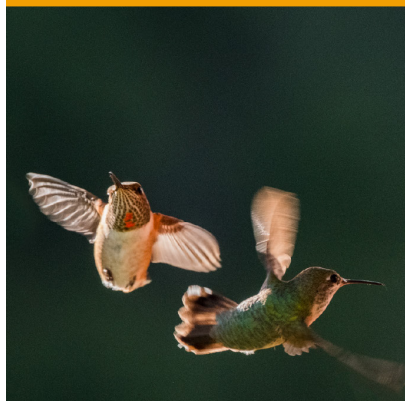




COMPLETE
Digital Photography

Ninth Edition



Ben Long

SUPPLEMENTAL EXERCISE BOOK

SUPPLEMENTAL EXERCISE BOOK

for use with the 9th Edition of

Complete Digital Photography

by Ben Long

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INTRODUCTION

HOW TO GET BETTER AT PHOTOGRAPHY

Throughout your life you have probably been told to practice one thing or another—musical instruments, sports, handwriting, whatever. If you're like me, you were never thrilled with the idea of practicing, and though you understood that the exhortation to practice was true and important, you also didn't really believe it. Maybe you clung to some of the popular cultural myths that we share—the myth of the “natural” athlete or the “gifted” musician—and so skipped practicing with the hope that you would turn out to be one of those natural, gifted individuals. The truth is that, while there are people that start with a skill level above the normal baseline, those people only achieve greatness because of their extreme dedication to practicing. The same is true with photography.

It can be difficult to understand how important practice is to the discipline of photography because the camera takes care of so much of the craftsmanship of making an image. There is, of course, plenty of theory to understand, as well as technical considerations to weigh when making a photo, and learning those things takes practice. What can be less obvious is that visualizing and seeing as a photographer also requires practice. The good news is that the process of seeing is something that you can learn and improve at.

Because we are constantly looking at things during the normal course of being alive, we don't always think of “seeing” as a skill that can be learned, but I can offer two proofs that your ability to see changes with practice:

First, in addition to seeing, most of us are also constantly hearing things. If you've ever learned to play a musical instrument then you know that, through practice, you can train your ear to hear pitch, intervals and rhythm. Similarly, your eyes can be trained to recognize form, light, and many compositional ideas.

The second proof is something that might sound familiar: you spend an afternoon wandering about with your camera, searching for things to shoot, only to end up frustrated because you feel like you're repeating yourself. All of the compositions you come up with are similar to other compositions you've made before, and all of the subject matter that you notice is similar to other things you frequently photograph. While this kind of photographic rut can be very frustrating, it's also evidence that seeing is a skill that can be learned, because what has led you to this rut is repetition, and while feeling like you're in a rut can be demoralizing, it's also a valuable step toward developing something that all photographers need.

More about how to build a photograph

In Chapter 9 of *Complete Digital Photography* I wrote about how an aesthetic for light is critical to the photographic process and how all photographs begin with an impulse, sometimes slight, which the photographer must tune into and explore to make the best photo. No matter how you do it, occasionally, you will “solve” a photograph in a very satisfying, successful way. Perhaps that compositional solution also requires specific exposure ideas—dropping shadows into black, for example, or depending on shallow depth of field for subject isolation. When you find those satisfying solutions you will remember them and, because they were successful, you will probably find yourself deploying the same solutions in other situations.

In Chapter 9, I discussed the practice of trying to fill your media card when you go shooting. In that section I also showed four images (*Figure 9.42, page 163*) that I shot over the course of an hour of shooting in an industrial park. The images are very similar in terms of their central compositional idea, and I mentioned in the book that I had shot those four images at different times during that hour and that I had not been actively looking for images with similar compositions. But there's a second part to that story, which I didn't mention.

After importing those images into my Lightroom library I tagged them with the keywords “vertical line” and set them aside. This was in the middle of a Lynda.com shoot and I had other images to find and lessons to prepare and, over the course of the next few days I stumbled into a few other images—shot at other times—that had a similar composition. I spent a few hours looking through my catalog and found these. (See *Figure 01, on page 2.*)

The time stamps on the images were enlightening. The oldest of these photos was shot in February 2008, the latest in October 2017. I had been shooting this collection of similar images without realizing that I had other images composed the same way. One could argue that I'm in a rut that's so deep I can't even tell that I've fallen into it; I prefer to think of it in a different way.

Improvisational musicians, whether they play jazz, blues, or rock and roll, typically engage in a similar process. They practice their scales and modes and intervals, but they also “noodle.” They fiddle with melodies, snatches of music, and when they find one they like they repeat it over and over. These are known as “licks” or “riffs,” and over time a musician builds up a collection of licks that they've practiced so much that playing them is simply an act of muscle memory. When it comes time to improvise a solo, these licks and riffs are brought out, re-arranged and strung together—within the structure of whatever song is being played—and it is these snatches of song that make an individual musician recognizable. These licks and riffs comprise the player's musical vocabulary.

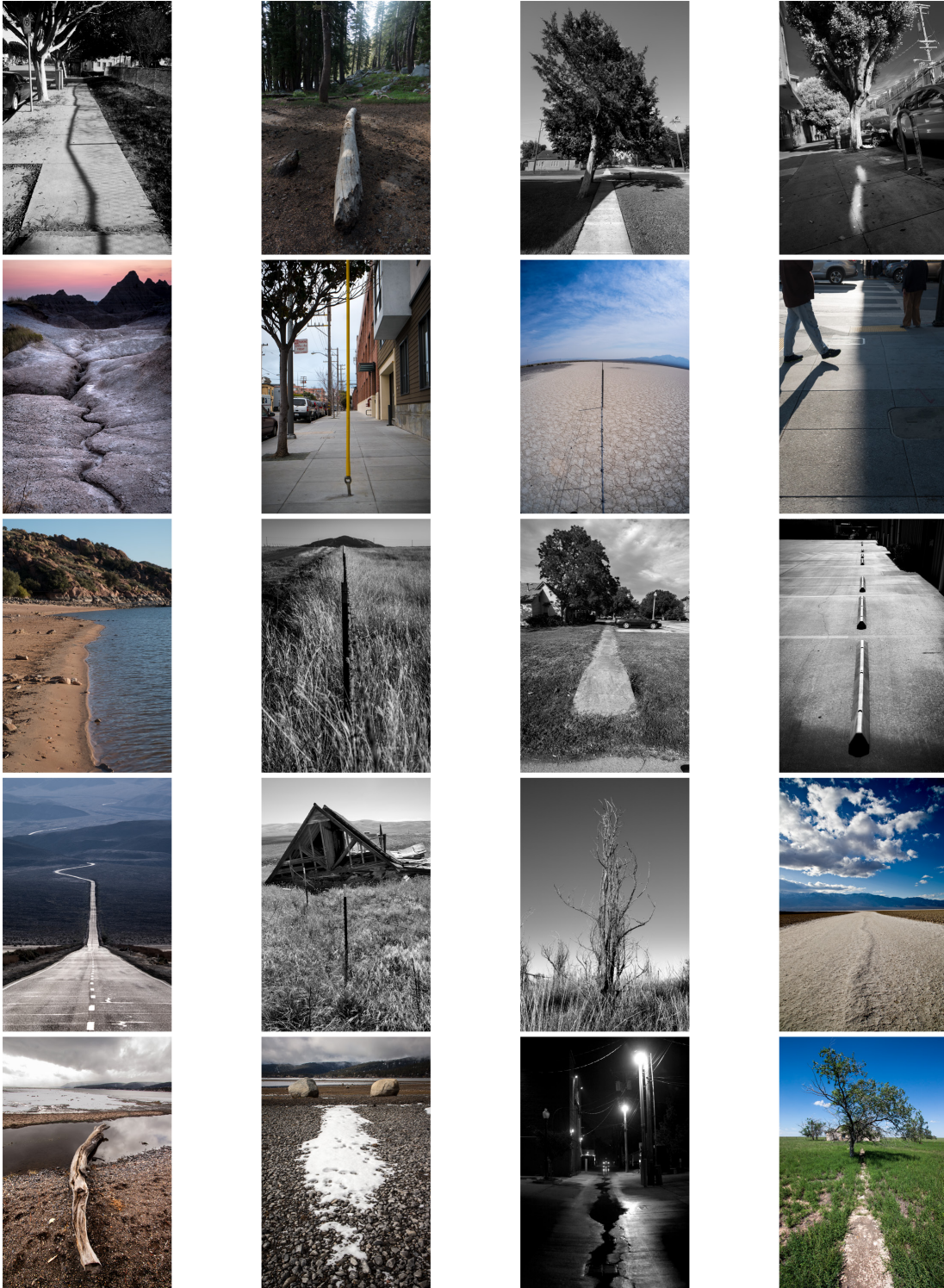


FIGURE 01: I didn't realize until recently that, for years, I've been noticing the same composition in lots of different places.

Over time, photographers also develop a vocabulary. One component of my personal vocabulary is to find vertical lines that bisect a scene. Sometimes the lines are formed by objects, sometimes by tonal change; sometimes the images are in color and sometimes they're black and white. I don't think that this particular bit of vocabulary has ever led me to a great image, but it has served me in several other ways. First, I find it pleasing, which, in addition to being its own reward, helps me keep my confidence up. On an otherwise unproductive shoot, coming back with any pleasing image can keep you motivated. Second, as I've said repeatedly, your job as a photographer is to guide the viewer of your photograph to see a particular thing. Apparently, I have a tendency to see vertical lines. While an individual vertical line might not be interesting, however, having a large collection of expressions of this particular piece of vocabulary reveals something that isn't normally visible—a form that repeats through time and space.

Finally, practicing this piece of vocabulary through repetition (even if it's a practice and vocabulary that I wasn't consciously aware of) has a potential future payoff. Somewhere out there in the world there might be a piece of subject matter that would make a fantastic photograph if only it were represented as a vertical line up the middle of a portrait-oriented image. If I ever stumble into that particular situation, I will certainly recognize it, and I'll be ready to shoot it.

Your photography will improve as you have a larger vocabulary to work with—more photographic licks and riffs that you've composed and shot many times—which you can bring to bear on subject matter or light that you have had an impulse to shoot. You can only expand that vocabulary through repetition and practice.

Why practicing photography is hard

Actors, musicians, and dancers understand when they're practicing. They go to rehearsals or into practice rooms and have no doubt that what they are doing is practicing. Similarly, a painter, sculptor, or illustrator knows when they are simply sketching or creating a “study” that will later be developed into a larger idea. The ability to go to a place of practice is important because, psychologically, it's a safe space. You can get frustrated while practicing, but if you don't produce great work during a practice session, you usually don't punish yourself (at least not too badly) because you know you were simply practicing.

With photography, it's much harder to allow yourself the safety of a practice space. Every time you go shooting you know there's a possibility that you could stumble into something fantastic and come back with a career-making shot. Because of that potential, it's very difficult to allow yourself the freedom from creative responsibility that practitioners of other disciplines get to have when they practice.

I don't have an answer to this problem, but over time, I have come to realize that I've grown more capable of allowing myself to practice without being disappointed when I finish. It is ok to only have “practice” images rather than a great portfolio shot. Here are some ideas that might help you more easily embrace the discipline of practicing photography.

- **Define a particular photo session as practice.** Whether you're taking a walk through the neighborhood or heading into a studio with a bunch of gear, if your goal is to practice and experiment, then acknowledge that goal before you start. Set the stakes, manage your expectations and try to internalize that the goal is simply practice. Over the course of your career you will spend far more time practicing than producing great images, so don't worry about saying "for the next week, my goal is practice, not keepers." Defining a session as practice is easier if you will be working on a particular exercise, such as the ones in this book.
- **Eliminate the stakes.** In Chapter 9, "Finding and Composing a Photo," I suggested the exercise of shooting without a card in your camera (*see page 135*). This is a good way to enforce a practice mindset during a shooting session because you won't actually produce any images. Of course, if part of what you want to practice includes postproduction, then shooting without a card hobbles your goal. A simple way around that is to say, "I'm deleting everything from this session once I'm done processing it." That will let you work an image to completion but still relieve yourself from the pressure to produce great work.
- **Know that there aren't career-making images.** Sure, there are iconic photos like Steve McCurry's [Afghan girl](#) image (the refugee-camp girl with the piercing, green eyes on the cover of *National Geographic*) and Joe Rosenthal's famous photo of the [flag being raised on Iwo Jima](#), but, for the most part, a photographic career is not made by stumbling into a single great image. This means that you're actually not going to miss some kind of life-changing experience if you spend an afternoon devoted to practice, rather than keeping an eye peeled for that spectacular shot.
- **Photography isn't precious.** Related to that last point is this one: there will always be more great images. I think the main reason that I've been able to relax more into the process of practicing is that I know that great photos are made, and practicing is required to become a better photo-maker. If I'm focused on an exercise of some kind, and I don't notice some sort of great photo opportunity that was happening nearby, it doesn't matter because there will always be more great photo opportunities later, because great photos happen because of skill. In other words, it's not up to chance to make great photos, it's up to you to make great photos.

