Getting Started in Digital Photography

From Snapshots to Great Shots

Khara Plicanic

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Peachpit Press

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DEDICATION

To those who seek a life beyond “auto” mode.

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And finally, this book literally would not be the same without my incredible husband Emir. (Love you!) Whether helping with illustrations, graciously posing for a photo, putting up with countless late nights (very late nights), letting me play on the other side of the lens now and then, or simply being there when I needed you—you are my unwavering hero. Go team!

Contents

Introduction

Your digital camera loves you. It always has. Sure, it gets stuck shooting in "auto" mode most of the time and graciously takes the blame when the photos aren't what you'd hoped for. And yet, it's still there for you. Silently waiting and patiently hoping for that one day—the day you come around and realize how good you've had it all along, finally giving it the chance to live up to all the impressive functionality it was built for. (Cue the heroic music.)

But, more often than not, before your camera ever gets the chance to shine, it gets kicked to the curb by a newer model. A neighbor, friend, or relative innocently shows off his or her latest camera acquisition—and before you know it, you're smitten. You are certain, beyond a doubt, that a new camera will solve all your photo problems. A newer/fancier/more mega-pixel-y camera will make all your bad photos a thing of the past, right?!

Sorry to break it to ya, but the problem isn't your camera. And the idea that buying a new one will magically morph your pictures into photographic gold is like believing that a new high-end glue gun will make you the next Martha Stewart. (Just bein' honest, folks!)

The path to better pictures starts not with a new camera, but with learning to use the one you've got. As it turns out, cameras don't take great photos—people do. And believe it or not, people have created incredible images with cameras made from an oatmeal box (seriously). The buck stops here.

REALLY, ANY CAMERA WILL DO!

In an effort to prove that having a fancy camera isn't required to capture stunning photos, I made a point of including images in this book that were captured with a variety of cameras, ranging from a high-end professional model dSLR to a compact point-and-shoot camera that's at least six years past its prime.

AN OATMEAL BOX CAN BE A CAMERA?

Curious about taking photos with an oatmeal box? Or think I'm making the whole thing up? Check out www.pinhole.org or www.pinholeday.org for galleries and more information than you ever dreamed of about pinhole cameras.

ABOUT THIS BOOK

This book is about redefining the relationship you have with your camera—from one that may be somewhat adversarial to one of respect and cooperation.

Though you may wish otherwise, this book is not a replacement for your camera's user guide. Seriously. It's not. So don't toss yours! (If you've already lost it, do a quick Google search or check the manufacturer's website to find a copy you can download. Or, if you prefer a hard copy, call the manufacturer to order one or check eBay.com.)

The camera's user guide is actually so important that I recommend you dig it out and have it on hand while you go through this book. (Seriously. You can go grab it now—I'll wait here.)

Carefully crafted to be applicable to any camera, anywhere, anytime, this book is meant to be a broad overview of how most cameras generally function. The exact way in which it applies to you and your camera will vary by model. If you have questions about locating a certain feature or menu option on your camera, you bet your sweet pixels I'll be referring you to your user guide for the answer. If you can make peace with that now, the rest will be easy!

Chapter 1 will give you a basic overview of some important terms and a broad understanding of the magic that happens every time you click the shutter, making it the best place to start, even if you plan to jump around to other chapters later. (For best results, I suggest that you read this book sequentially, as each chapter builds on the previously covered topics.)

Whether you have a dSLR, a pocket-size point-and-shoot camera, or something in between—sit back, relax, and read your way to triumphant photographic bliss (without the usual techno babble)!

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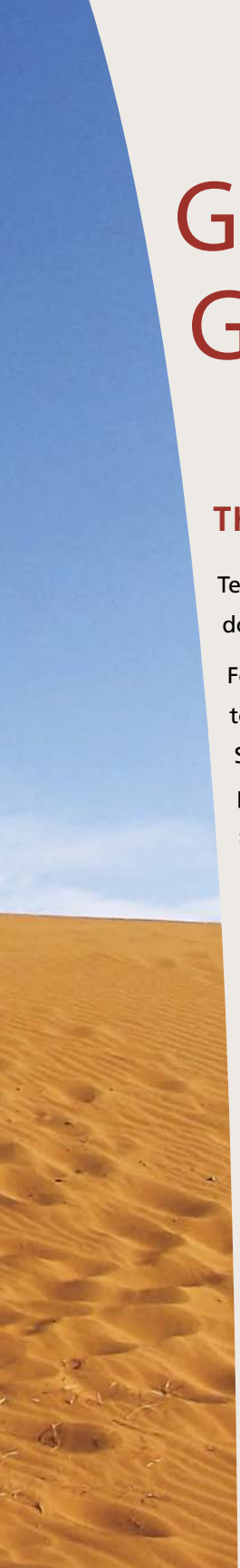
4

ISO 80
1/1000 sec.
f/4
6mm (28mm)



Gettin' Your Glass On

THE LOWDOWN ON LENSES

Telephoto or wide? Zoom or prime? What about macro? What does it all mean, and who really cares?

