I strongly recommend knowing your lens’s aperture rating. Every lens has a marking on it with a number; *f/1.4*, *f/2.8*, or *f/5.6* are all very common maximum aperture sizes. This number simply means the largest aperture your lens supports is *f/1.4*, *f/2.8*, or *f/5.6*, respectively. The D7100 kit ships with a standard 18–105mm lens with an *f/3.5–f/5.6* variable maximum aperture (Figure 4.16).

Knowing the limits of your lens aperture is crucial when using Aperture Priority. As a general rule, the lower the number on the lens, the “faster” it is (because it allows more light in to expose the image, thus reducing the amount of shutter time) and the sharper the image is. Typically, fast lenses are heavier and more expensive, but they’re well worth the investment if you find yourself shooting in low-light conditions. The larger the aperture is, the better the exposure without having to increase ISO and introduce digital noise.

On the other hand, bright scenes require the use of a small aperture (such as *f/16* or *f/22*), especially if you want to use a slower shutter speed. That small opening reduces the amount of incoming light, and this reduction of light requires that the shutter stay open longer.



**FIGURE 4.16**

It’s important to know the focal range and maximum aperture of your lens.

## ZOOM LENSES AND MAXIMUM APERTURES

Some zoom lenses (like the 18–105mm kit lens) have a variable maximum aperture. This means that the largest opening will change depending on the zoom setting. In the example of the 18–105mm zoom, the lens has a maximum aperture of  $f/3.5$  at 18mm and only  $f/5.6$  when the lens is zoomed out to 105mm.

## SETTING UP AND SHOOTING IN APERTURE PRIORITY MODE

1. Turn your camera on and then turn the Mode dial to align the A with the indicator line.
2. Select your ISO by pressing and holding the ISO button on the back left of the camera while rotating the main Command dial with your thumb.
3. The ISO will appear on the top display. Choose your desired ISO, and release the ISO button on the left to lock in the change.
4. Point the camera at your subject and then activate the camera meter by depressing the shutter button halfway.
5. View the exposure information in the bottom area of the viewfinder or by looking at the top display panel.
6. While the meter is activated, use your finger to roll the Sub-command dial left and right to see the changed exposure values. Roll the dial to the right for a smaller aperture (higher f-stop number) and to the left for a larger aperture (lower f-stop number).



## M: MANUAL MODE



Manual mode is all about control. Keep in mind, this mode was not designed for those of us who want to go on auto-pilot and shoot to our heart's content. It was designed to allow the photographer to take complete control of shutter speed and aperture (**Figure 4.17**). The camera doesn't do any of the work for you.



**FIGURE 4.17**

For ultimate control of shutter speed and aperture, use Manual mode.



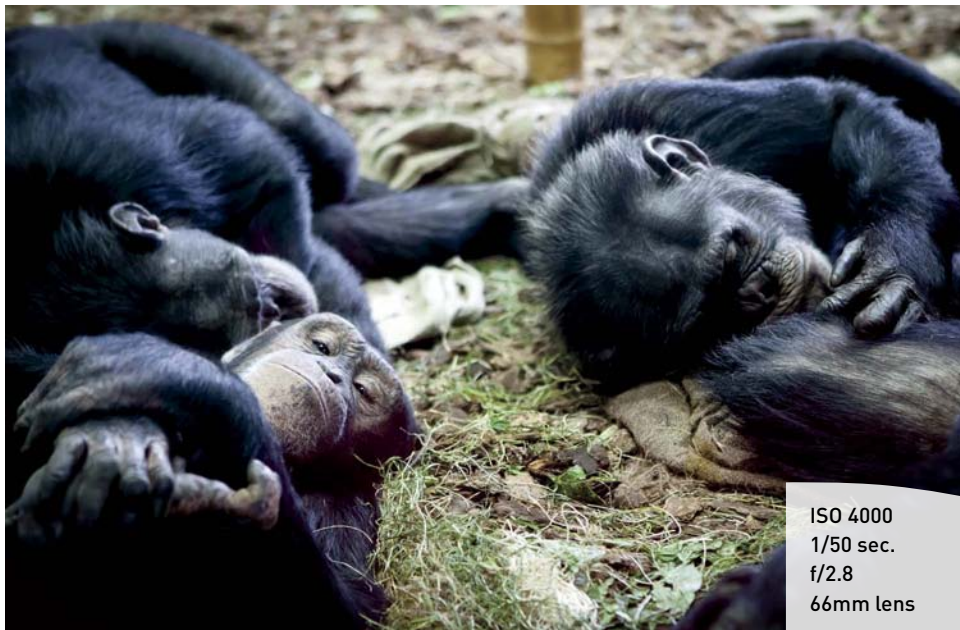
When you have your camera set to Manual (M) mode, the camera meter will give you a reading of the scene you are photographing. It's your job, though, to set both the f-stop (aperture) and the shutter speed to achieve a correct exposure. If you need a faster shutter speed, you will have to make the reciprocal change to your f-stop. Using any other mode, such as Shutter Priority or Aperture Priority, would mean that you just have to worry about one of these changes, but Manual mode means you have to do it all yourself. This can be a little challenging at first, but after a while you will have a complete understanding of how each change affects your exposure, which will, in turn, improve the way that you use the other modes.

## WHEN TO USE MANUAL (M) MODE

- When lighting and exposure get tricky (**Figure 4.18**). Shooting indoors through glass can be especially tricky. The wonderful thing about your D7100 is that it has an incredible ISO range with relatively low digital noise.
- When your environment is fooling your light meter and you need to maintain a certain exposure setting (**Figure 4.19**). Beaches and snow are always a challenge for light meters. Whenever I'm shooting something in snow I find myself switching over to Manual mode.
- When shooting silhouetted subjects, which requires overriding the camera's meter readings (**Figure 4.20**).

### FIGURE 4.18

I took this image of apes at a zoo behind glass and wanted to avoid having my flash trigger because that would have left a nasty reflection. I decided to bump up my ISO and use a large aperture to get this shot.