How to use the exercises in this book

There's a popular idea that 10,000 hours of doing something will make you great at it. I don't believe that; I don't think that practice is a "passive" process. For practice to be beneficial you have to be actively engaged in it. Slogging for 10,000 hours is not nearly as valuable as less time spent in deep, thoughtful engagement with a process. To that end, know that there's a good chance that not all of the exercises in this book will be useful to you because they may not engage you in a way that's useful. You may think some are silly or pointless, or maybe you can see the purpose of an exercise but really hate doing it. There's no reason to suffer for your photography—if you're not enjoying a particular practice, then it might not be beneficial.

That's not to say that the photographic process must always be enjoyable. Personally, I

like postproduction and printing much more than I like shooting, but I can understand that shooting is a necessary step to get to the part that I enjoy.

I've tried to explain what you should gain from each exercise that follows, why the exercise might give that to you, and why that thing is worth having. In some cases, you might find that you don't get the intended benefit—that's fine. Not all exercises work the same way for all people. Not feeling the goal that I describe does not mean that you're a bad photographer or otherwise deficient in any way. And who knows, maybe you'll come away from some exercises with benefits I didn't intend.

The most important thing to know about performing any exercise is that you must be fair when measuring your success. If a particular exercise involves trying to recognize reflections and you spend three hours working on that exercise, then at the end of those three hours you should judge your performance on whether or not you saw reflections, not on whether you shot any great photos that you would consider keepers. The point of these exercises is to practice particular things, not to make great photos. If your goal is to always make great photos, you're going to have a very frustrating photographic life.

DON'T MULTITASK YOUR PRACTICING

I used to try to work practicing into other activities in my day. "I need to run some errands – I'll walk and take my camera with me." That might work for some people, but I find that trying practice alongside other activities is a bad idea for me. I can't get my head completely into the practice because I worry about whether the practice is slowing me down. Or I'm simply concentrating on the other tasks at hand, and so not doing the active work of seeing and shooting. That means I shoot less which makes me feel like I've failed at practicing. For me, it's best if I keep practice to a dedicated activity that I set aside time for.

KEEP YOUR BAG PACKED

As I said at the beginning of this chapter: practice can be tedious. So tedious, in fact, that you may find yourself employing any excuse you can think of to keep from practicing. The easiest one for me is "I'd have to gather up my gear." Since that may take all of a minute or two, that lame excuse gives me the opportunity to choose to do something else instead.

I now keep a small camera backpack always loaded with a camera and walk-around lens, a charged battery and a media card. There's enough room left over for some other things, so it's very easy for me to follow the impulse to practice. Desire to improve and grow is not enough, sometimes you have to cajole and force yourself.

KNOW WHEN TO STOP

I mention this in Chapter 9 (see "*Look through your camera*" on page 139), but it's so important that I'm going to say it again: there will be days when your photographic juices aren't flowing productively. Sometimes you can shoot through those creative blocks, but in my experience, if the photo mojo isn't there, the best thing I can do is to accept that I'm having an off day and go home to find something else to do. Keeping one's confidence up is important and continuing to practice (or shoot for real) when you've passed the point of being interested or engaged is not

going to help your confidence and motivation to shoot more.

I won't say that you need to have fun with these exercises, because engaging in a creative pursuit isn't always fun. But you at least need to feel interested and compelled to continue. If all you feel is that it's a chore, then it's time to take a break.

EXERCISES FOR CHAPTER 1

Eyes, Brains, Lights, and Images

Every time I write a new edition of *Complete Digital Photography*, my first consideration is whether I should get rid of Chapter 1. Page counts are always tight, and there's the drive to make the teaching smoother, so deleting a chapter that might contain useless theory is always tempting. But then I read the chapter and am reminded that the study of the human visual system is a huge advantage for a photographer.

Some things, such as the additive primary colors of light that your eyes perceive, translate directly to the camera. But whether you can or cannot find a direct photographic application to the study of human perception, that study is still valuable. Our visual system is the most important instrument in the photographic process. You never know how a better understanding of it will inform your photography. At times, after learning one thing or another about human vision, I've found myself recognizing subject matter I hadn't seen before. But also, it's simply interesting and a healthy sense of wonder and curiosity is essential to any creative process.

More Illusions

In Chapter 1, I offer the idea that optical illusions are instances of your eyes disagreeing with what your brain is expecting. Michael Bach is a professor and vision scientist who believes that optical illusions are not a failure of the visual system, but rather a demonstration of how well-adapted and evolved our eyes are to "standard" viewing conditions. When an optical illusion causes your eyes to experience a deviation from the standard, the precise functioning of our eyes becomes more obvious.

Whether he's right or not, Bach has collected a fantastic collection of cool and interesting optical illusions and explanations of why they happen. His explanations are technical in

places, but they contain a lot of fascinating material about the human visual system. You can see his collection at www.michaelbach.de/ot/

Explore your eyes

Learning the particulars of your camera—its features and abilities—takes time and practice, but before you dig into that it's worth spending a little time becoming more aware of what your eyes can see. Because we use them all day long, for so many different things, it's easy to take your eyes for granted. To recognize potential photographs, though, you need a greater connection to your visual sense than what you normally have when you're simply getting through your day.

As I write this I'm sitting in my kitchen, at night. It's raining and as I look out the window, I can see down a dark, steep, rainswept San Francisco street. The light from a street lamp is reflecting off of the sidewalk and casting a very slight glow onto the ornate wooden side of a Victorian building. In my peripheral vision, though, I can see all the details on the brightly lit wall that surrounds my window. As I discussed in Chapter 1, no camera can see detail throughout such an extreme range of brightness. Paying attention to the full dynamic range that your eye can see is a simple exercise that you can do any time you're sitting idle for a few minutes. Standing at a bus stop, sitting on the couch during TV commercials, being stuck in gridlocked traffic—anytime you're in one of these situations, fix your eyes on a location and take note of your entire visual field. Pay attention to how much detail you can see in the brightest locations and how much detail you can see in the darkest. Try this at various times of day, in different kinds of light.

This type of awareness does a few things. First, you might realize that your eyes are better than you thought they were. You might not have acknowledged before that you can see such a broad range of light and dark detail. Since your camera can't perceive such a broad range, as you work thorough this exercise, take note of which details are interesting, and what the scene might look like if you could only see the bright or dark parts.

Perhaps the most important part of this exercise, though, is simply the process of paying close attention to your visual sense. After you spend some time with your eyes fixed in one location, paying close attention to this one aspect of your visual sense, you might find that, when you're done, your visual sense is more acute for a little while. This is a state that you want to cultivate. As you spend more time becoming aware of what you're actually seeing, that awareness will become easier to tap into.

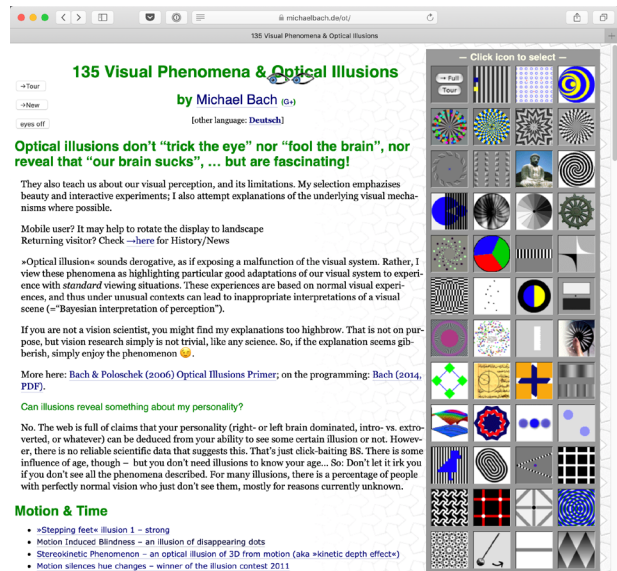


FIGURE 02: Michael Bach's website has quite a bit of fascinating material about the human visual system.

EXERCISES FOR CHAPTER 2

Getting to Know Your Camera

The word *snapshot* implies an image with less significance than a *fine art* image, but there is no reason that snapshots can't be great photos. When well-executed, a good snapshot can be as compelling an image as anything hanging in a photo gallery.

I talk in Chapter 2 about using your camera's Auto mode to let it handle the technical stuff, so you can practice shooting. If you follow the tips in that chapter, you should start seeing better results from your day-to-day snapshots, especially if you take care to fill the frame and be mindful of backlighting. Here are some other things to experiment with when practicing your snapshot shooting. (And remember to half-press the shutter button and take note of shutter speed as you shoot.)

Experiment with the horizon

Everyone who's ever shot a vacation snapshot has, at some point, put someone in front of a big vista and taken their photo. But when you've done that, have you always paid attention to the horizon? You have a lot of choices about how to position the horizon and you might find that you have a different reaction to different positions. You can place the horizon exactly halfway down from the top of the frame so that it splits the image into equal halves, or you can put it above or below that center line. Here are a few other exercises:

- Take some photos outside, with a visible horizon line and try different horizon positioning in each one. Does it feel different when there's more sky or more foreground? If so, is that difference because of the position of the horizon line or because of things in the horizon or foreground or both?

- Assuming you were changing the position of the horizon by tilting the camera up and down, now try changing it by raising and lowering the camera. Kneel down or climb up on top of something. As you change the position of the horizon, you'll also change the position of things relative to the horizon. Play with allowing things in the frame to cross the horizon line versus being contained below the horizon.



FIGURE 03: Where you choose to place the horizon has a big impact on the feel of the image. Do you prefer one of these images? If so, why?

It's easy to ignore the horizon when you take a snapshot, but the position of the horizon can have a big impact on your image. There's no right or wrong position; the point of this exercise is to get you to notice the horizon and to start thinking about where it should go. Once you get used to recognizing the position of the horizon line, and its relationship to other things in your frame, you can then start thinking about recognizing the position and relationships of all the other things in your frame.

Create intersections on purpose

In Chapter 2, I showed an example of an unfortunate intersection (the carnival ride sticking out of the woman's head). Obviously, it's important to recognize such intersections so that you can avoid them, and as you get into more serious composition, you'll want to keep an eye out for intersections of many different kinds. One of the best ways to become aware of intersections, though, is to try to make them on purpose. In fact, you might have already done such a thing if you've ever tried to create an intersection like the one shown in Figure 04 on the right.



FIGURE 04: While this is a silly photographic gag, it's also a great photographic exercise because to recognize such an intersection you have to pay attention to how lines in the foreground relate to lines in the background.

Now try this: Look for compositions that intentionally feature intersections—compose some snapshots so that things are sticking out of people’s heads, or resting on top, or otherwise looking ridiculous.

We usually don’t see the world this way, because our visual system separates the world into objects with certain geometric/spatial realities, rather than simply seeing the world as lines on a flat plane, as they are in a photograph. Later, you’ll see another exercise for getting yourself to recognize the different “layers” of the world. For now, this simple exercise a great way to make yourself see more visual relationships in the world around you.

Make a snapshot photo essay

You usually take a snapshot because you want to remember a particular event, person, location or time. Photographs are, of course, used to tell stories, but even the most skilled photographer will have a difficult time telling a story with a single image. The photo essay—telling a story through a series of images—has a long and (dare I say it?) storied history.

So, using your snapshot skills, create a photo essay of a simple event in your day—and by simple, I mean simple. Preparing dinner. Eating dinner. Driving to work. Taking out the recycling. Limit yourself to three shots to tell the story, and make sure that each shot is well-composed—fill the frame, watch out for backlighting, take note of the horizon line, and so on.

When it comes to photo essays, less is almost always more, which is why I’m limiting you to three shots. Obviously, you can shoot more than three, and then choose your favorites when you’re done, but don’t cheat it—stick with a final selection

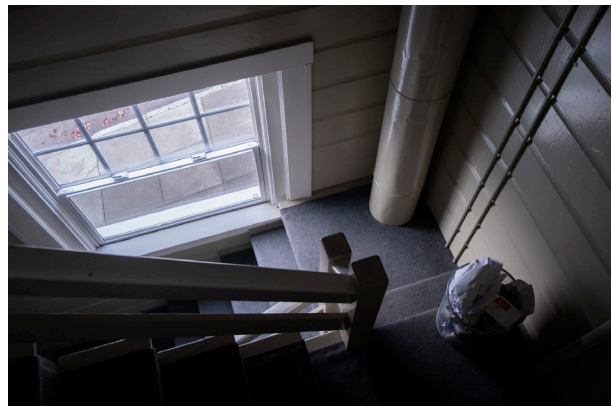


FIGURE 05: While this three-image story won’t leave anyone sitting on the edge of their seat, shooting a photo essay about taking out the recycling still requires a number of decisions. I used a wide-angle lens for my first shot, to exaggerate the size of the recycling bin. In the late afternoon, the stairs I have to walk down often gets dramatic light, so took advantage of that. The best angle for the last shot wasn’t obvious—I shot nine different images and decided this was the best point-of-view.

of three. This will not only help build some multi-shot storytelling skills, it will help you understand which moments in an event are the decisive ones. That will help you even when you're trying to shoot a single frame. (Hint: think beginning, middle, and end.)