For a lot of people, making the decision about what camera to buy is tough enough, but choosing a lens to go with it? Sheesh. Because they're treading in unfamiliar territory, people often find themselves at the mercy of whichever salesperson is around, possibly leaving the store with little to no understanding of what they just bought, how to use it, or if it's really what they were looking for. As it turns out, the lens you choose (or that comes built into the camera you buy) plays a more integral role in the look, feel, and quality of your images than the actual camera body itself does. It sounds crazy, doesn't it? But it's true—and learning what to look for in a lens (and what all those numbers on it mean) will serve you well. That way, you'll understand what it is that you already have, and you can dream about what you might want to get the next time you're in a camera store.

PORING OVER THE PICTURE

One of my favorite things about wide angle lenses is how big and vast they make things look and feel. Here, Haystack Rock of Oregon's Cannon Beach appears dramatic while cast against a soaring sky and expansive foreground.

The wide angle and low point of view combine to give this image a powerful presence.


The rock itself is carefully positioned in the top right third of the scene—rather than the center—to make the image more engaging.
ISO 100
1/1600 sec.
f/2.8
16mm

WHAT'S WITH ALL THOSE NUMBERS?

When you look closely at a lens, there's a fair amount of numbers printed on either the front of the lens itself (**Figure 4.1**) or somewhere around the rim (**Figure 4.2**)—and though it may seem like a bunch of mumbo jumbo, it's actually pretty important info and can tell you a lot about the lens and what it's capable of.

FIGURE 4.1
Lens information is generally found around the front of built-in lenses.

FIGURE 4.2
Interchangeable lenses usually feature the lens information around the rim.

FOCAL LENGTH

The first number, or set of numbers, you see on your lens refers to its "focal length," measured in millimeters (mm). Roughly translated, focal length relates to how close up or far away objects will appear when viewed through the lens. Essentially, the bigger the number, the more up close subjects will appear, and the smaller the number, the farther away things will appear.

To give you a better idea of how this all plays out in real life, look at **Figures 4.3–4.7** and note the various focal lengths used to create each image. Photographed from the same position, the only difference between each shot is the focal length.

Lenses with focal ranges of 35mm or smaller are generally considered "wide," and lenses with focal lengths of 85mm or more are often referred to as "telephoto." A lens around 50mm is roughly close to the way we see things with our eyes and is generally considered neither wide nor telephoto. It is often referred to as "normal" or "standard."

FIGURE 4.3
Captured with an extremely wide focal length of 16mm, the scene appears very far away.

FIGURE 4.4
Shot at a focal length of 35mm, from the same position, the scene appears closer than before.

FIGURE 4.5
A focal length of 50mm brings the scene even closer.

FIGURE 4.6
The scene appears slightly closer again with a focal length of 70mm.