ISO 4000  
1/50 sec.  
f/2.8  
66mm lens



ISO 200  
1/400 sec.  
f/11  
85mm lens

**FIGURE 4.19**  
A good rule of thumb in snow is to bump your exposure up one or two f-stops if it's really sunny. That should get you closer to the correct exposure.



ISO 100  
1/3000 sec.  
f/7.1  
35mm lens

**FIGURE 4.20**  
The camera's meter will do a great job most of the time, but when you want to get creative sometimes you need to use Manual mode. Using Manual mode allowed me to silhouette the buildings while maintaining the warm glow of the sun.



## SETTING UP AND SHOOTING IN MANUAL MODE

1. Turn your camera on and then turn the Mode dial to align the M with the indicator line.
2. Select your ISO by pressing and holding the ISO button on the back left of the camera while rotating the main Command dial with your thumb.
3. The ISO will appear on the top display. Choose your desired ISO, and release the ISO button on the left to lock in the change.
4. Point the camera at your subject and then activate the camera meter by depressing the shutter button halfway.
5. View the exposure information in the bottom area of the viewfinder or by looking at the top display panel.
6. To set your exposure using shutter speed, while the meter is activated, use your thumb to roll the main Command dial left and right to change your shutter speed value until the exposure mark is lined up with the zero mark. The exposure information is displayed in the viewfinder using a scale with marks that run from -2 to +2 stops with 0 indicating proper exposure. As the indicator moves to the left, the image is being underexposed, or gets darker. Move the indicator to the right and the image is being overexposed, or gets brighter.
7. To set your exposure using the aperture, while the meter is activated, use your finger to roll the Sub-command dial left and right to see the changed exposure values. Roll the dial to the right for a smaller aperture (higher f-stop number) and to the left for a larger aperture (lower f-stop number).
8. Note: You might have good reasons to want to overexpose or underexpose an image. For instance, as a black-and-white photographer, I'll often overexpose my images by one-third of a stop to assure that my shadows have some details. This is just one of many creative reasons for adjusting your exposure differently than is suggested by the meter.



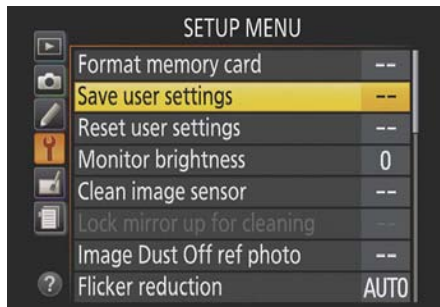
## USER SETTINGS MODE—SAVING YOUR FAVORITE SETTINGS TO THE MODE DIAL



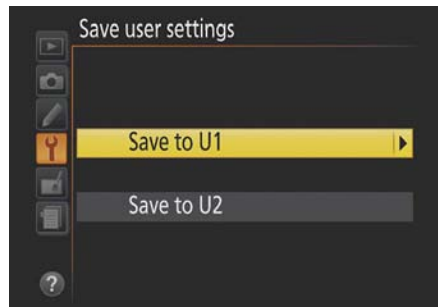
User settings are a great feature if you're looking to have your favorite settings at the turn of a dial. These are located on the dial as U1 and U2. If you have a group of settings that you find you are using often and you want to have them close at hand, then these modes are handy for you.

- First, set the camera to your favorite settings, under any of the semiautomatic modes or Manual mode, adjusting aperture, shutter speed, ISO, flash, focus point, metering, and/or bracketing.
- Go to the setup menu, and click on Save User Settings (A), (B).
- Highlight U1 or U2, then click OK to save your settings (C).
- When you want to use those settings again, just rotate the top dial to U1 or U2, and the camera will choose your saved settings so that you're ready to go (D).

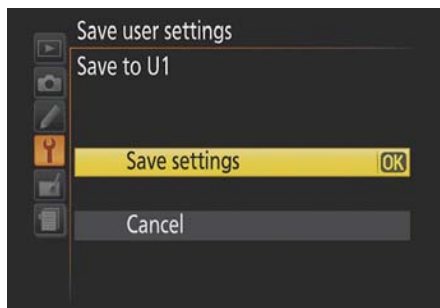
For more on setting up user modes, see page 55 of your owner's manual.



A



B



C



D

## HOW I SHOOT: MY FAVORITE CAMERA SETTINGS

I'm generally a landscape and travel photographer, but like many of you, I enjoy photographing everything. There's very little that doesn't interest me. I have found throughout the years that I primarily use the Aperture Priority mode. Why? Often when I'm traveling and focusing on my street photography, I don't have time to worry about every single variable, and I've found focusing on aperture has given me the control I need for 95 percent of my photography. If I want an image to have a shallow depth of field, then I'll use a large aperture such as f/2.8, or if I'm shooting a landscape and I need a greater depth of field I'll use a smaller aperture such as f/16.

However, sometimes Aperture Priority just doesn't work. Maybe the lighting is tricky or it's close but not quite right. In those cases I'll switch over to Manual mode. Almost all of my landscape photography that I've shot during the golden hours was done in Manual mode because the light changes very quickly.

Each photographer has a different way of doing things. No one approach is necessarily better than the other. In the end, it's about creating your own system so that you're consistent. When you're consistent, you can measure results and then make changes accordingly.

When I first started out photographing in Aperture Priority, the biggest mistake I made was shooting with much too slow of a shutter speed. I would get blurry pictures and I would ask myself, "How did this happen? They looked super sharp when I took them." I would then look at the metadata (image information) and would see that I shot the blurry image at 1/30 of a second, way too slow for handholding a camera. So I learned my lesson and started shooting a little faster, and my results improved immensely.

Doing things consistently and measuring results is a great way to improve your photography. Don't ignore the metadata; it's very helpful in understanding why an image looks a certain way and learning how to change your setting the next time to make the image stronger.