EXERCISES FOR CHAPTER 3

Camera Anatomy

As a photography teacher I'm supposed to stress that "gear doesn't matter" and that you can take a good photo with any camera, and all of that is true. But wow, a nice camera is a really cool thing to handle and use. While you don't have to be a gear nerd to be a good photographer, you do have to know how to use your instrument. These exercises will lead you to more familiarity with your camera.

Investigate more of your camera's features

In Chapter 3, you took a tour of features that are essential to everyday shooting as well as some one-time configurations, such as color space, that are important to investigate. A modern camera, though, has a huge array of features and, while you can definitely shoot well without knowing about them, some of them are handy and are worth exploring.

You can, of course, explore your camera's features simply by looking through the menus, but these don't often explain what a feature does, and some of the names can be somewhat impenetrable. Depending on the quality of your camera's manual, that's probably a better way to learn what your camera is capable of. Here are some particularly useful features that you might find on a current camera.

- **WiFi.** Sometimes listed in a menu under Communication or Connectivity, many cameras these days have WiFi systems built-in. Obviously, you're not going to browse the web on your camera, but some models do allow you to email images directly from the camera, through the use of an external server. Most cameras, though, provide WiFi solely to facilitate image transfer from the camera to your computer or mobile device. When activated, camera WiFi will create a hot spot that you can connect your computer or device

to. The camera can then initiate transfers. I have yet to see a camera that can transfer raw files via built-in WiFi—so far, they’re all limited to sending only JPEGs. On some cameras, built-in WiFi also facilitates remote control. Install the appropriate app on your mobile device and you can use it as a remote viewfinder, usually with full camera control.

- **Bluetooth.** Though not as prevalent as WiFi, some cameras now have Bluetooth built-in. Bluetooth is too slow for file transfer, but it does offer some other handy utilities ranging from automatically setting the date and time on your camera by pulling it from your phone, to using your phone as a remote shutter release and preview device. You might also find that your Bluetooth-enabled camera can automatically geotag your images by pulling your current location from your phone. Activating Bluetooth can drain your camera’s battery much faster, so you may or may not find it worth the battery cost.
- **Pixel Mapping.** In very low light, you’ll use very long shutter speeds (this is covered in detail in Chapter 11, “Special Shooting”). With shutter speeds of one second or more, the sensor can heat up, since it must be left turned on for so long. Sometimes, as the sensor heats, some pixels can get “stuck,” causing them to appear as bright white points in your final image. Some cameras offer a pixel-mapping feature which can help if you notice stuck pixels while you’re out shooting. When activated, the pixel-mapping function will analyze the camera’s sensor and map any stuck pixels. The camera will then try to interpolate the correct color, so that white spots don’t appear. Some cameras automatically perform a pixel-mapping operation at regular intervals, or let you set a schedule for pixel mapping.
- **Interval timer.** Also called an intervalometer, an interval timer lets you create time-lapse movies. You can configure the interval time to shoot a frame at a specified interval for either a specified amount of time or until a particular number of frames have been shot. Later, in your computer, you can use software to string all of these images together into a movie (some cameras will also stitch the time-lapse sequence into a movie). The result will be an accelerated view of a long stretch of time. If your camera doesn’t have an intervalometer built-in, you can use an external one, which plugs into your camera’s remote-control port.
- **Shutter Type.** Some mirrorless cameras offer the option of using a mechanical shutter or an electronic shutter. With an electronic shutter the actual physical shutter mechanism is not used. Instead, when you press the shutter button, the sensor is turned on and off for the duration of the shutter speed. The advantage of an electronic shutter is that you can achieve extremely fast shutter speeds—in excess of 1/32,000th of a second. The downside is that moving subject matter may appear distorted. Later, you’ll learn about some uses for very fast shutter speeds.
- **Shoot without lens.** By default, most cameras will not take a photo without a lens attached. If your camera has a “shoot without lens” feature, then you can allow it to shoot even when there’s no lens attached. While shooting without a lens may seem a somewhat pointless proposition, there is a purpose to this feature. Over the last hundred years there have been a lot of lenses made, and you can often find high-quality lenses from the pre-digital era at very reasonable prices. eBay, thrift stores, estate sales—these are all great

places to find interesting lenses at very low prices. To fit them to your camera you'll need an adapter of some kind, but these are readily available on Amazon. Because these lenses are incapable of communicating with your camera, there's no way for the camera to know that a lens is attached. Therefore, to use an adapted lens you need to activate the Shoot Without Lens feature. Remember, with these lenses you'll have to manually focus, and you'll have to set the aperture on the lens itself.



FIGURE 06: This is a typical lens adapter; in this case it adapts Pentax screw-mount lenses to a Fuji X camera. I used it to adapt this Pentax lens from the early '70s to my Fuji X-T3. There's no autofocus and you have to shoot in Manual mode, but the camera's light meter works fine.

MORE AUTO MODE PRACTICE

Hopefully you're getting more comfortable handling your camera and you're becoming accustomed to the shutter button half-press that's required to achieve focus. These exercises are going to be a little more directed—less about shooting snapshots of your daily life. For these, you'll need to set aside some time, maybe an hour so, during which you're going to look for images. You can do these exercises in your neighborhood, or even inside your house. Try to work without interruption—turn off your phone, for example—and for now, work alone. While a “photo walk” with someone else can be enjoyable, the pressure to keep up social propriety can interfere with your concentration. All of these exercises work fine in Program mode.

Spend an hour shooting low

One of the most common mistakes I see with new photographers is a lack of foot movement. That may sound odd, but moving around a lot while you're shooting is essential. You need to work your subject—shoot it from many different positions and angles and experiment with framing it in different ways. That movement should also include moving up and down, which is the axis that most of us forget about.

Over the course of an hour, try shooting all of your images from a squatting position. As you're out walking about, if you see something interesting, squat down before shooting. In addition, keep your eyes open for subject matter that's down low. Feel free to go even lower—set your camera on the ground and shoot from there. Obviously, you might have to tilt upwards when you're shooting from a low angle. Pay attention to the way lines converge and recede

from this angle. You can create a lot of drama by shooting from a low position.

Note that it's the rare person who looks good when shot from below—many people end up with extra chins when shot from this angle—so be careful if you're shooting people.

This exercise will get you used to thinking about the power of point of view and angle. We shoot most of our images from five to six feet above the ground, but there's a world of other perspectives out there and you need to experience some of them before you can start to visualize when they might be useful. Also, this will give your quads a good workout.

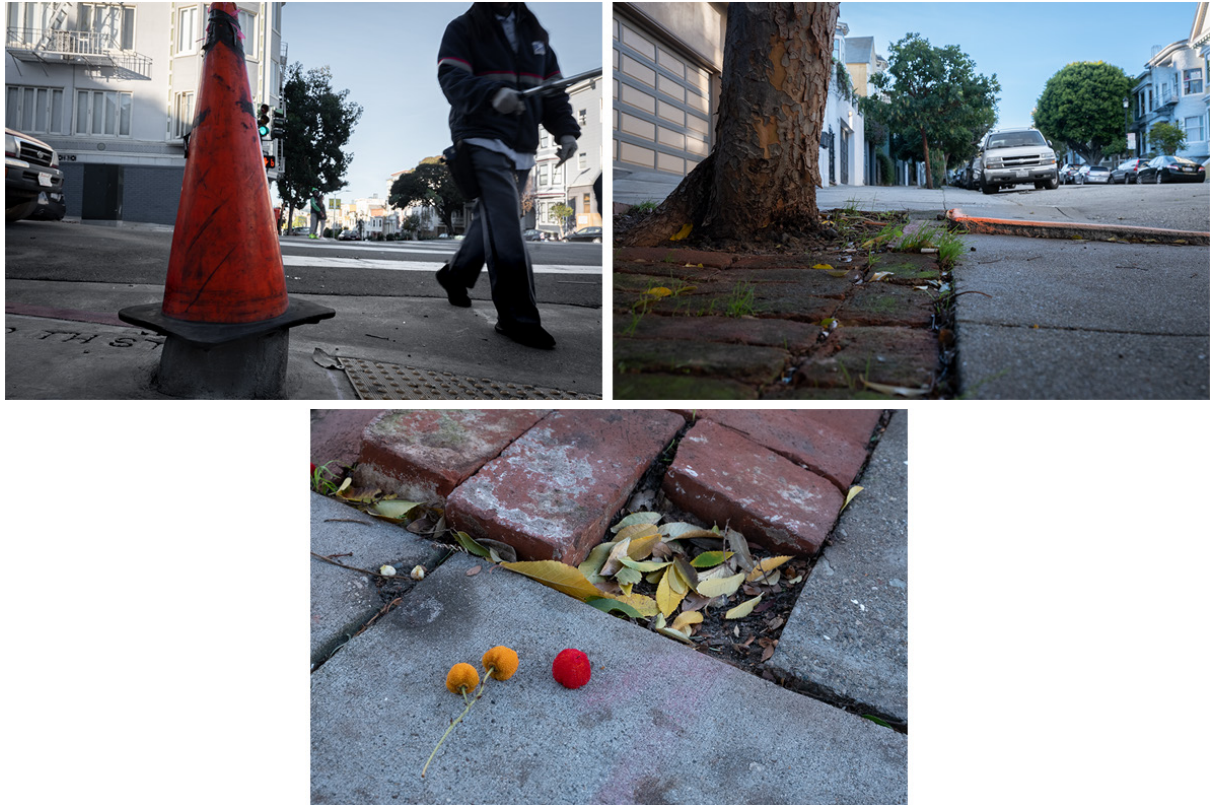


FIGURE 07: Forcing yourself to shoot low is a simple way to get a perspective that you don't normally see, and to notice details that you might usually walk past.

Shoot silhouettes

Successful photos require you to have a good eye and aesthetic for quality of light. You also need to have a good eye and aesthetic for line, shape and form. Shooting silhouettes is a good way to start exploring both light and line.

To shoot a silhouette you need a subject between you and a light source. In that situation your eye won't see your subject as a silhouette, but because your camera lacks the dynamic range of your eye, if the light source is bright enough, then the subject will fall into silhouette. Silhouettes are easier to shoot with mirrorless cameras because you can see the silhouette effect in the electronic viewfinder, which shows you what the camera sees rather than what

your eye sees. With an SLR, because the viewfinder is clear glass, you'll see the scene with the full dynamic range of your eye. Take a shot, then review it to see if you achieved a silhouette. If not, you may need a brighter light.

Some things to pay attention to in this exercise:

- In silhouette, a subject is reduced to a simple outline. Pay attention to whether you like that particular shape, and whether you like how that shape interacts with and relates to other shapes in the frame. Arranging shapes in the frame in a pleasing manner is a critical part of good composition.
- Turning your camera into the sun yields a very different kind of light on your scene. Your subject might have highlights around its edges, and you may notice highlights and reflections off of the ground—things you don't normally notice. Looking into a light source yields a very different quality of light than having the light source behind you, or to the side of you. There are many different qualities of light in the world, and you need to start noticing their characteristics and paying attention to when light is more or less attractive.
- It's easy to get obsessed with detail in an image, and so we all want to buy sharper lenses and we edit our images to reveal every detail. In this exercise you're intentionally eliminating detail! Take note of how sometimes less detail is more effective. Silhouettes are abstract—sometimes a less real image delivers a greater punch. This is an example of the creative choice that you have as a photographer.



FIGURE 08: Silhouettes can be very satisfying because they're simple. By eliminating detail—plunging it into complete black—you create simple, graphic images that easily focus the viewer's attention.

Finally, a technical note: when you point your camera toward a light you stand a good chance of getting lens flares—those weird circular reflections that can spread across an image. For now, don't worry about flares—shoot anyway. Later we'll look at how to effectively manage lens flares.

Shoot a color

Go shoot things that are a particular color. Pick a single color and stick with it for the duration of your shoot. When you find something, think carefully about your composition—remember everything we've discussed, and fill the frame, try different angles, and so on.

This exercise is not especially difficult, but it will help you practice a few things. First, it will make you aware. Saying you're going to go shoot "red things" may sound simple, but once you get outside you might be surprised to find how many red things there are. (See Figure 09, on the right) This exercise is going to force you to look at an otherwise familiar environment with more intensity and you might be surprised to find that you notice some things that you've never seen before. This is a state of seeing that you want to cultivate.

Second, this will give you a quick introduction into the practice of shooting a project. There's a lot of stuff in the world—so much that it can be overwhelming when you're shooting. Using a project to limit your attention can be very freeing.

And finally, even though the goal is to shoot things of a particular color, that doesn't mean that you get to ignore the process of getting a good shot. This exercise will get you into the flow of finding subject matter that fits your project, but then going through the work that you should go through every time you see a photographic subject, so that you get the best shot that you can.