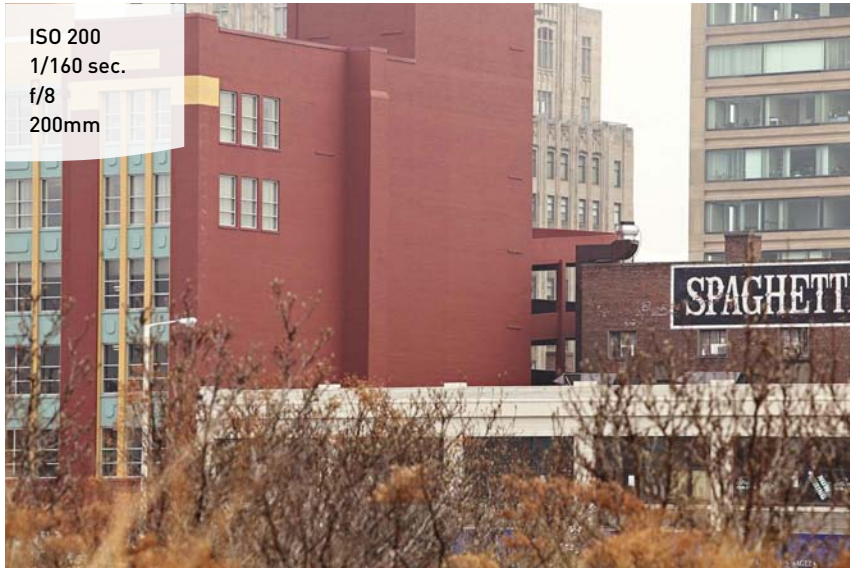


FIGURE 4.7
The same scene, captured with a telephoto focal length of 200mm, appears dramatically closer than before.

FOCAL LENGTH AND POINT-AND-SHOOT CAMERAS

The numbers on a point-and-shoot lens mean the same thing, but the scale is radically different, so don't panic if your lens indicates a focal length range of 6–22.5mm (the equivalent of roughly 28–105mm).

A single number, such as 24mm, represents what's known as a prime or fixed lens, meaning that it's not capable of zooming. Such a lens is designed and optimized for only a single focal length—in this case, 24mm.

A range of numbers, expressed with a dash such as 70–200mm, indicates a zoom lens, capable of different focal lengths—in this case ranging from 70mm to 200mm.

The bottom line? Depending on your camera body (see the "Crop factor" sidebar), you may be able to get the close-up shots you've always dreamed of without having to pay for a super telephoto lens. In some cases, your 200mm lens might behave like a 300mm lens. Now that's some serious bang for your buck!

Of course, if your camera has a smaller sensor and you like to shoot at a lot of wider angles, the opposite would also be true. The 24mm lens you loved at the camera shop might behave like a 36mm lens on your camera body, meaning you'd need an ultra-wide lens to get a standard wide-angle shot.

CROP FACTOR

Depending on the camera body you have, you may have experienced or heard people talk about something known as "focal length crop factor," "focal length multiplier," or even just plain ol' "conversion factor." While this may, at first, seem confusing, it's really quite simple and can sometimes be advantageous.

Back in the glory days of 35mm film, it didn't matter what camera body you used; as long as you were shooting 35mm film, the negatives were all the same size.

These days, film has been replaced by digital sensors, and as luck would have it, they're not all the same size. There's a lot of math and science involved in the full explanation, but essentially, the discrepancies in sensor size are responsible for what we now refer to as "crop factor."

The result? Everything appears closer when shot on a camera body with a sensor that's smaller than traditional 35mm film. Thus, a 50mm lens attached to a camera with a full-size sensor (referred to as full-frame) will behave like a regular 50mm lens. But the same lens on a camera with a smaller sensor (sometimes referred to as a cropped sensor) will be more like a 75mm lens.

Confused? For a visual explanation, take a look at **Figure 4.8** to see how your lens views the world. The large box displays the image as it would be captured on a full-frame sensor, and the smaller box shows how the scene would be captured on a smaller-sized sensor. Same scene, same lens—different effective focal length.

FIGURE 4.8

The part of the scene captured on a full-frame sensor

The part of the scene captured on a smaller size sensor

To determine your camera body's crop factor, you'll have to read some of the techno babble in your user guide or jump online and look it up. Crop factor is typically listed among all the other tech specs related to your camera and usually has a value of something like 1.3, 1.5, or 1.6.

For the sake of example, let's say your camera's sensor has a crop factor of 1.5, and you're curious how a 50mm lens would behave on it. To figure it out, take 50 (the focal length of the lens in question), multiply it by 1.5 (your camera's crop factor), and you get 75. Thus, on your particular camera, a standard 50mm lens would behave like a 75mm lens.

It's worth pointing out that some lenses are made specifically for cameras with smaller-sized sensors and have focal lengths that have already been converted. When in doubt, read the specifications or ask a knowledgeable salesperson.

MAXIMUM APERTURE

In Chapter 1, we talked about aperture and the role it plays in creating an exposure (keeping in mind that aperture is a function of the lens itself, not the camera body). Similar to the pupil of your eye, the aperture can dilate or constrict, letting in varying amounts of light and affecting the depth of field.

Appearing on your lens right next to the focal length, you will find a numerical expression representing the maximum (largest) aperture opening that particular lens is capable of, usually expressed as "1:" followed by the maximum aperture. For example, a lens described as a 24mm 1:2.8 would be a fixed lens with a focal length of 24mm, whose largest aperture setting is f/2.8. The lens is still capable of smaller apertures (like f/11), but the largest it would be capable of is f/2.8.