While the other camera modes have their place, I think you will find that most professional photographers use the Aperture Priority and Shutter Priority modes for 90 percent of their shooting.

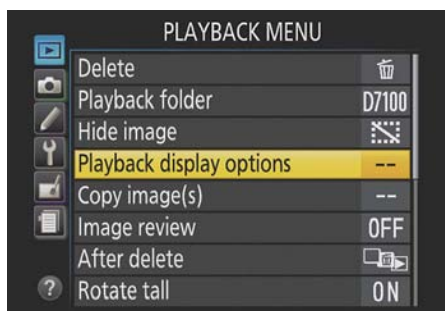
One big concern that I have when I am setting up my camera is just how low I can keep my ISO. This is always a priority for me, because a low ISO will deliver the cleanest image. I raise the ISO only as a last resort because each increase in sensitivity is an opportunity for more digital noise to enter my image.

To make quick changes while I shoot, I often use the Exposure Compensation feature (covered in Chapter 7) so that I can make small over- and underexposure changes. This is different than changing the aperture or shutter; it is more like fooling the camera meter into thinking the scene is brighter or darker than it actually is. To get to this function quickly, I simply press the Exposure Compensation button, right next to the shutter button, and then dial in the desired amount of compensation using the main Command dial. If you can't get the exact exposure you want with aperture and speed alone, make little adjustments to the exposure compensation.

One of the reasons some people change their exposure is to make corrections when there are "blinkies" in the rear LCD. Blinkies are the warning signal that part of the image has been overexposed to the point that there is no longer any detail in the highlights. When the Highlight Alert feature is turned on, the display will flash whenever the potential exists for overexposure. The black-and-white flashing will only appear in areas of your picture that are in danger of overexposure.

### SETTING UP THE HIGHLIGHT ALERT FEATURE

1. Press the Menu button, and then use the Multi-selector to access the Playback menu.
2. Once in the Playback menu, move the Multi-selector to Playback Display Options and press OK (A).
3. Move the Multi-selector down to select the Highlights option. Move the Multi-selector to the right to place a check mark next to the word Highlights (B).
4. Press OK on the Multi-selector to lock in your change.



Once the highlights warning is turned on, use it to check your images on the back of the LCD after taking a shot. If you see an area that is blinking, try setting exposure compensation to an underexposed setting like  $-1/3$  or  $-2/3$  stops and take another photo, checking the result on the screen. Don't make yourself crazy trying to get rid of every single blinking area. It is easy enough to add some black back into your photo later using post-editing software, and you don't want to underexpose the rest of the image because there is one blown-out highlight.

Sometimes, such as when you're shooting into the sun, the warning will blink no matter how much you adjust the exposure because there is just no detail in the highlight. On the contrary, if you're shooting a white wedding dress and the entire dress is blinking, then you have no detail in the dress and the bride will not be happy. Use your best judgment to determine if the warning is alerting you to an area where you want to retain highlight detail. If you are not sure what the perfect exposure is and you have to get a good shot, try bracketing your exposure. We will talk more about this in later chapters.

As you work your way through the coming chapters, you will see other tips and tricks to use in your daily photography, but the most important advice I can give is to take the time to understand the features of your camera so that you can leverage the technology in a knowledgeable way. This will pay off in better photographs.

## Chapter 4 Assignments

This will be more of a mental challenge than anything else, but you should put a lot of work into these assignments, because the information covered in this chapter will define how you work with your camera from this point on. Granted, there may be times that you just want to grab some quick pictures and will resort to the automatic scene modes, but to get serious with your photography, you will want to learn the professional modes inside and out.

### Starting off with Programmed Auto mode

Set your camera on P mode and start shooting. Become familiar with the adjustments you can make to your exposure by turning the main Command dial. Shoot in bright sun, deep shade, indoors, anywhere that you have different types and intensities of light. While you are shooting, make sure that you keep an eye on your ISO and raise or lower it according to your environment.

### Learning to control time with Shutter Priority mode

Find some moving subjects and then set your camera to S mode. Have someone ride a bike back and forth or even just photograph cars as they go by. Start with a slow shutter speed of around  $1/30$  of a second, and then start shooting with faster and faster shutter speeds. Keep shooting until you can freeze the action.

Now find something that isn't moving, like a flower. Start with your shutter speed at something fast, like 1/500 of a second, and then work your way down. Don't brace the camera on a steady surface. Just try to shoot as slowly as possible, down to about 1/4 of a second. The point is to see how well you can handhold your camera before you start introducing hand shake into the image, making it appear soft and somewhat unfocused.

### Controlling depth of field with Aperture Priority mode

The name of the game with Aperture Priority mode is depth of field. Set up three items at an equal distance from you, maybe chess pieces or something similar. Now set your zoom on a focal length of 50mm while focusing on the middle item. Set your camera to the largest aperture your lens will allow. Remember, large aperture means a low f-stop number like f/3.5, and small aperture means a high f-stop like f/22. Now take a photo. While still focusing on the middle subject, set your camera to the smallest aperture you lens will allow and take another photo. Now compare the depth of field between to the two images.

### Giving and taking with Manual mode

Manual mode is not going to require a lot of work, but you should pay close attention to your results. Go outside on a sunny day and, using the camera in Manual mode, set your ISO to 100, your shutter speed to 1/125 of a second, and your aperture to f/16. Now press your shutter release button to get a meter reading. You should be pretty close to that zero mark. If not, make small adjustments to one of your settings until it hits that mark.

Here is where the fun begins. Start moving your shutter speed slower, to 1/60, and then set your aperture to f/22. Now go the other way. Set your aperture on f/8 and your shutter speed to 1/500. Review your images. If all went well, all the exposures should look the same. This is because you balanced the light with reciprocal changes to the aperture and shutter speed.