FIGURE 09: I set out for a walk with the goal of shooting things that were red. While I definitely saw some things in the neighborhood that I hadn't taken notice of before, I was more surprised by how few red objects I saw. One goal of this exercise is to force yourself to see things you don't normally see. "Scarcity of red" was definitely something I wasn't expecting.

EXERCISES FOR CHAPTER 5

Image Sensors

Obviously, if understanding how your visual system works is important to the process of photography, so is the understanding how your camera works. A modern digital camera is an incredible feat of engineering and most of us will never be knowledgeable enough to understand the hardware engineering, software programming, and materials technology that is required to truly grasp the working of even the simplest digital camera. However, the entire functioning of the camera is dictated by the physics of light, and there are some very important concepts to understand there. These exercises will build on the concepts you started learning in Chapter 5.

See the additive primaries of light in action

This experiment is a little involved, and won't actually do anything to help your shooting, but if you have the components laying around, it is still very interesting.

To perform this experiment, you'll need three flashlights. Any type of flashlight will do, but LED flashlights work best because they produce a very white light.

You also need three different sheets of clear cellophane, one red, one green and one blue. If there is a photo or lighting-supply store nearby you might be able to buy red, green, and blue gel material there.

- Cover each flashlight with one of the gels

- Take the flashlights into a darkened room with a white wall. Shine each flashlight onto a different part of the white wall and you should see separate pools of red, green, and blue light.
- Now turn the lights so they point at the same place. As they converge, you should see the resulting light turn white!

Depending on the quality of your cellophane/gel material, and the color of the bulbs in your flashlights, you may not get a perfect white, but you should still see them mix. This is the power of mixing the additive primaries of light!

EXERCISES FOR CHAPTER 6

Exposure Basics

If you've read Chapter 6 then you've learned the basics of exposure theory. All of the theory and practice that you learn from here on is built on the exposure triangle theory that you learned in that chapter, so it's a good idea to know this stuff as well as you can. These exercises will help you ensure that knowledge of shutter speed, aperture and ISO are at your fingertips.

Memorize the whole stop aperture values

It's easy to remember the whole stop shutter speed values—start at 1/15th of a second and double them. Because apertures are derived from odd, fractional math, it's harder to calculate their doublings. Instead, you need to memorize this list: f/1.2, f/1.4, f/2, f/2.8, f/4, f/5.6, f/8, f/11, f/16, f/22. There is a one stop difference between each of those apertures. Your camera will include two additional, third-stop apertures between each of these, but you don't need to worry about those right now. Memorizing this list will help a lot as you get deeper into exposure, especially if you start working with artificial lighting.

Remember, larger apertures yield shallower depth of field, and are denoted by smaller numbers.

Analyze photos for depth of field settings

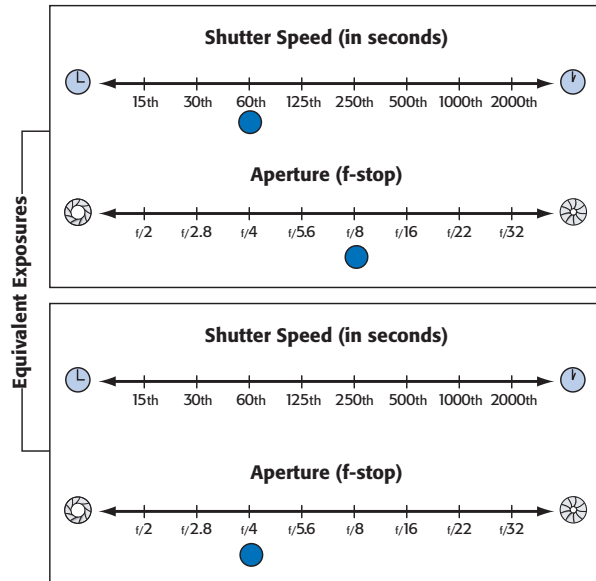
Find a magazine with a lot of photos in it, then grab a pen or magic marker. (Ideally, the magazine should be one that nobody will mind you defacing.) For each image, write on the page whether a large or small aperture was used. If everything in the image is in focus, then you'll write "small aperture" because that image has deep depth of field. If the subject of the image is in focus but the area in front, behind, or both is out of focus then you'll write "large aperture" because that image has shallow depth of field. Obviously, you can't know the exact

aperture the photographer used, but repeatedly identifying large or small will help you learn which yields deep and which yields shallow depth of field. If you want to reinforce even more, write “small aperture, big f-number” or “large aperture, small f-number.”

Shutter speed/aperture drill

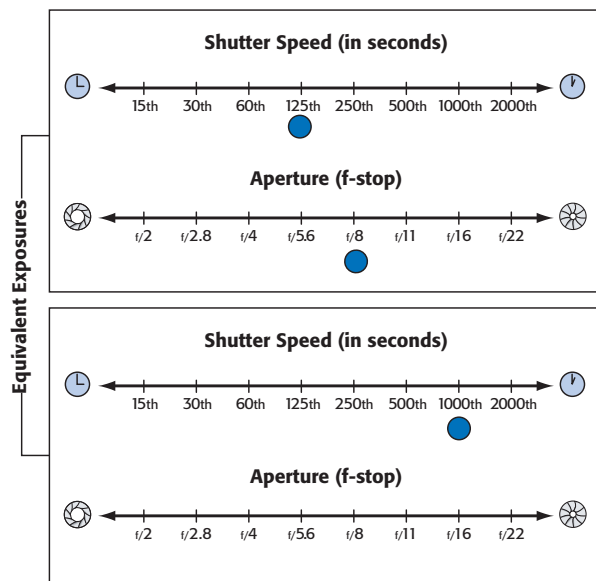
Without referring back to Chapter 6, fill in the blanks in the following diagrams. Remember, the upper and lower parts of the diagram show equivalent exposures—that is, they yield images that are equally bright. Don’t worry right now about how exposure parameters are changed on your camera. You’ll start learning that in the next chapter.

DRILL 01: My camera initially metered at 1/60th of a second and f/8 but I would like slightly shallow depth of field, so I changed my aperture to f/4. What does the shutter speed need to be to preserve the same brightness?



What shutter speed is necessary to create an equivalent exposure?

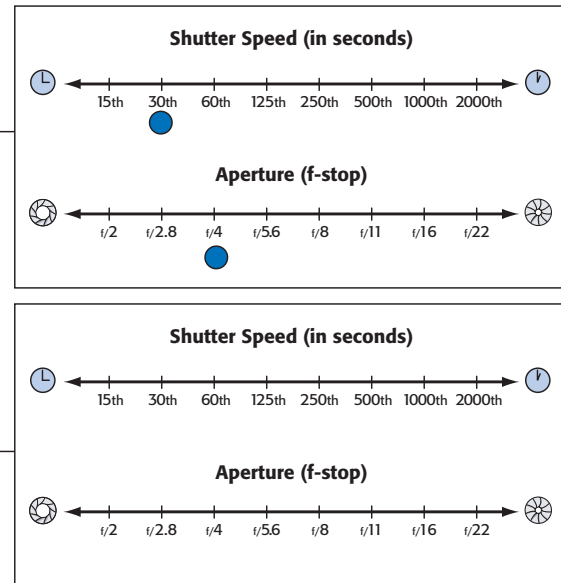
DRILL 02: I moved into a brighter location and this time my camera metered at 1/125th at f/8. It’s not surprising that it changed shutter speed rather than aperture. Most auto systems will try to keep aperture in the middle of the range, so that you get good depth of field, without going to such a small aperture that you get an overall softening due to an effect inside the lens called diffraction. There’s a horse running nearby, and I would like to freeze its motion, so I changed my shutter speed to 1/1000th. What does the aperture need to be to preserve the same brightness?



What aperture is necessary to create an equivalent exposure?

DRILL 03: Now I've stepped into shade and light levels have dropped. My camera is metering 1/30th of a second at f/4. If I wanted a faster shutter speed, what might the equivalent shutter speed/aperture settings be?

Equivalent Exposures



What would equivalent settings with a faster shutter speed be?

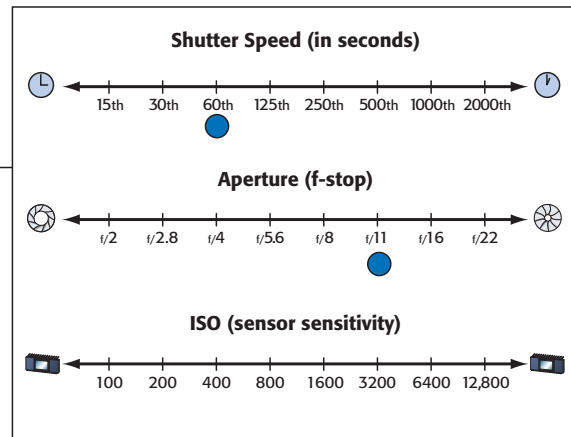
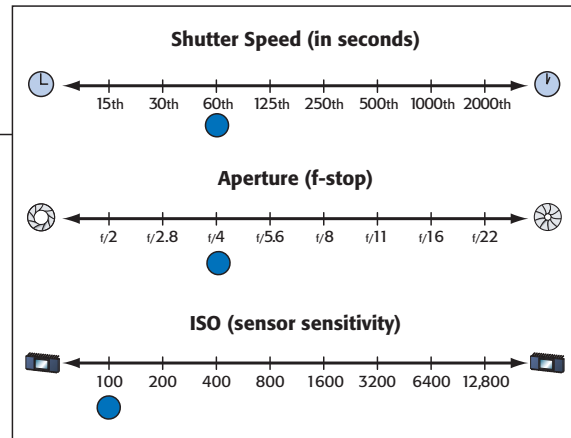
For all of these exercises we're assuming that ISO is locked on a specific speed, rather than set in Auto ISO mode. When Auto ISO is selected, the camera's auto mechanism is free to change ISO as it needs to. When it can do that, it might not need to choose a shutter speed as low as 1/30th of a second, because it can increase ISO. However, depending on your camera, that increase might make for visible noise in your final image.

ISO drill

This set of exercises work just like the last one, but now ISO is in play as well.

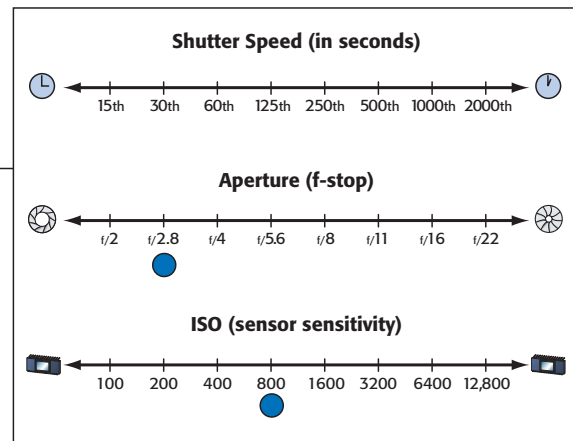
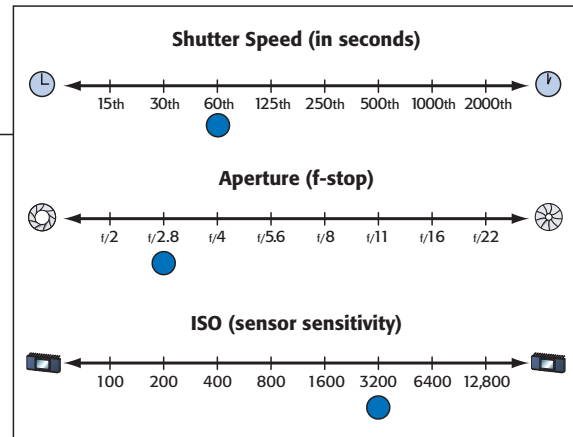
DRILL 04: After metering my scene, the camera reports 1/60th of a second at f/4, but I want deeper depth of field than that. However, I don't want my shutter speed to drop below 1/60th, since I'm hand-holding. If I keep my shutter speed at 1/60th of a second but change my aperture to f/11 (to get deeper depth of field) what does my ISO need to be to preserve the same level of brightness?

Equivalent Exposures



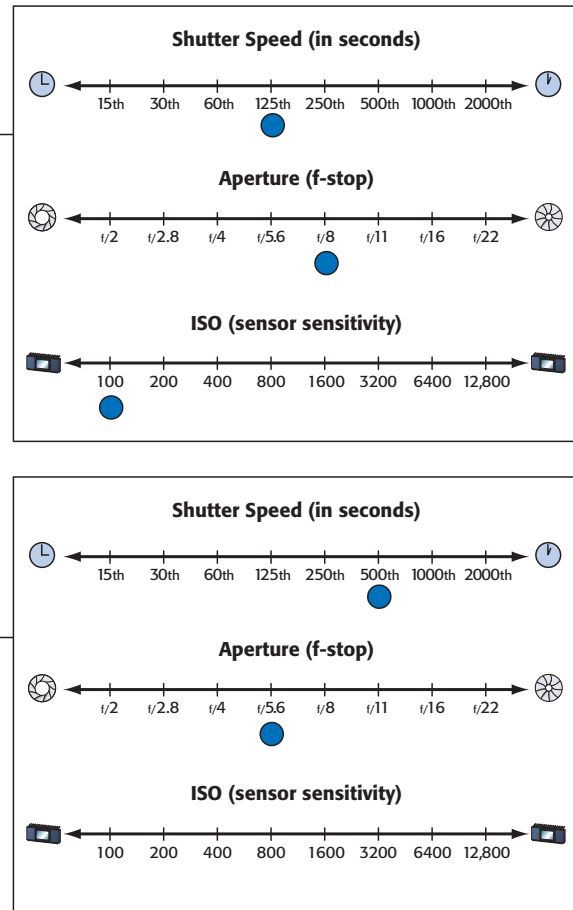
DRILL 05: In the next situation I found myself in very low light. The camera cranked the ISO up to 3200 and opened the aperture to 2.8, to keep my shutter speed at a good hand-holding speed. However, on this camera, ISO 3200 produces images that are noisier than I like, and what the camera doesn't know is that I have a tripod. So I mount the camera on the tripod and manually set the ISO to 800. When I re-meter, what will the shutter speed be, assuming that the aperture doesn't change?