If you've spent time shopping for lenses, you may have noticed that a lot of zoom lenses feature not a single maximum aperture but, rather, an aperture range. If you have a lens that says 24–150mm 1:3.5–5.6, it means the lens is a zoom lens with focal lengths ranging from 24–150mm, whose maximum aperture varies depending on where you are within the zoom.

Depending on where you are within the zoom? What in the world does that mean? For example, if you're zoomed all the way out wide to 24mm, you could achieve a maximum aperture of f/3.5. But once you zoom in, you lose the ability to open up your aperture all the way to f/3.5 as before and can then only open to f/5.6.

Lenses with larger maximum apertures (generally 2.8 or larger) are often referred to as being "fast" because the larger apertures allow more light to reach the camera sensor, letting you shoot with faster shutter speeds in low-light situations where you might otherwise need a tripod. (Remember, larger apertures are actually smaller numbers; thus, f/2.8 is a larger aperture than f/8.)

MACRO LENSES

While some lenses may not be able to focus on anything closer than 18 inches (or more) from the front of the lens, "macro" lenses allow you to get much closer to your subject, helping you capture extremely close up and detailed shots (as seen in **Figure 4.9** and **Figure 4.10**) that simply wouldn't be possible otherwise. With a much closer "minimum focusing distance," macro lenses can open up a whole new photographic world.

FIGURE 4.9
The small minimum focusing distance of a macro lens allows you to shoot from a very close range, rendering images not possible with other lenses.

FIGURE 4.10
Flowers are popular subjects for macro photography.

Now that you understand focal length, your camera's crop factor (if it has one), and maximum aperture, you're set to give the salespeople a run for their money the next time you're at the camera shop!

MACRO MODE ON POINT-AND-SHOOT CAMERAS

As you saw in Chapter 2, many point-and-shoot cameras feature a built-in macro function, enabling you to get away with some pretty impressive minimum focusing distances without a dSLR or dedicated macro lens. Cool!

POINT-AND-SHOOT LENSES

Those of you with point-and-shoot cameras thought you got off easy on this one, didn't you? Just because your lenses are permanently attached doesn't mean there aren't a few things worth knowing. Focal length, zoom, and the ever-troublesome digital zoom are all important factors to know and understand when comparing one point-and-shoot camera to another.

FOCAL LENGTH AND ZOOM

Just as on the interchangeable lenses made for dSLRs, the focal length on your built-in lens is measured in millimeters, but the scale is dramatically different. The built-in lens likely has a focal range with smaller numbers than you would expect to find on dSLR lenses. For example, the focal length of the lens on one of my point-and-shoot cameras is 6–22.5mm (which works out to a dSLR equivalent focal range of something like 28–105mm). Because of the difference in scale, you can't compare the numbers at face value, but the principles still apply. Smaller numbers mean wider focal lengths, and larger numbers mean more telephoto focal lengths.

What you're really looking for when it comes to the built-in lens on a point and shoot is the range between the two numbers. The larger the range, the more pronounced your zooming capabilities are. The shorthand way of communicating this is by assigning your camera an "x" zoom number.

If the lens can zoom from 5–25mm, it's said to have 5x zoom. Or, as in my point and shoot's case, 6–22.5mm is the equivalent of a 3x zoom. The higher the x value, the greater the zoom range.

DIGITAL ZOOM—JUST SAY NO!

TV crime dramas would lead us to believe that digital zoom is the cat's meow. Even my beloved "Law & Order SVU" makes me giggle when super-zoomed, pixelated security camera footage shot from 300 yards away (in the dark) is analyzed, cropped even closer, then suddenly—as if truly touched by magic—becomes crystal clear, revealing an identifiable birthmark behind the criminal's left ear (cue the music).

Manufacturers have been known to make desperate attempts to seduce you with seemingly impressive features like "digital zoom." Nothing more than glorified in-camera cropping, it's actually one of the worst things you can do to your photos (as you'll see in Chapter 6).

Also measured with an x number (3x, 5x, or more), digital zoom picks up where optical zoom (what your lens is inherently capable of) leaves off, allowing you to zoom further than nature intended. To give you an example, I captured **Figure 4.11** by zooming the lens as far as optical zoom would let me go.

Figure 4.12 shows how much closer digital zoom allowed me to get. A pretty dramatic difference, isn't it? The trouble is it's actually quite misleading.