Now go back to our original setting of 1/125 at f/16 and try moving the shutter speed without changing the aperture. Just make 1/3-stop changes (1/125 to 1/100 to 1/80 to 1/60), and then review your images to see what a 1/3 stop of overexposure looks like. Then do the same thing going the opposite way. It's hard to know if you want to over- or underexpose a scene until you have actually done it and seen the results.

With each of the assignments, make sure that you keep track of your modes and exposures so that you can compare them with the image. If you are using software to review your images, you should also be able to check the camera settings that are embedded within the image's metadata.

*Share your results with the book's Flickr group!*

*Join the group here: [flickr.com/groups/nikond7100\\_fromsnapshotstogreatshots](https://www.flickr.com/groups/nikond7100_fromsnapshotstogreatshots).*

# INDEX

1.3 DX crop, 12

3D-tracking AF mode, 119–120

14-bit images, 37

## A

action photography, 105–131

3D-tracking mode for, 119–120

annotated example of, 106–107

anticipating action in, 120–121

assignments on shooting, 130–131

automatic mode for, 64

composing shots in, 127–129

continuous shooting modes for, 122–124

conveying motion in, 124–126

direction of travel in, 108–109

factors to consider for, 108–111

focus modes for, 118–121

framing subjects in, 127

freezing motion in, 87, 88

ISO setting and, 113–114, 116–117

isolating subjects in, 115–116

manual focus for, 120–121

portraits as, 149

showing faces in, 128

shutter speed and, 108–111

speed of subject in, 110

subject-to-camera distance in, 111

telephoto lenses for, 44

tips for shooting, 127–129

vantage points for, 129

*See also* motion

Active D-Lighting feature, 74, 261–262

Adams, Ansel, 175

AE Lock feature, 141, 251

AF-A focus mode, 75

AF-area modes, 119, 243, 244

AF-assist illuminator, 19, 205

AF-C focus mode, 75, 118–119

AF-S focus mode, 13–14, 25, 75, 142–143

angles, shooting, 224

animal photography

pet photos, 70

wildlife photos, 44, 92

zoo photos, 96

Aperture Priority (A) mode, 91–95

assignment on using, 103

flash sync speeds in, 209

isolating subjects using, 115–116

landscape photography and, 92, 177, 180

low-light photography and, 208

portrait photography and, 136–138

setting up and shooting in, 95

situations for using, 92–94, 100, 260

aperture settings

depth of field and, 50, 91, 103

exposure and, 46, 47–48

f-stops and, 94

landscape photography and, 92

light levels and, 94

portrait photography and, 136–138

prioritizing, 91–95

zoom lenses and, 44, 95

audio recording, 240–242

Auto Bracketing mode, 190, 259

Auto Cleaning feature, 34

Auto Exposure Lock feature, 141, 251

Auto ISO Sensitivity Control, 117

Auto ISO setting, 8–9, 10, 57

Auto mode, 56–57, 76

Auto white balance setting, 7

autofocus system, 13–14, 41, 203

automatic modes, 53–77  
    assignments on using, 76–77  
    Auto mode, 56–57  
    effects modes, 70–73  
    example of using, 54–55  
    Flash Off mode, 57–58, 206  
    limitations of, 74–75  
    Mode dial settings for, 56, 59, 70  
    Programmed Auto mode and, 82  
    scene modes, 58–70  
    using as baseline, 77, 81  
    *See also* professional modes  
Autumn Colors scene mode, 69

## B

backgrounds  
    blurring, 50, 115–116, 136, 137  
    isolating subjects from, 60, 115–116  
    portrait, 136, 137, 154  
backlit subjects, 250  
battery, charging, 25  
Beach/Snow scene mode, 67  
BKT button, 190, 259  
*Black and White: From Snapshots to Great Shots* (Batdorff), 144  
black-and-white images  
    landscape photos as, 175  
    portraits as, 144–145  
    selective color with, 72  
blinkies, 101–102, 173, 181  
Blossom scene mode, 69  
blur  
    background, 50, 115–116, 136, 137  
    motion, 49, 87, 88, 107, 125–126  
bracketing exposures, 75, 190, 191, 257–259, 263  
brightness, 20, 181  
buffer, 124  
built-in flash, 208–211, 217  
Bulb setting, 254–255, 263  
bull’s-eye composition, 183  
burst mode, 122

## C

cable release, 165, 208  
camera shake, 164, 165  
Candlelight mode, 69  
carbon-fiber tripods, 165  
Cartier-Bresson, Henri, 262  
catchlight in eyes, 148  
Center-weighted metering mode, 139, 140–141  
Child mode, 66  
children  
    action portraits of, 149  
    automatic mode for shooting, 66  
    shooting at their level, 157  
cityscape photography, 92, 93, 196–197  
cleaning the sensor, 34–35, 51  
clipping, 20–21  
Close Up mode, 62–63, 76  
close-up photography. *See* macro photography  
clouds in photos, 176  
Cloudy setting, 7, 168  
color  
    complementary, 228  
    eyes drawn to, 181  
    warm vs. cool, 176  
color balance, 6  
color composition, 226–227, 228  
color modes/effects  
    Autumn Colors scene mode, 69  
    Color Sketch effect, 71  
    Selective Color effect, 72



- Color Sketch effect, 71
- color temperatures, 6, 176
- Command dial, 59, 70, 83, 84
- complementary colors, 228
- composition, 219–233
  - action photo, 127–129
  - angles and, 224
  - annotated example of, 220–221
  - assignments on, 233
  - color and, 226–227, 228
  - contrast and, 228–229
  - creating depth through, 185
  - depth of field and, 222–223
  - framing and, 231–232
  - landscape, 181–185
  - leading lines and, 229–230
  - patterns and, 226
  - point of view and, 225
  - portrait, 150–158
  - rule of thirds, 183–185, 231
- compression standards, 35
- continuous shooting modes
  - action photography and, 122–124
  - HDR photography and, 190
  - memory cards and, 30
- contrast, 228–229
- cool colors, 176
- crop factor, 12–13
- Custom Settings menu, 16, 24