Equivalent Exposures



DRILL 06: I'm in a nicely-lit situation with ISO set back to Auto. The camera has chosen 1/125th of a second at f/8, but it doesn't realize that I'm shooting some bank robbers fleeing the scene of a heist. I want to freeze their motion to ensure they have recognizable faces, so I set my shutter speed to 1/500th. The camera drops the aperture to f/5.6. Where does it set ISO?

Equivalent Exposures



Answers to these drills can be found on [page 63](#).

EXERCISES FOR CHAPTER 7

Program Mode

Congratulations! You've made it this far and now things are going to start getting more interesting. Moving forward from here you get to take more control of your camera and start implementing more creative ideas. You still have to remember all of the things we've talked about so far, from snapshot composition tips to exposure theory to shutter button half-pressing, but all of those things will get further reinforcement as we continue. In Chapter 7, you switched to Program mode, which means you get some more control over your camera, and in these exercises, you're going to get some practice with those new controls.

Get quicker with your camera

Here's some bad news: there will be times in your life when you miss shots. Sometimes events unfold too quickly for you to take action; sometimes you have the wrong lens on your camera for a particular shot; sometimes your camera is configured with left-over, now-inappropriate settings. Here are some things to practice and consider, to help ensure that you don't miss a shot when you're working in a rapidly changing situation.

- Can you turn your camera on with one hand? The power switch for the camera that I use the most is wrapped around the shutter button, which means it's very easy to find when my hand is on the camera's grip. As I raise the camera to my eye, I can flip the switch. Fortunately, the camera starts up quickly enough that, in the time it takes me to lift it from my waist to my eye, the camera is on and ready to shoot. You need to be able to turn on your camera by feel, and you should have a sense of how quickly it powers up.

- Know how to work your focus point selection controls by feel. Ideally, you want to be able to change focus points without ever taking your eye from the viewfinder. If you don't know how to select a focus point by feel, practice that now.
- If you're working with a mirrorless camera then it's important to consider which manual focusing aid you might want to use, since most cameras provide several. Check your camera's manual and perform some experiments with each.
- As with focus point selection, you should know how to access your camera's Program Shift feature without taking your eye from the viewfinder.
- Determining how your camera's Auto White Balance mechanism works in shade is worth devoting a little time to. Take your camera outside, into a shady area and shoot some images with Auto White Balance then shoot the same scene with your camera's Shade or Cloudy white balance setting. Review the images in your computer to determine if you can trust Auto White Balance in shade.

Finally, to ensure that you can move quickly when a good subject presents itself, be sure to always remove the lens cap when you put a lens on your camera. As soon as I throw a camera over my shoulder, I remove the lens cap, and the cap only goes back on if I remove the lens.

Autofocus practice

Modern autofocus systems are very good at determining which object in your scene should be the subject of focus. However, it is possible to compose shots that will confuse your autofocus system. Those are the times when you'll need to take control of your camera's focus point. It's easy to practice with your autofocus system without having to leave the house. Try to compose the following situations, with good focus:

- A subject on either side of the frame. The subject can be a person or simply an object in the room. If your camera can't figure out the subject, you'll have to select the appropriate focus point by hand.
- Compose so that there's a large object in the center of the frame and place your intended subject on the edge of the frame, at a different distance from the large object. This will likely confuse your camera, which means that you will have to select a point yourself. Practice both this and the previous exercise until you can change points very quickly.

Low light autofocus practice

Low light situations present the greatest difficulty for autofocus systems and it can be frustrating when you can't get your camera to lock focus. You can practice low light autofocus by pointing your camera into any dark area—a closet or, if it's night time, out a window. Frame a shot and choose a subject and try to get the camera to focus on that subject. If it won't, then you'll have to find a bright, contrasty area at the same distance, and focus on that. That might require a focus and reframing or a change in focus point selection.

You can practice a similar problem in daylight by trying to achieve focus on a low-contrast subject, like a bright wall or solid sheet of metal. Sometimes, the biggest challenge in such situations is to identify something that's easier to focus on but that sits at the same distance as

your subject. Be sure to evaluate all your results to determine if you actually achieved focus.

Blur out the background of an image

Depth of field control is one of your most important creative decisions when shooting. Now that you have access to Program Shift, you have the ability to select exposures with wider apertures (smaller f-numbers) and that means you can shoot with shallower depth of field. If you haven't done this already, it's time to try capturing shallow depth of field.

Choose a focal length that is close to "normal." That would be a 50mm lens on a camera with a 35mm sensor, and around 75-80mm on a cropped sensor camera. On a zoom lens, you'll simply dial the focal length to this point. If you only have fixed focal length lenses, choose one close to normal.

Frame up a shot of a simple subject in the middle of the frame. This could be a flower, a portrait, a parking meter—any discrete object. With your camera in Program mode, half press the shutter button to meter, then adjust your Program Shift control until the aperture number is as small as it will go. Take the shot and look at the results. The background should be soft.

Now frame up the shot and adjust Program Shift until the aperture number is as high as it will go. Take the shot again and look at the results. The background should now be more sharp.

Experiment with different apertures and take note of the range of control over softness and sharpness that you have available. Then try different focal lengths. You should find that, at wider angles, it's hard to blur out the background.

This exercise is also a good time to practice using the Exposure Lock feature on your camera.

Practice blurring motion

You'll need lower light levels for this exercise, so you might need to wait until dusk or full nightfall. If your camera is set to Auto ISO change it to its lowest ISO setting—usually 100 or 200. Go to a street with traffic on it and, using the Program shift feature on your camera,

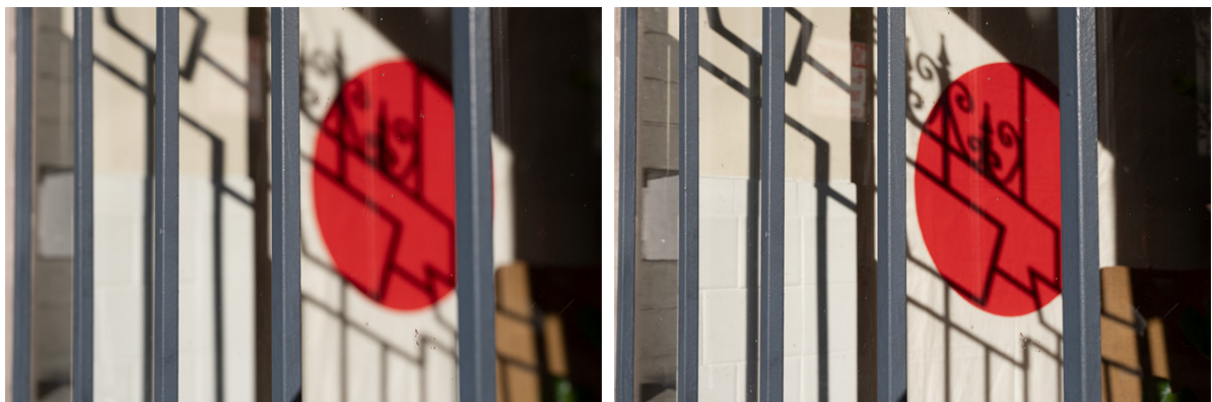


FIGURE 10: In both of these images I focused on the vertical bars. By using my Program Shift control I was able to select different apertures, to achieve different depths of field. I wasn't sure which approach would be best—deep or shallow—so shooting both gave me the option to decide later.

choose a shutter speed that is as low as possible. Hold the camera very still and shoot a shot of the street as a car drives by. (This exercise is easier if you have a tripod.) Take note of the shutter speed of each shot and how much resulting blur you get. You might be surprised to find that you don't get as much blur as you're expecting.

Shoot with a big constraint

While the topics covered in this chapter were technical, that doesn't mean that you can't keep practicing the shooting topics that we've covered in previous chapters. Now that you're in Program mode, with access to better focus control, you might be able to successfully compose some shots that you couldn't get in Auto mode. You might consider re-doing some of the shooting assignments and exercises posted in previous chapters, now that you have this extra control.

To add to the mix, consider spending 30-45 minutes shooting with a predefined limit on your shooting territory. Limit yourself to only your house, or your block or, if you want to get really ambitious, shoot in a single room, or without leaving your chair! (See Figure 11 below.) While you may or may not come away with spectacular results, the bigger gain is in being forced to pay close attention to these spaces. Get close to things, change your vantage point and see what you can find that you might not have noticed before.



FIGURE 11: I shot these images on a completely white set without leaving the stool that I was sitting on. As in most creative forms, imposing limits on your photography can be very liberating.

EXERCISES FOR CHAPTER 8

Advanced Exposure

If you've already started playing with any of the ideas discussed in this chapter, then you might have discovered that the ability to lighten and darken your frame opens up a huge new range of options. Light and shadow are the essential components of photographic vocabulary and now you have a way of creating dark shadows or bright highlights. As you'll see in Chapter 9, when combined with some other compositional ideas, these allow for great expressiveness in your photos. Here are some exercises to help reinforce what you read in this chapter.

Solve bad backlighting with exposure compensation

Backlighting situations are easy to find, but they can be tough to solve. In this chapter, you learned of two features that can help you when shooting into strong backlighting. For this exercise, place a subject—person or object—in front of a window in daytime. With your camera in its matrix (sometimes called evaluative) metering mode, frame the subject in the middle of the frame, surrounded by bright window light, and take the shot. You should find that you can see the details out the window, but that your subject is severely underexposed.

Now dial in **1 stop of positive exposure compensation** and shoot the scene with the same framing again.

Next dial in **2 stops of positive exposure compensation** and shoot another frame, and examine the results.

Were two stops too much? Not enough? Experiment with different levels of exposure compensation until you get a pleasing level of illumination on your subject. You will, of course, be sacrificing the details in the background.

Solve bad backlighting with a metering change

Continuing with the situation in the last exercise, set exposure compensation back to 0 and change your metering mode from matrix to center-weighted. Shoot your subject and examine the results. Is the subject well-exposed? How much of the background overexposed?

Next, switch to spot metering and meter off the middle of your subject. Take the shot and examine it. You should find that the subject is well-exposed while the background is quite overexposed. Did this work better or worse than center-weight?

What you should see from these two exercises is that there's nothing magical about exposure compensation or different metering modes. All they do is change the exposure settings that the camera chooses. Look at the exposure settings that your camera chose when you were spot metering. Are they similar to what your camera chose in the last exercise when you dialed in positive exposure compensation? They should be.

Capture true black

Most of the time, your camera will do a good job of representing the correct tones in your image. As mentioned in chapter 8, blacks can confound your light meter because your meter will always assume that what you're looking at is gray. For this exercise, find a black object, position it in the middle of your frame, and take a shot. Then dial in 1/3 of a stop of negative exposure compensation and shoot again. Continue down the exposure compensation scale, shooting each time, and notice the difference in the tonality of the black object. Pay attention, too, to the bright areas in your scene. They will darken as well.

When you come across something black you need to take extra steps to capture that object as true black. As you've just seen, the steps are actually very easy. Remembering to take them is what's hard.

Can you capture true white?

Most of the time a modern light meter will figure out if something is white and adjust its exposure accordingly. It's a good idea to test your own camera's ability to properly render white. Compose a shot so that a white object fills around 3/4 of the frame. If you can completely fill the frame with white—such as a field of snow—that's even better. Take a shot with the camera's default metering and check out the quality of the white area. Does it truly look white? Or is it more of a dingy gray? If it's gray, dial in some positive exposure compensation and shoot again. Your goal here is to assess whether you can trust your camera's metering when shooting white things.

Shoot more intentional blurring

The Chapter 7 exercises included a depth of field exercise, which you solved by using Program Shift. Perform that exercise again, but this time use your camera's Aperture Priority mode to take control of aperture.