FIGURE 4.11
These Colorado mountains were captured at the furthest extent of my point and shoot's optical zoom capabilities.

FIGURE 4.12
This shows the same scene captured by maxing out my digital zoom. That's a pretty ginormous difference, wouldn't you say? As you'll see in Chapter 6, it's not healthy for your photos to be enlarged this way.

If you look at the metadata (digital photo guts) for this image, you can see proof that both images were actually captured at the same focal length. Digital zoom only makes it look like Figure 4.12 was photographed at a greater focal length. In reality, it's just a digital enlargement of the optical image captured by the sensor. Unfortunately, the quality is not the same as if the image had been captured optically, instead of with digital zoom.

Thankfully, many point-and-shoot cameras have the option to turn off digital zoom to avoid accidentally employing it. If your camera is one of these, I highly recommend it as digital zoom can be a serious-quality buzz-kill (especially if you continue the bad habit of further cropping your photos in post-production).

DIGITAL ZOOM: SO BAD YOU CAN TASTE IT?

Okay, so maybe you can't taste it, but you can actually feel it. To get a sense of what digital zoom feels like before banishing it to oblivion, zoom your lens out to the widest possible focal length. Then, carefully watch the image on your LCD screen as you slowly start zooming in.

You'll probably feel the camera pause when your lens reaches the extent of its "optical zoom" capabilities. It literally shifts gears and continues forward into "digital zoom" territory, where you'll notice the image becomes pixelated and takes on a look that can only be described as digital. Ech.

This is where we part ways with what we see on the TV crime dramas. Detectives Benson and Stabler may catch a break when their lab techs magically turn pixelated security footage into gold for the prosecution, but when it comes to our cameras (and a little place I like to call reality), we're stuck with the garbled aftermath known as digital zoom.

Protect yourself and practice safe zooming. If you're not sure how to shut off digital zoom, cozy up to your user guide to find out.

SHOPPING FOR LENSES

In addition to focal length, maximum aperture, and minimum focusing distance, lenses can vary by size, shape, weight, the material they're made of (plastic or glass), advanced features such as "vibration reduction" (to help with stabilization), and even their ability to auto focus (not all lenses can, so don't assume). As you can see in **Figure 4.13**, lenses can also vary in color!

Of course, all these variables also mean lenses can range dramatically in price, starting anywhere from around $50 to well over $25,000 each. Generally speaking, the larger the maximum aperture value and the greater the focal length, the more expensive the lens tends to be.

FIGURE 4.13
Various lenses range in size, shape, color, capability, and price.

When trying to figure out which lens is right for you, ask yourself the following questions:

- What kinds of things do you plan to photograph? Do you like to shoot portraits, or are you more of a landscape person?
- What kind of environment will you most likely be photographing in? Do you tend to shoot in bright, outdoor situations? Or are you more often in darker, low-light environments?
- Do you need a collection of specialty lenses with very wide apertures or maybe a macro lens? Or would a more general, multipurpose lens be a better fit?
- Do you always find yourself zooming in and wishing you could get even closer? Or do you prefer the look of images shot at wider focal lengths?

If you tend to do a lot of shooting when you travel, be sure to consider the impact that carrying around multiple lenses might have on your mobility. I've found that, in many cases, the more gear I take with me on personal trips, the less I end up shooting because carrying everything around is often a royal pain (you may have noticed that most of the travel photos seen in this book were captured with a compact point-and-shoot camera).

Striking a balance between having the right gear for the occasion while still feeling comfortable is often the key.

Chapter 4 Assignments

What's Your Glass?

Take a look at your lens (or lenses) and be sure you understand what you've got. What's your focal length range, or do you have a prime lens? What's your maximum aperture? Does it depend on how much you've zoomed the lens in or out?

Banish Digital Zoom!

If you use a point and shoot, I recommend that you take the time right now to dig into your settings and turn it off. Though it can be very tempting to use the digital zoom, it does nothing but harm to your images. If you need to get closer to something, go old-school and "zoom with your feet"!

Seeing the Range of Possibilities

If you are working with a zoom lens, head outside and take a series of shots, from the widest angle that your lens is capable of, through the mid-range of your lens, all the way out to where your lens is maxed out. Take a look at all of those images and consider the range of shots your lens gives you. Cool, right?

Share your results with the book's Flickr group!

Join the group here: flickr.com/groups/gettingstartedfromsnapshotstogreatshots

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