## D

- Data display mode, 18
- Daylight setting, 168
- default settings, 23–24
- deleting images, 18
- depth, creating, 185

- depth of field
  - action photography and, 115–116
  - aperture settings and, 50, 91, 103
  - cityscape photography and, 92, 93
  - composition and, 222–223, 233
  - hyper focal distance and, 177–178
  - landscape photography and, 177–178, 192
  - macro photography and, 260
  - portrait photography and, 136, 159
  - telephoto lenses and, 44
  - wide-angle lenses and, 42, 138

- Direct Sunlight setting, 7

- direction of travel, 108–109

- display modes, 16–18

- distance

- flash range and, 210

- hyper focal, 177–178

- subject-to-camera, 111

- distance compression, 43

- distortion, 41, 138, 150

- D-Lighting feature, 73

- drive modes, 122

- dSLR cameras, 24, 40

- dual image formats, 38–40

- Dusk/Dawn scene mode, 67

- DX frame size, 12

- Dynamic Area mode, 118–119

- dynamic range, 189

## E

- editing videos, 244

- effects modes, 70–73

- Color Sketch effect, 71

- High Key effect, 73

- limitations of, 74–75

- Low Key effect, 73

- Miniature effect, 72

- Mode dial setting for, 70
- Night Vision effect, 70
- Selective Color effect, 72
- Silhouette effect, 73
- See also* scene modes
- environmental portraits, 138
- exposure, 45–48
  - bracketing, 75, 190, 191, 257–259
  - calculating, 47–48
  - creative use of, 98
  - factors of, 45–46
  - histograms and, 20–21
  - locking in, 141, 251
  - long, 87, 89, 107, 167, 206–208, 254–255
  - reciprocal settings for, 47–48
- Exposure Compensation feature, 101
  - automatic modes and, 74, 174
  - highlight warning and, 102, 173
  - landscape photography and, 173–174, 181
  - shooting mode changes and, 174
  - See also* Flash Compensation feature
- Exposure Delay mode, 22–23, 202, 208
- Exposure: From Snapshots to Great Shots* (Revell), 45
- exposure triangle, 45–46
- exposure value (EV), 45
- external flash, 216
- eyes
  - catchlight in, 148
  - focusing on, 142, 144
  - red-eye reduction, 214–215

## F

- Face Priority mode, 146–147
- faces
  - action photos showing, 128
  - feature for detecting, 146–147
- fill flash, 147–148
- filters
  - Monochrome picture control, 144, 175
  - polarizing and neutral density, 181
- fireworks, 254
- firmware, 32–33
  - checking version number of, 32, 51
  - updating from your SD card, 33
- flash
  - built-in, 208–211
  - disabling, 57–58, 206
  - external, 216
  - fill, 147–148
  - manual power setting, 211
  - range/distance of, 210
  - red-eye reduction, 214–215
  - reflections on glass from, 215
  - shutter speed and, 208, 209
  - TTL metering for, 210–211
- Flash Compensation feature, 212–213
  - automatic modes and, 75
  - changing the flash output with, 213
  - disabling the flash with, 206
  - See also* Exposure Compensation feature
- Flash Off mode, 57–58, 206
- flash synchronization, 208, 209
- Flash white balance setting, 7
- Flickr group, 25
- Fluorescent setting, 7, 169
- focal length
  - overview of lenses and, 40–44
  - shutter speed related to, 87
- focus confirmation beep, 19
- focus modes, 75, 120
  - 3D-tracking, 119–120
  - AF-A, 75
  - AF-C, 75, 118–119

- focus modes (*continued*)
    - AF-S, 13-14, 25, 75, 142-143
    - manual, 14-15, 120-121, 178, 204
  - Focus Point Wrap feature, 19
  - focus points, 13, 14, 118
  - focusing
    - for action photography, 118-121
    - for landscape photography, 177-179
    - for low-light photography, 203-205
    - for portraits, 142-144
    - for video recording, 236, 243-244
  - focusing system
    - autofocus settings, 13-14
    - custom focusing options, 19
  - Food scene mode, 68
  - formatting memory cards, 31, 51
  - framing images
    - action photos, 127
    - composition guidelines for, 231-232
    - portraits, 150, 152, 155
  - freezing motion, 64, 87, 88, 108
  - f-stops, 46, 47-48, 94
    - See also* aperture settings
- G**
- geometric shapes, 233
  - glass, shooting through, 96, 215
  - golden light, 176, 196
  - grid overlay, 22, 184-185, 192, 193
  - group portraits, 151
- H**
- handheld photography
    - holding your camera for, 24, 25, 216
    - Vibration Reduction lenses for, 57, 201
    - video recording and, 236, 245
  - hands in portraits, 155, 156
  - HDMI cable connections, 242-243
  - Hi indicator warning, 90
  - high dynamic range (HDR) images, 189-191
    - bracketing exposures for, 191
    - built-in camera feature for, 191
    - setting up for shooting, 190
  - High ISO Noise Reduction feature, 168, 198, 200
  - High Key effect, 73
  - high-definition video, 238
  - Highlight Alert feature, 101-102, 173, 181
  - highlights
    - overexposure warning for, 101-102, 173, 181
    - regaining detail in, 174
  - Highlights display mode, 17
  - histograms, 20-21
  - horizon line, 183-184, 193, 231
  - hyper focal distance (HFD), 177-178, 192
- I**
- i* button, 12, 59
  - image area setting, 12-13
  - image formats
    - dual, 38-40
    - exploring, 51
    - JPEG, 10-11
    - RAW, 10, 36-37
  - image quality settings, 10-11
  - image resolution, 38
  - Image Review feature, 15, 242
  - Incandescent setting, 7
  - in-focus indicator, 14
  - interlaced video, 238
  - ISO button, 9, 23
  - ISO Display feature, 22
  - ISO sensitivity settings, 116-117