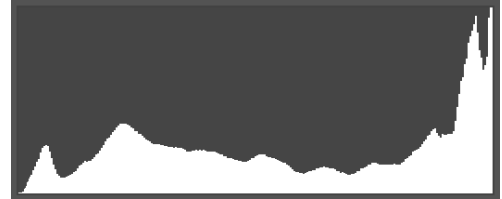
Blur more motion

In Chapter 7 you also performed an intentional blurring exercise by using Program Shift to control shutter speed. Perform that exercise again, but this time use your camera's Shutter priority mode to take control of shutter speed.

Histogram Quiz

Answer the following questions:

1. The image that the histogram on the right was taken from has an exposure problem. What is it?
2. The histogram on the right is from a photo of a woman in a white coat. What's wrong with the image?



3. Which histogram is the correct histogram for the image shown below?



Answers to these drills can be found on [page 63](#).

EXERCISES FOR CHAPTER 9

Finding and Composing a Photo

It's difficult to adequately describe what "learning to see" is because "seeing" is an experiential phenomenon. While it's not possible to teach you to see things in the same way that someone else does (and that's a good thing—everyone gets to have their own personal vision) it is possible to engage in exercises that will shake up the way that you normally see things, and that process can lead you to notice things you haven't seen before, and to develop new habits of seeing.

Perhaps the most important thing to know about your visual sense is that it is not objective. We tend to think that we see the "truth" that lies before us, and that's simply not how vision works. As you've seen, what we expect to see impacts our visual sense, and our expectations are borne of habits and culture. Anything you can do to break those habits and shake you out of your normal course of seeing will lend you the possibility of noticing and recognizing new types of photographic subject matter. The following exercises will help you do this.

Weird seeing exercise number 1

This exercise has nothing to do with your camera but rather is an exercise you can use to stimulate your visual sense. It's going to sound weird, but for most people it creates a temporary change in the way they see, and that change can be informative.

This exercise requires you to speak out loud, so if you're self-conscious or are in a location where speaking might disturb other people then you'll need to find a private place to do it. You simply need a room with things in it—it doesn't matter what the things are. For at least one minute, walk around the room. As you do, point at things you see and, out loud, speak the wrong name for them. For example, you might point at a lamp and say the word "teakettle."

The name you say doesn't matter as long as it's not the name of the thing you're pointing at. Simply say the very first word that comes to your mind. Don't think, don't try to be clever, don't worry about "right" or "wrong" because there is no right or wrong in this exercise. You might find yourself going through categories of words—for example you might get stuck naming things after power tools or home appliances or kinds of cheese. That's fine, just keep going, and move from object to object as quickly as you can.

A minute is a long time, so you might want to set a timer on your phone to ensure that you actually go the distance. If you're serious about this, do it for two minutes.

When the time has elapsed, stop walking and look around the room. Most people notice that their visual sense has changed in a subtle way. Some people feel colors are more vibrant, others have a greater sense of depth and the distance between objects. I tend to get a sense of a strong outline around shapes—a view of them as distinct. Whichever result manifests for you, the point is that your visual system is viewing the world more intently than normal. I've heard no explanation for why this happens. It's as if saying the wrong name makes your brain re-evaluate what it's seeing and look more closely.

Whatever the reason, this is a chance to experience what a very active visual sense feels like. This is a state you want to find ways to cultivate, because it's how you want to see when you're shooting. Also, as with the practice of anything, the more you get your brain into this state, the easier it will be to return to.

Weird seeing exercise number 2

Here's another one that doesn't involve your camera, and this exercise is a little easier to perform. The next time you're walking somewhere outside—down a sidewalk, along a street, on a path in the forest—choose a point in front of you, in the far distance, and lock your eyes on it. Then take notice of something in the distance, in your peripheral vision. So, for example, if you're walking down a sidewalk, lock your eyes on a point on the sidewalk in the far distance, then take note of a house, to either side of where you fixed your eyes. Without moving your eyes, using only your peripheral vision, try to discern as many details of the object you've chosen as you can. Do this, as you walk, until you reach the object. When you come upon it, look directly at it.

When I do this exercise, I'm usually shocked at the level of detail that I see on the particular object that I chose. For some reason, after trying to see the object, when I get the chance to directly look at it, my brain notices far more than I usually see. Again, this exercise gives you a chance to feel your visual system in an extremely active state—one that you want to experience when you're shooting.

Become a camera

Of course, we do not use our visual sense solely for photography. Rather, it is constantly feeding us an image stream that forms a major part of our interface with the world as well as our sense of self. Because your visual sense is constant, it can be difficult to have a "fresh" view of something that you're seeing. In other words, you might spot something in the distance

that looks interesting, but by the time you get to it, you’ve already seen it from many different angles and scales. The freshness of it has waned a little bit.

Here’s a fun exercise that lets you experience a fresh view of the world around you. I include this because I think the experience of it is similar to the feeling of an initial photographic impulse. The more you feel those impulses, the easier it gets to tune into that, sometimes quiet, sense. You’ll need a partner for this exercise.

Choose one person to be the camera, and the other to be the photographer. The person who is the camera closes their eyes and the “photographer” moves them about the room and positions them to “frame a shot.” When the photographer says “click” the camera person opens their eyes to see the scene. That’s it. It may not sound like much, but, as the camera, you might find it interesting to open your eyes and see a scene suddenly appear before you—one that you may not have noticed before, even in a familiar place. Repeat a few times and then swap roles.

If you’re the photographer, be sure to watch out for the camera, as they’re trusting you to not run them into things. However, don’t forget that you can ask them to kneel or squat or get on their tiptoes or do whatever it takes to get their face into the point-of-view that you want. The goal of this exercise is not to find some fantastic scene that is expertly composed. Even the simplest compositional idea is plenty. This exercise may sound simple, but if you relax into it and simply enjoy the experience of opening your eyes to the unexpected scene, it can be a very interesting experience.

Shoot a Textured Object Throughout the Day

In Chapter 9 you read a lot about quality of light and how light changes over the course of the day. I’m sure none of that was a surprise to you, but it can still be shocking to actually photograph how much the surface of an object changes as the sun moves over the sky. So, testing it for yourself is a good experiment.

Find an object with a rough surface that is sitting in the sun. You’re going to shoot this repeatedly throughout the day, so it needs to be an object that you have easy access to. A piece of your house, or something just outside your house are each good candidates. Shoot the object every hour from sunup to sunset and then compare the results. Look at the differences in texture as well as the color changes that happen.

In addition to changing over the course of a day, sunlight has very different qualities at different times of the year. Winter light is more contrasty than summer light because the sun doesn’t rise as high in the sky during the winter. so it’s worth repeating this experiment at different times of the year. It’s good to be able to recognize a texture as having compositional value even when it’s not properly lit—if you recognize it as good subject matter, you can return to it later, when the light has changed. This exercise will help you visualize the differences as time passes.

Distort some portraits

In Figure 9.13 of *Complete Digital Photography* you saw an example of portrait distortion. In that example, I had to stand in different places to fill the frame with my subject because in one image I was using a long lens, and in the other I was using a short lens. This is an easy experiment to perform on your own, especially if you have a zoom lens, and it's worth seeing the effects of camera position and focal length choice on your own.

Next, put your camera down and try another experiment in the effect of vantage point on your perception of the human face. You need another person for this exercise and it probably needs to be someone you know pretty well, unless you're a very gutsy person. This one's simple: position your face as close as possible to the other person's. Get so close that your noses touch. Take a moment to get over the awkwardness and then tune in to what you're seeing. Don't try to focus—you'll get a headache. You should see that their face looks a lot like what you when you shoot someone up close with a wide-angle lens. Their nose should appear disproportionately large, their eyes might seem farther apart, and their cheek bones should appear to drop off at a rather steep angle. It might almost look like a fisheye view. This shows how much your position affects the sense of perspective and geometric relationship in your image.

Also, you've possibly been at this vantage point before with people and you've probably never noticed this wide-angle distortion. That's the other point of this exercise—there's much that you look at every day, but don't see.

Change the relationship between objects

Your choice of camera position and focal length allows you to change the spatial relationship of objects within your photos. This is a powerful compositional tool, which you're going to see demonstrated in this exercise.

Place three objects on the floor. It doesn't matter what they are or what size they are—bowling balls, cans of cat food, pieces of jewelry, whatever. Together, those three objects will form an imaginary triangle. Choose a normal focal length, then position your camera so that



FIGURE 12: I didn't move these tennis balls between shots. Instead I changed my camera position and focal length. By doing so, I was able to change the apparent geometric relationship of the near and far balls. The ability to change spatial relationships is a powerful compositional tool.

one of the objects is near the top of the frame and the other two fall along the bottom. The objects should fill the frame, vertically, with an imaginary triangle.

Now change your camera position and focal length to stretch that vertical distance, while keeping the frame filled in the same way. Notice how you can force the upper object to recede into the distance. Through this simple change, you have altered the geometry of the scene. When you're trying to balance and distribute objects in the frame to achieve a particular composition, focal length and camera position become very powerful tools.

Finding the four things that all photos need

In the Chapter 6 exercises, you marked up a magazine as you assessed the size of the aperture used to shoot the photos in the magazine. Grab that magazine again, or another one, and work through the photos again. This time you want to look for the four essential things that were discussed in Chapter 9:

- **A subject and a background.** Is it obvious to you what the subject is or do you have to work to find it? Does the shot have a background? What's the relationship of the subject to the background? If the subject is obvious, how has the photographer led you to quickly and easily find the subject?
- **A sense of balance.** Compositionally, does the photo feel balanced? If so, is this because of the position of the objects in the frame, or the use of tonal differences in the frame? Maybe both? Dissect the image's balance and try to figure out why it works. Don't forget that sometimes balance happens across both axes in a photo—horizontal and vertical. If the image is square, does balance come from the corners rather than from division into thirds?
- **A point of view.** Every photo has one. Take note of the point of view in each photo you examine. If it is an unusual point of view, did you notice that at first? Sometimes, if a photo is very well-executed, an odd point of view can seem so natural that you don't notice it at first. The opposite of that is when a point of view is so obviously unusual that it's the first thing you notice when you look at the image. You never want any particular characteristic of your technique to upstage the content of your photo.
- **Simplicity.** This can be the hardest thing to achieve in your own work, because when you're familiar with an image or scene you don't always notice extra stuff. Examine the photos in your magazine with an eye towards simplicity. Is there anything extra in the frames? Can you imagine what might be outside the frame that the photographer intentionally chose to crop out? Is the image made simple because of how it's framed, or because depth of field and exposure control has hidden some parts of the frame in blur, shadow or highlight?

As I mentioned in several places in the book, studying other photographs is a fantastic way to learn and improve your own photography. And as you've seen, you don't have to have an expensive photo book to engage in this exercise. Professional photos are everywhere—even a magazine or newspaper can provide you with fodder to examine, dissect, and analyze.

Finding the four things in your own photos

If you did the last exercise, try it again but this time work through your own archive of photos. Try to work chronologically from the oldest ones to the newest. Do you have a particular strength amongst the four things that photos need? Do you have a particular weakness? As you progress through your images are you seeing improvement?

Shoot three examples of these compositional ideas

The following ideas are defined and discussed in chapter 9, and they're handy tools to have in your compositional vocabulary. Shoot three examples of each idea: repetition, thirds, leading lines, center composition, light and dark. If you're not certain of what those things are, refer to the discussion in Chapter 9.

Explore Layer Perception

For the most part, our binocular vision is a real boon because, of course, it allows us to see true three-dimensional depth. (Having a spare eye in case of an accident is probably pretty handy, too.) However, there's an odd byproduct of binocular vision that you may not be aware of and that is that you're always seeing double. To prove that, try the following simple experiment.

Stand on one side of the room and hold one finger in front of your face about six inches from your nose. Position it so that a window or door on the opposite end of the room sits behind your finger. Focus on the window or door and note what happens to your finger. It should split in two. Now focus on your finger and watch what happens to the window or door on the other end of the room. It should split in two.

Yes, some part of your field of view is constantly showing double. It's simply the nature of parallax, which stems from the fact that your individual eyes are positioned in different places and so see different angles on the world. The fact that you don't notice this double vision all the time is another example of the power of your brain's ability to edit and manipulate your visual sense. Instead, your awareness is centered around only the areas where you see normal, single vision. This awareness, though, is a bit of a liability when it comes to composition, as you'll see in the next exercise.

Practice Layers

As you saw in the last exercise, your brain does a fantastic job of reducing your visual awareness to only the plane that you're focused on. Most of the things on other planes are doubled by the parallax shift brought about by the spacing between your eyes. If you didn't ignore those planes, then you'd be constantly annoyed and distracted by double vision.

However, a photograph is two-dimensional. Because everything in a photograph sits on a single plane, from a composition/design standpoint, every object in a photo can be related to every other object in the photo. For example, in Figure 12 (on the next page) the tree and the fence post sit in very different places, on very different planes. In real life, you don't necessarily notice any kind of correspondence or relationship between them. But when reduced to flat, two-dimensional space, a single line is revealed. Recognizing the compositional potential of things that sit on different planes in 3D space is a very important ability.