## ISO settings

- action photos and, 113–114, 116–117
- Auto ISO option, 8–9, 10, 57
- changing on the fly, 114
- display feature for, 22
- expanded settings, 200–201
- explained, 8–9
- exposure and, 46, 47–48
- flash range and, 210
- landscape photos and, 166
- low-light photos and, 198–201
- noise and, 9, 100, 114, 166, 198
- prioritizing, 83–84
- selecting, 9
- starting points for, 84

## J

### JPEG file format

- explained, 10, 35
- quality settings, 10–11
- RAW and JPEG option, 38–40
- reasons for using, 35
- white balance and, 6

## K

kit lens, 14–15, 41, 44

## L

### Landscape mode, 61, 76

### landscape photography, 161–193

- annotated examples of, 28–29, 54–55, 162–163, 248–249
- aperture settings and, 92
- assignments on shooting, 192–193
- automatic modes for, 61, 68
- black-and-white, 175
- composition in, 181–185
- exposure compensation for, 173–174, 181
- focusing for, 177–179

golden light in, 176

HDR images and, 189–191

hyper focal distance for, 177–178

ISO settings for, 166

Live View used for, 178–179

Manual mode used for, 100

nighttime, 68

noise reduction for, 167–168

panoramas and, 186–188

picture control for, 61, 171–172

skies included in, 172, 173

sunrise/sunset and, 176

tripods used for, 164–165, 177, 190

waterfall shots in, 180–181

white balance settings for, 168–171

wide-angle lenses for, 41, 42

Landscape picture control, 61, 171–172

### LCD display

histogram in, 17, 20–21

Live View feature and, 74

reviewing photos in, 15–18, 25

reviewing videos in, 242

zooming in on, 112

leading lines, 229–230, 233

lens compression, 162

lens flare, 256

lenses, 40–44

exploring, 51

how they work, 40–41

kit, 14–15, 41, 44

normal, 42–43

portrait, 59, 150–151

telephoto, 43–44

Vibration Reduction, 57, 165, 201

wide-angle, 41–42, 138

zoom, 44, 95

level feature, 188

- lighting
    - Active D-Lighting feature and, 74, 261-262
    - red-eye reduction and, 215
    - See also* flash; low-light photography; sunlight
  - Live View feature, 74
    - Face Priority mode, 146-147
    - grid overlay, 184-185, 192, 193
    - manual focus and, 178-179, 260
    - video recording and, 236, 237
    - white balance and, 170
  - Lo indicator warning, 57, 90
  - long exposures
    - Bulb setting for, 254-255
    - low-light photography and, 107, 206-208, 217
    - noise reduction for, 167-168, 206, 217, 255
    - Shutter Priority mode for, 87, 89, 254
  - Low Key effect, 73
  - low-light photography, 195-217
    - AF-assist illuminator and, 19, 205
    - annotated examples of, 80-81, 106-107, 196-197
    - assignments on shooting, 216-217
    - automatic modes for, 67, 68, 69
    - built-in flash for, 208-211
    - disabling the flash for, 206
    - eliminating flash reflections in, 215
    - flash compensation for, 212-213
    - focusing for, 203-205
    - ISO settings for, 198-201
    - long exposures for, 107, 206-208, 217, 254-255
    - red-eye reduction in, 214-215
    - Self-timer feature for, 202-203
    - tripods used for, 197, 198, 207
    - Vibration Reduction lenses for, 201
  - luminance, 20
  - LV button, 170, 179, 236
- ## M
- macro photography, 259-260, 263
    - Aperture Priority mode for, 260
    - Close Up mode for, 62-63
  - Manual flash mode, 211
  - manual focus mode, 14-15, 25
    - anticipated action and, 120-121
    - Live View feature used with, 178-179, 260
    - low-light photography and, 204
  - Manual (M) mode, 95-98, 253
    - assignment on using, 103
    - Bulb setting in, 254-255
    - landscape photography and, 100
    - setting up and shooting in, 98
    - situations for using, 96-97, 253
  - Matrix metering mode, 74, 139
  - McCurry, Steve, 262
  - megapixels (MP), 38
  - memory cards, 30-31
    - advice on choosing, 30
    - dual format shots and, 38, 39-40
    - formatting, 31, 51
    - updating firmware from, 33
    - video recording and, 30, 237
  - metering modes, 139-141
    - AE Lock feature, 141
    - Center-weighted, 139, 140-141
    - Manual flash, 211
    - Matrix, 74, 139
    - Spot, 139, 250-252
    - TTL, 210-211
  - microphone, 240-241
  - Miniature effect, 72
  - mirror reflections, 223, 224

Mirror-up mode, 165  
Mode dial, 7, 56, 59, 70  
Monochrome picture control, 144–145, 175  
motion  
    blurring, 49, 87, 88, 107, 125–126  
    continuous shooting modes for, 122–124  
    focus modes for, 118–121  
    freezing, 64, 87, 88, 108  
    panning, 88, 124–125  
    shutter speed and, 49, 108–111  
    techniques for conveying, 124–126  
    tips for shooting, 127–129  
    *See also* action photography  
Movie Record button, 236, 244  
Movie Settings menu, 237, 239, 241, 242  
movie-making features. *See* video recording  
“mug shot” pose, 150  
multiple-image panoramas, 187–188

## N

natural light, 159  
neutral density filter, 181  
Night Landscape mode, 68  
Night Portrait mode, 67, 209  
Night Vision effect, 70  
nighttime photography  
    annotated examples of, 80–81, 106–107  
    automatic scene modes for, 67, 68  
    *See also* low-light photography  
Nikon D7100 camera  
    features illustration, 2–5  
    firmware updates, 32–33  
    properly holding, 24  
    sensor cleaning, 34–35  
Nikon Download Center, 32, 33  
Nikon SB700 AF Speedlight, 216  
Nikon ViewNX 2 software, 36, 37, 244

noise  
    descriptions of, 9, 166  
    file size related to, 200  
    ISO setting and, 9, 100, 114, 166, 198  
Noise Reduction (NR) feature, 167–168, 198, 200, 206, 208, 217  
nondestructive editing, 37  
normal lenses, 42–43