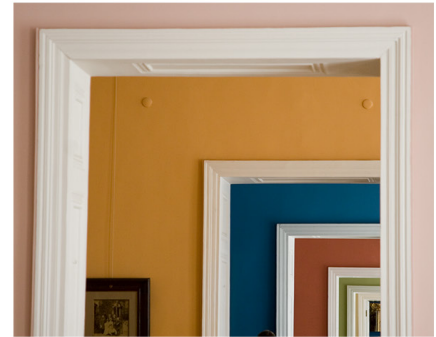


FIGURE 12: All three of these images are composed out of components that sit on different planes. In the real world, they don't have an obvious relationship to each other, but when flattened to a photo, they do.

Try to find three compositions built out of layers. That is, compose three images around objects that sit on different distances. One way to start is to try to relate something on the foreground to something on the horizon or in the sky. More complex than that is to relate multiple foreground and mid-ground objects. This is a hard exercise and even if the resulting images aren't great, remember that the goal is to start to recognize and understand how photos can be composed from multiple 3D layers in the real world.

Reflections

Another way that your brain edits your everyday visual perception is to make you less aware of things that are visible in reflections. Pools of water, storefront windows, shiny car doors—all of these objects hold imagery in the form of reflections. Your visual system does you the courtesy of mostly ignoring these reflected images, because they don't usually represent especially useful survival information. For this exercise, you're going to change that.

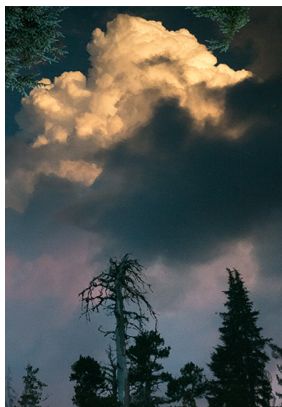


FIGURE 13: Your eye doesn't normally notice the contents of reflections. Intentionally trying to find them can get you seeing in a different way.

Aim to capture at least five images that include reflections. Obviously, this exercise is much easier if it has rained recently, and if you are currently in a dry place without a lot of reflective

surfaces, then this may not be the best time to try this particular exercise. The goal is simply to try to recognize interesting subject matter on a reflective surface and to play with how you can compose with that subject matter.

The goal here is not to start a career in photographing reflections (though the brilliant photographer Connie Imboden has done just that, and you can see her work at connieimboden.com) but to simply force your visual system to see something it normally doesn't see. In Chapter 9 you read, at length, about how your visual system abbreviates the world around you and keeps you seeing what's really there. Firing up your visual system is not a simple process. You must kick it and push it around and force it to see the world differently. Exercises like this force your visual system into a different type of perception. Do things like this enough and it will be easier to get back to that perceptive state.

Photographing light as subject

A good “seeing” exercise is one that makes you notice things you don't normally see, or see the ordinary in a new way. This exercise is particularly good at that, though it can be a little hard to define. The goal of this exercise is to treat light as the subject of your image. You can, of course, say that light is the subject of all images because without light there is no photography. Your goal here though, is to look for places where what attracts you to a scene is the light, and to then build a composition around that light rather than around what the light is striking.

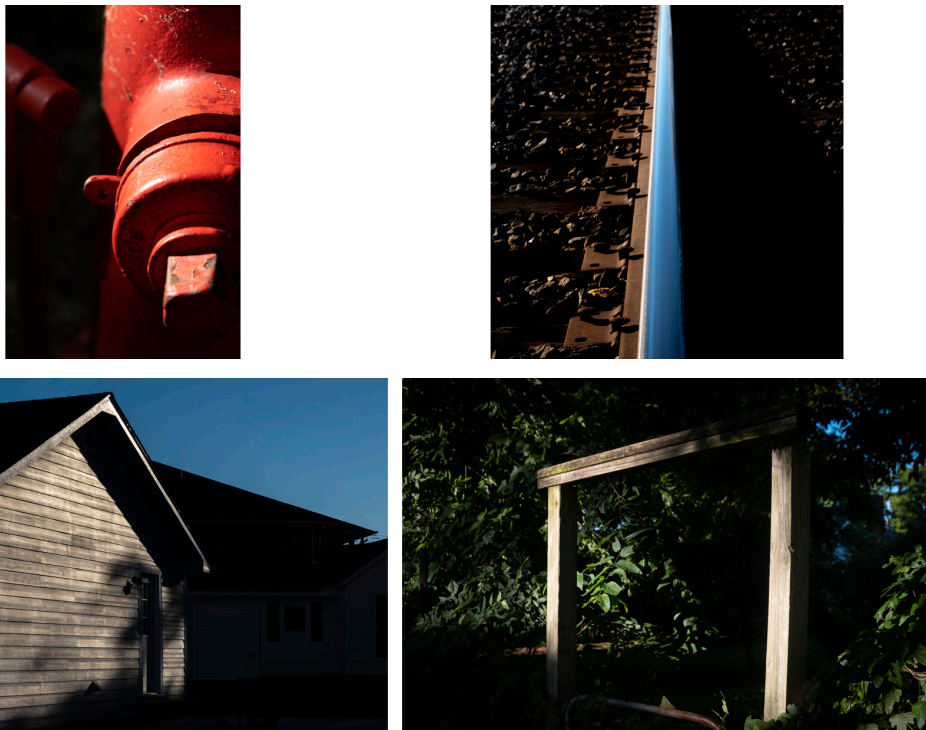


FIGURE 14: Practicing with light as your subject can be a great exercise for shaking up your visual sense.

For example, in the example of the fire hydrant (in Figure 14, above), it was not the fire hydrant that I was interested in, but the way that the light curved over the various surfaces.

Similarly, in the other images, I was simply struck by the beauty of the light on each of those surfaces. I tried to construct nice compositions around them but, again, this is practice. The goal is not great photos, but to open our eyes to recognizing light itself as interesting subject matter. Perhaps you'll never take any "serious" photos with light as the subject, but engaging with this exercise is a way to shake up your normal visual sense.

EXERCISES FOR CHAPTER 10

Lighting

Even if you're only interested in working with natural light, a study of other forms of lighting is valuable. Working with artificial light means working in a very controlled situation, and having that control allows you to explore possibilities that you don't always have with natural light. That, in turn, can improve your understanding of many lighting concepts. The following exercises will help you learn more about lighting roles, and to develop an aesthetic sense for light and an ability to critique it.

A word about subjects

You'll need a subject for these exercises. If that subject needs to be a particular thing—like a model—that will be explicitly stated. In most cases, though, it won't matter what you use as a subject. However, to get the most out of these exercises, you want a subject with a complex shape. A human model is ideal, but a still life can work, as long as it has a combination of curved surfaces, some hard edges and corners and some flat planes.

This variety will let you see how light interacts with these various shapes—what kind of shadows are created, what kind of highlights, and how the light falls off over distance across various types of geometry. A bowl of fruit will work fine, or a collection of pottery, or a vase of flowers. There's a reason that still life paintings down through the ages contain the shapes that they do.

As for colors and surfaces that's up to you. Variety will give you the most practice, so look for subjects that combinations of shiny and rough textures.

CONTINUOUS LIGHT EXERCISES

Single Continuous Light and a Wall

If you go onto a professional photo, TV or movie set you will very rarely see an unmodified light pointed at a subject. In fact, you might not see a light pointed at the subject at all. Instead, you'll see lights pointed at giant white cards or walls or the ceiling. Hopefully by now you understand why: pointing a small light source, which produces harsh shadows and strong highlights, at a wall or large piece of white paper turns that wall or paper into a very large light source, which produces soft shadows with possibly no bright highlights at all.

Find a bare white wall with enough room near it for you to position a subject. Position your light to illuminate your subject and then take a few shots. The results should be similar to what you see in the first image in figure 10.1. However, for that shot, I had a diffuser on my light. If you don't, then the light will probably be harsher than what you saw in that image.

Next, turn your single continuous light so that it illuminates the wall and start shooting. As you shoot, move the light closer and farther from the wall to change its intensity. You can also try moving the subject closer and farther from the wall. Take note of the quality of the light coming off the wall. You should find that it's very different than what you saw when you used direct light. Specifically, look at the shadows as they fall around curves, and take note of the



FIGURE 15: In the first image, the light was pointed directly at the subject. In the upper right image, the light was bounced off the left wall, while in the lower left image it was bounced off the right wall. In the last image the light was bounced off of the ceiling. Notice how the shadows and highlights change in each image. When lighting, you have control over shadows and highlights, and so it's important to pay attention to where they fall.

quality of highlights in the image. Notice how much of the scene is illuminated and pay attention to the falloff of the light over the areas that are further from the wall.

Make boring light

A skilled lighting designer can create light that's as beautiful as anything you'll see in the natural world. They can also create really ugly light. To get good at lighting you need to be able to tell the difference between good and bad, and what makes some light pretty and other light ugly. An easy way to do this is to try to create an ugly lighting plan.

Your goal with this exercise is to create completely flat light. That is, light that makes it harder to see depth and dimension, and which doesn't serve to separate a subject from its background.

- Position your subject three or four feet from a wall.
- Using a key light and a fill light, illuminate your subject. Aim to eliminate all shadows on the subject. Once you do, the lights will no longer be serving as "key" and "fill" but will simply be a flat, uniform ambient light.
- If the wall is dimmer than the subject because not enough light is hitting it, then use a third light to illuminate the wall. Try to get it to the same brightness as your subject. The goal is to create a completely "flat" light across both the subject and background.

Aiming to achieve any lighting goal is good practice, even if the goal is bad light, because it requires you to pay attention to direction and intensity and figure out how to eliminate shadows or illuminate particular areas. Now that you have your scene flattened by light, play with each light and notice what happens as you make adjustments.

- If you alter the intensity of either of the front lights, what happens to the shadows? How does the sense of depth on the subject change?
- Experiment with changes that separate the subject from the background.
- As you make these changes, also experiment with changing your own position and the position and orientation of the subject.

Eggsercise

Set an egg on a bare table in a room with no ambient light and light it with a single light.

- Pay attention to the way the shadows fall off over the surface of the egg.
- Change the distance to the light. In addition to the change in brightness, do you notice a change in the quality of the shadow line that separates the light part of the egg from the dark part?
- Try the light on either side of the egg, then set the light as a backlight. Pay attention to the shadows that the egg throws on the table.

Perhaps the most important question to ask yourself as you experiment is "Do you like any of these photos?" Simply setting an egg on a table may not sound like especially interesting content, but as you move lights about and experiment you might find that you create

something that appeals to you. This is the power of lighting—even a seemingly boring subject can be made more interesting with lighting, because lighting itself can be a compelling subject.



FIGURE 16: An egg provides a range of curves and shadows to experiment with. With a single light source, you can practice creating a number of different effects and moods.

Front and back

While the three-point lighting scheme discussed in Chapter 10 is a great way to get natural-looking, flattering light, there are no “right and wrong” lighting positions. You might find, that for certain subjects and goals, putting lights in strange places yields the result you like the best. For example, in Chapter 10, shooting my subject with a window serving only as backlight yielded an image that was much more interesting than any of the “correct” lighting that I had shown earlier.

For this exercise, place a subject on a surface in a room with no ambient light. Place a light out of frame, behind the subject. Place another light in front of the subject, near to where you’ll shoot from. Play with the intensity of the lights (which will probably involve moving the lights further and backward) and notice what you can achieve by mixing a key light with a back light.

Diffusion Basics

In the first exercise, you were asked to work with a single light and a white wall. That white wall acted as a reflector, which is also a form of diffusion. When you bounce the light off of a wall, the light source is diffused over the surface of that wall. As you learned in Chapter 10, diffuse light has a very different quality. If your lights came with some kind of diffuser attachment, and you haven’t tried it yet, now is the time. If your lights didn’t come with diffusers, then see if you can improvise some. If you have collapsible diffusers, you (and perhaps an assistant) can hold them in front of the light. Or, you can hold a bed sheet in front of the light (you’ll need to use a tripod and your camera’s self-timer if your diffusers require you to be away from the camera at the time of shooting.)

Set up a fairly large subject (ideally a human model) in a room without ambient light then set a single key light. Shoot with your diffuser on that key light and take note of the change in the quality of the light. How do the shadows on your subject differ from when the light is bare? How does the intensity of the light change? Do you need to move the light closer to properly expose your subject?

Next, add a fill light, also with a diffuser, and take note of how the final image differs from when you use two bare lights.

Diffusion is one of the most powerful lighting tools at your disposal. It's important to have a feeling and understanding for what it can do.

Full-body portrait/Light falloff exercise

You'll need a portrait subject or very large, tall object for this exercise. Falloff is the word we use to describe the change in brightness of a light as distance to the source increases. At a basic level, this is very easy to understand: get closer to the light and the light gets brighter. As discussed in chapter 10, the speedy rate at which light intensity drops with distance can be surprising. What can also be surprising is that you can increase the speed of a light's falloff by moving it closer to your subject. This exercise can also be done with an external flash unit. Try this experiment.