## O

overexposure warning, 101–102, 173, 181  
Overview Data display mode, 17

## P

panning, 88, 124–125  
panoramas, 186–188  
Party/Indoor scene mode, 68  
patterns, 226, 233  
Pet Portrait mode, 70  
picture controls, 74  
    Landscape, 61, 171–172  
    Monochrome, 144–145, 175  
    Portrait, 59, 146  
pixel resolution, 38  
Playback button, 112  
Playback menu, 15, 17, 101  
point of view, 129, 225, 233  
polarizing filter, 181  
pop-up flash, 208–211, 217  
Portrait mode, 59–60, 76, 136  
portrait orientation, 152  
Portrait picture control, 59, 146  
portraits, 133–159  
    action shots as, 149  
    A&E Lock feature for, 141  
    annotated example of, 134–135  
    aperture settings for, 136–138  
    assignments on shooting, 159  
    automatic modes for, 59–60, 67, 136



portraits (*continued*)

- backgrounds for, 136, 137, 154
  - black-and-white, 144–145
  - Child mode for, 66
  - composition of, 150–158
  - depth of field in, 136, 159
  - environmental, 138
  - Face Priority mode for, 146–147
  - fill flash for, 147–148
  - focusing for, 142–144
  - framing, 150, 152, 155
  - lenses used for, 59, 150–151
  - lighting for, 147–148, 153
  - metering modes for, 139–141, 159
  - nighttime, 67
  - Pet Portrait mode for, 70
  - picture controls for, 144–145, 146
  - skin tone adjustments for, 146
  - tips for shooting, 150–158
- post-processing RAW images, 36
- Pre white balance setting, 7
- prime lenses, 44
- professional modes, 7, 79–103
- Aperture Priority mode, 91–95
  - assignments on using, 102–103
  - Manual mode, 95–98
  - Programmed Auto mode, 82–86
  - Shutter Priority mode, 86–91
  - User Settings mode, 99
- See also* automatic modes
- Programmed Auto (P) mode, 82–86
- assignment on using, 102
  - automatic modes and, 82
  - flash sync speed in, 209
  - setting up and shooting in, 86
  - situations for using, 83–85
- progressive video, 238

**Q**

- Qual button, 11, 39
- quality settings
- JPEG format, 10–11
  - video recording, 238–239, 245
- quick-release tripod head, 165

**R**

- RAW file format, 10, 36–37
- advantages of, 36–37
  - advice on shooting in, 37
  - HDR images and, 190
  - post-processing and, 36
  - RAW and JPEG option, 38–40
  - white balance and, 6
- reciprocal exposures, 47–48
- red-eye reduction, 214–215, 217
- reflections
- catchlight, 148
  - eliminating flash on glass, 215
  - photographing, 222, 223, 224
- Release Mode dial, 122, 165
- remote controls, 255
- reset options, 23–24
- resolution
- image, 38
  - video, 238
- Revell, Jeff, 45
- reviewing photos, 15–18
- assignment on, 25
  - display modes for, 16–18
  - duration setting for, 16
  - histograms used for, 20–21
  - zooming in for, 112
- reviewing recorded videos, 242–243
- RGB histogram display mode, 18
- rule of thirds, 183–185, 192, 231

## S

scene modes, 7, 58–70

assignments on using, 76–77

Autumn Colors mode, 69

Beach/Snow mode, 67

Blossom mode, 69

Candlelight mode, 69

Child mode, 66

Close Up mode, 62–63

Dusk/Dawn mode, 67

example of using, 54–55

Food mode, 68

Landscape mode, 61

limitations of, 74–75

Mode dial setting for, 59

Night Landscape mode, 68

Night Portrait mode, 67

Party/Indoor mode, 68

Pet Portrait mode, 70

Portrait mode, 59–60, 136

Sports mode, 64

Sunset mode, 65

*See also* effects modes

SD memory cards. *See* memory cards

Selective Color effect, 72

Self-timer feature, 23, 202–203, 208

semiautomatic modes, 90, 91

sensor cleaning, 34–35, 51

Setup menu, 31, 32, 35, 99

Shade setting, 7, 168

shadows

Active D-Lighting for, 261

fill flash for, 147–148

sharpening RAW images, 37

sharpness of photos, 181

Shooting menu, 24, 40, 116, 168, 237, 238

shooting modes

automatic modes, 53–77

dial for selecting, 7

effects modes, 70–73

professional modes, 79–103

scene modes, 58–70

shotgun microphone, 240

shutter delay options, 22–23

Shutter Priority (S) mode, 86–91

action photos and, 87, 88, 112–114

assignment on using, 102–103

flash sync speeds in, 209

long exposures and, 87, 89, 254

setting up and shooting in, 91

situations for using, 87–90, 181

shutter speed

action photography and, 108–111

exposure and, 46, 47–48

flash synchronization and, 208, 209

focal length related to, 87

low-light photography and, 206

motion and, 49, 87, 88, 108–111

prioritizing, 86–91, 112–114

range for setting, 90

slow vs. fast, 87

tripod use and, 164

VR lenses and, 201

Silhouette effect, 73

silhouetted subjects, 92, 96, 97

Single Frame mode, 122, 123

single-point focusing, 13–14, 25, 143

Single-servo AF mode, 14, 142–143

skies

exposure compensation for, 173–174

landscape photos and, 172, 173, 176

skin tones, 146

snowy scenes  
    Beach/Snow mode for, 67  
    shooting in Manual mode, 96, 97  
    Spot metering for, 250, 251

sound recording, 240–242

special effects. *See* effects modes

speed of subject, 110

Speedlight flashes, 216

Sports mode, 64, 76

sports photography  
    automatic mode for, 64  
    telephoto lenses for, 44  
    *See also* action photography

Spot metering mode, 139, 250–252, 263

star trail photography, 254–255

street photography, 43, 100, 159, 199

studio photography, 253

subject-to-camera distance, 111

sunburst effect, 93

sunlight  
    fill flash and, 147  
    lens flare from, 256  
    portraits and, 147, 153, 159

sunny 16 rule, 47

sunrise/sunset photos  
    automatic modes for, 65, 67  
    example of shooting, 28–29  
    golden light in, 176  
    Spot metering for, 251–252

Sunset mode, 65

**T**

telephoto lenses, 43–44

tonal range, 20

Trash button, 18

tripods  
    advice on choosing, 165  
    HDR photography and, 190  
    landscape photography and, 164–165, 177  
    low-light photography and, 197, 198, 207  
    macro photography and, 260  
    video recording and, 236, 245  
    VR feature and, 165

TTL metering, 210–211

tungsten lighting, 6, 7

TV connections, 242–243

## U

underexposed images, 21

updating the firmware, 32–33, 51

user manual  
    AF-area mode information, 243  
    HDR capabilities reference, 191  
    image quality settings chart, 11  
    Mirror-up mode info, 165  
    picture control settings info, 171  
    shooting mode settings table, 82  
    Speedlight flash info, 217

User Settings mode, 99

## V

vanishing points, 185, 230

vantage point, 129, 225

Vibration Reduction (VR) lenses, 57, 165, 201

video recording, 235–245  
    assignments on, 245  
    editing videos after, 244  
    focusing for, 236, 243–244  
    Live View mode for, 236, 237  
    memory cards for, 30, 237

- microphone for, 240–241
- quality settings for, 238–239, 245
- reviewing recorded video, 242–243
- sound settings for, 242
- starting/stopping, 236
- time limits for, 236–237

viewfinder grid display, 22, 184–185

## W

warm colors, 176

water, flowing, 87, 89, 90, 180–181

WB button, 8, 170

white balance settings, 6–8

- assignment on using, 25
- choices available for, 7
- custom presets for, 170–171

landscape photography and, 168–171

Live View feature and, 170

RAW file format and, 6

scene modes and, 74

steps for selecting, 8

wide-angle lenses, 41–42

- depth of field and, 42, 138
- distortion caused by, 41, 138, 150
- portraits and, 138, 150, 151

wildlife photography, 44, 92

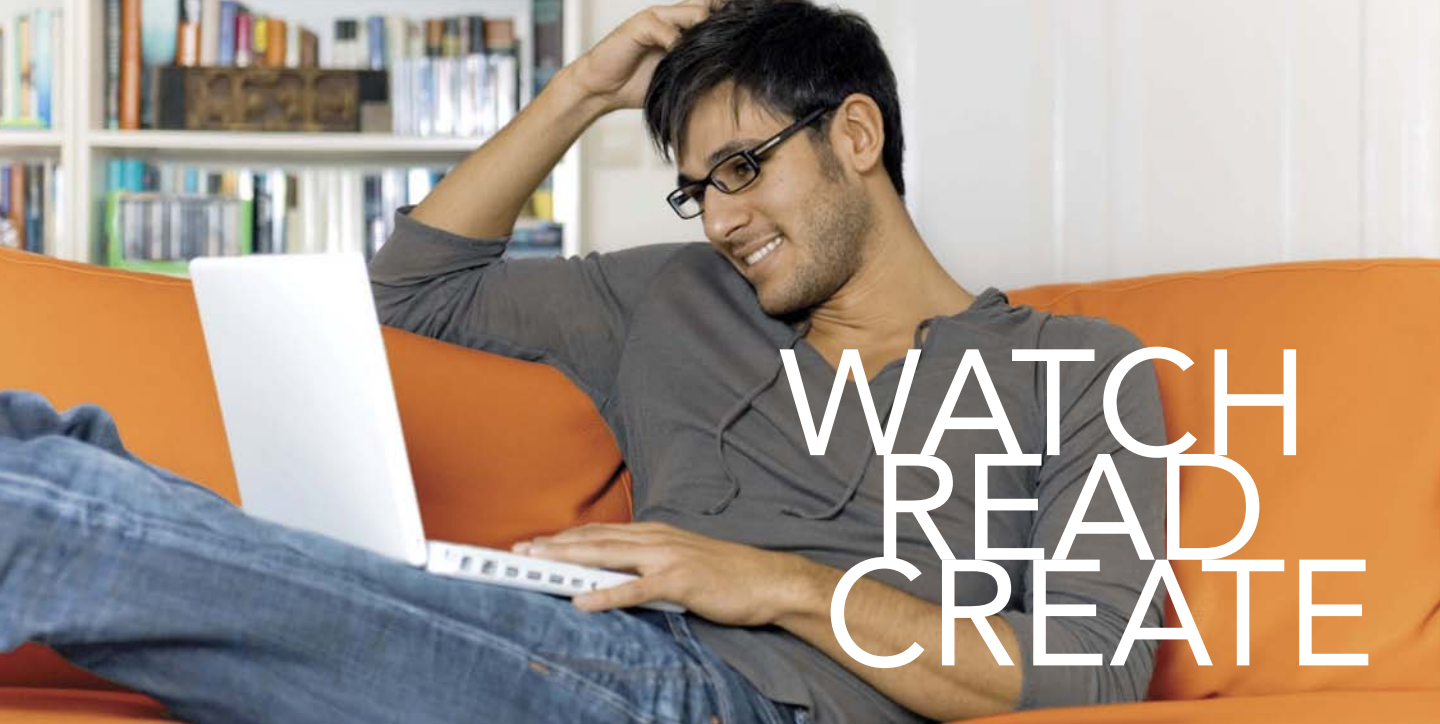
wireless remote, 255

## Z

zoo photography, 96

Zoom In/Out buttons, 112

zoom lenses, 44, 95



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