- Ask your portrait subject to stand in a room with no other ambient light. (Obviously, you'll need some kind of work light while you set up your shot.)
- Position your camera so that you can shoot a full-body portrait of your subject.
- Place your light so that it sits at 45° to the front of your subject. Place it at the level of their face, a couple of feet in front of them. Angle it down to illuminate their body.
- Find an exposure that lights your subject but doesn't overexpose them, then take a few shots.
- Move the light backwards so that it sits six to seven feet from your subject, at the same angle.
- Adjust your exposure to get a level of brightness equivalent to what you had in the first set up. Take a few shots.

ON-CAMERA FLASH EXERCISES

Solve my bad photo problem.

I'll be honest, I didn't do a great job with the image in Figure 17 below (Figure 10.18 in the book). We were close to the deadline and I needed a sunny day during a time of year when they were hard to come by. When the clouds finally broke, I ran out as quickly as I could to get this example and I didn't do a great job with the "correct" half of the example—the image on the right. While the flash did do a good job of filling in the shadows on the man's face, he has harsh highlights on the left side of the face, as he did in the first image.



FIGURE 17: I could have done a better job with this photo from the book. Can you figure out what I could have done to improve the shot?

Remember, every flash is effectively two exposures—the exposure for the ambient light and the exposure for the flash. Can you tell which part of my process went wrong?

If you said I had the flash power up too high, I'm afraid you're incorrect. I was shooting in aperture priority mode and controlling the flash with Flash Exposure Compensation. The camera actually did a good job with the base flash power setting. The right side of his face, the part that's being filled by the flash, is not overexposed. My problem was that the rest of my exposure was too hot. I should have used the regular Exposure Compensation on my camera to dial in a bit of underexposure. That would have darkened the image overall, which might have meant that I needed to then dial in some positive flash exposure compensation.

The big takeaway for me (besides striving to not procrastinate shooting flash examples) is that I can't trust my camera's auto mechanisms in this type of situation. In the future, when using on-camera fill flash in direct sunlight, I know that I will need to do some experimentation to find the proper balance of ambient and flash exposure. Whether I work completely manually or in Program or a Priority mode, I will need to take control of both halves of the exposure situation.

Assess your camera's fill flash ability

Understanding your camera means more than just knowing what each button does. As you've seen, your camera can make a lot of decisions for you, and as you saw in the previous exercise, it doesn't always make the best decisions. To have a useful understanding of your camera you

need to know how its automatic features will fare under particularly trying situations. The built-in flash is probably the most finicky of all of the automatic systems that your camera possesses. Here are some ways to learn more about it.

- Determine the range of your built-in flash. All flashes have a range and your camera's manual should list the effective range of the built-in flash. Look this up and take a moment to pace it off. Having a sense of the range of your flash will give you a better idea of when it might be useful. After all, you don't want to be one of those silly people who fires their flash in a giant stadium or at the edge of the Grand Canyon, or any of the other situations where it's useless.
- Test your built-in flash's automatic ability to fill. In the previous exercise you saw an explanation of how my camera let me down in a typical daylight, fill-flash portrait situation. You can easily set up the same situation that you saw in Figure 10.18 and test your own camera's flash. The situation in that figure is a very typical use for fill flash, so it's worth knowing how your camera will handle it.
- Get a feel for the fall-off of your built-in flash. While your flash has a specific range, it won't necessarily evenly illuminate everything within that range. Remember, light falls off very quickly as you move it farther from your subject. Continue to work with your fill flash subject, but move your camera closer and farther and notice how the amount of fill changes. Do you need to dial the flash power up and down as you move the camera?

Learn to see flash shadows

Like all light, your camera's built-in flash casts shadows. Because it's a small source that you'll use at close distances, the built-in flash will cast very hard-edged shadows. If your subject is standing close to a wall or other large object, you may see a dark, hard-edged shadow of your subject cast onto that background. Unfortunately, it's easy to not notice this shadow when reviewing images on location and, of course, because you're working with a flash rather than a continuous light, you won't see it when looking at your subject. Therefore, learning to recognize the situations that will lead to flash shadow troubles is a valuable exercise.

- Place a subject close to a wall and photograph it with your pop-up flash. Is there a visible shadow on the wall? If you and your subject are in a perpendicular line to the wall, there may not be a shadow.
- Move to different positions and shoot until you can see a shadow. Take note of which orientations and organizations of you and your subject create shadows.

If you encounter a shadow in the field, the only way to eliminate it is to move your subject further from the object that it is casting the shadow onto, or change your orientation so that the shadows are cast directly behind your subject. In other words, try to hide the shadow with the subject itself. See Figure 18 at the top of the following page for an example.



FIGURE 18: If you use your camera's built-in flash on a subject that's standing in front of something, they may cast a shadow on that background object. By moving your camera, you can try to minimize or hide the shadow.

Night portrait mode

While your camera's built-in flash is best-suited to acting as a fill flash in bright light and backlit situations, it is still useful for shooting in low light. As you saw in Chapter 10, if you have a Night Portrait mode, your camera will combine a flash firing with a long exposure to get good exposure on both the areas inside and outside the flash range. However, these modes still sometimes get the level of flash brightness wrong, so it's worth doing some experimenting with your own camera.

- Position a subject in a low light scene, outside. This will ensure that you'll have details outside of the camera's flash range. Put the camera in Night Portrait mode and take a shot. You should get an image with good exposure in both the foreground and background.
- Take note of the highlights on your subject. Are they too bright? If so, then the flash has overexposed. Use your Flash Exposure Compensation control to dial the flash power down and try again.
- Try more shots at different differences from your subject. You may need to adjust Flash Exposure Compensation with each one.

Your goal with this exercise is to get a sense of your camera's ability to meter properly when using its built-in flash.

AESTHETICS EXERCISES

Found photo analysis 1

As you did in the Chapter 6 exercises, find another magazine with photos in it. Search the magazine for an advertising photo of a person. Look for a shot where a person is featured prominently in the image. Examine the photo, and try to answer the following questions:

- What lighting roles can you identify in the image? Is there a key light? A fill light? A backlight? Are there additional lights besides these? Maybe a light illuminating the background or other subjects in the frame?
- Look at the person's eyes. Do you see catchlights in them? If so, what is the shape of each catchlight? Square? Round? If it's square then the light source for that catchlight is likely a square softbox, or possibly a window. If it's round then that light was possibly an umbrella or round softbox. Can you tell anything about the positioning of the lights by looking at the catchlights? Looking for catchlights can help you determine what lighting roles are being filled, and how.
- If there is a key light, what can you say about the quality of it? Are the shadows it's casting hard-edged or soft? If they're soft, is the transition from shadows to midtones wide or narrow? Identifying these traits can help you understand if the light was softened with a modifier.
- If there is a strong key light, how quickly does the light fall off over the surface of the subject? This can help you understand how close or far the light was.
- If there is no obvious key light—if the light is even all over—has the photographer done something to keep the image from being completely flat?
- What's the subject's relationship to the background of the image? Is it distinct from the background? Can you see the background at all?

There are many other questions you can ask yourself about a found image. But in addition to these specific questions, additional value in this exercise comes from the simple act of paying attention to the light in the photo. Take note of what you like and don't like, what looks pretty to you and what doesn't (and "pretty" is not always the goal of a photo, so if a light doesn't look pretty, consider whether its unattractiveness serves another purpose) and what kind of mood and tone does the lighting create?

Found photo analysis 2

Find another magazine that has photos. This one needs to be one you can destroy. Search through the magazine and tear out photos that meet the following criteria. Your goal is to create several stacks of images in different categories.

- Tear out and pile up all of the images that have high-contrast lighting—dark shadows, bright highlights.
- Tear out and pile up all of the images that have low-contrast lighting—soft, even light without dark shadows or bright highlights.

Now that you have these large samples of these two different categories of lighting, spend some time comparing all of the high-contrast images. What do they have in common, in terms of light quality? Similarly, what do the low-contrast images have in common? When you're finished, try the following:

- Separate the high-contrast pile into two piles, one for images shot with natural light, and one for images shot with artificial light. If you're not sure, look for clues in the catchlights in subject's eyes.
- Separate the low-contrast pile into natural and artificial light categories.

As before, examine the piles and take note of the differences between the different categories. There are no right or wrong conclusions to this exercise. The goal is to develop an eye for the effects and aesthetics of different types of lights.

Analyzing TV and movies

Your lighting study doesn't have to be limited to only photographs. Cinematographers face the same lighting issues that still photographers do, and they often solve them the same way. Start paying attention to the lighting in the movies and TV shows you watch. Dialogue scenes are the easiest scenes to start with because in these scenes a character usually stands still and is well-lit. As with still photos, look first to identify lighting roles—does the actor have a key light, fill light and back light? In most TV shows you'll usually see a strong rim light around someone's shoulders or hair, to make them stand out from the background when viewed on a small screen.

Think about the practicalities of these lighting setups. Once the actor is lit, they must remain in that location while speaking, or the lighting plan will cease to work. This is why it's so important for an actor to "hit their marks" during a scene. This means an actual mark on the floor where they need to stand to be framed and lit properly.

Some specific things to watch:

- Original *Star Trek* episodes are great lessons in extravagant dialog lighting. Captain Kirk often has a slash of light across his eyes, while backgrounds are darker. Because the lighting is so overt, it's easy to dissect the lighting plan. Pay attention to the shadows on the walls. They'll clue you in to the number of lights used as well as their locations.
- Most sitcoms up through the early 2000s were shot on single sets, with multiple cameras. This allowed the cast to play out entire scenes, as if in a play, which was more enjoyable for a live studio audience, made extensive rehearsal possible, and was faster to shoot. It also means that only certain areas could be lit. When you watch one of these shows, take note of where the well-lit areas are, and identify the areas where actors speak.
- *The West Wing* was notable for its spectacular lighting. Always atmospheric, this dialog-heavy show relied on excellent lighting to create mood and compelling environments. Season 5, Episode 18, "Access" ([link](#)) centers around a documentary crew visiting the White House. For this episode, "normal" lighting was used, and comparing the usual

lighting to the flatter, more realistic approach in that episode is a fascinating look at the power of lighting.

- In 1975, famed filmmaker Stanley Kubrick made a movie called *Barry Lyndon*. The film is most noted for two things: it's quite boring, and there are a few scenes that are spectacular cinematic achievements. Give it a try, and if you lose interest, at least scan through until you find the dinner scene. Kubrick shot this scene using some of his own personal lenses, which had maximum apertures of $f/0.95$. Because these apertures were so wide, the entire scene could be lit entirely by candlelight. However, at that aperture, depth of field was so shallow that actors had to be careful that they did not move forward or backward while speaking, lest they fall out of focus. As you'll see, the beautifully lit actors are constrained to literally "stiff" performances.
- *Visions of Light: The Art of Cinematography* is a fascinating documentary on the history of cinematography in the movies. It's a great way to learn a lot about the aesthetics of lighting. While you may not glean too much about how specific lighting plots were made, it might open your eyes to more aspects of the power of lighting.

We live in an image-rich culture. Between the photos used for entertainment, advertising, news and more—in multiple mediums—there are plenty of examples for you to study and explore as you work to develop a better eye for lighting, and a deeper understanding of how to create effecting lighting plans.

EXERCISES FOR CHAPTER 11

Raw Shooting

Raw format gives you editing options that simply aren't possible with JPEG files. If you don't understand why, then you should take another look at chapter 11. Current cameras include some additional raw options that weren't covered in that chapter. These quick exercises will walk you through a few features that you might want to look for on your camera.

Work with different aspect ratios

If you have a mirrorless camera it might offer the option to shoot in different aspect ratios. For example, the Fuji X-T3 offers aspect ratios of 3:2, 16:9 and 1:1, while the Fuji GFX-50S provides aspect ratios of 4:3, 3:2, 16:9, 1:1, 5:4, 7:6, and 65:24. When shooting in JPEG mode, the viewfinder in my camera actually shows the true, final aspect ratio, which makes composition much easier.

Because a raw file does not contain finished data for each pixel, it's not possible to crop a raw file before it's processed. Consequently, your camera—be it a mirrorless or SLR—will not allow you to change aspect ratios when shooting in raw. If you have a mirrorless camera, though, you might be able to use the camera's Raw+JPEG mode to get your viewfinder to display your desired aspect ratio. Try this:

- Set your camera to shoot Raw+JPEG.
- See if you can choose a different aspect ratio for JPEG files. If you can, then your raw files will still be complete raw files, while the JPEGs will be cropped to your chosen aspect ratio.
- See if your viewfinder shows the aspect ratio that you've chosen.

Using this trick, you can shoot raw, while still seeing an accurate aspect ratio in your

viewfinder. In this mode, you'll be saving JPEGs as well as raw files, which is going to take more storage. To get around this, I set up my Raw+JPEG mode so that it captures the smallest JPEG possible. If you have dual media slots, you might be able to tell the camera to store the different formats on different cards. Then, when you get home, you can easily ignore the card full of JPEG files.



FIGURE 19: This image has an aspect ratio of 65:24. My Fuji GFX 50s can show me this aspect ratio in the viewfinder, while I'm shooting, making it easy to compose within this interesting ratio. If you have a mirrorless camera, it might offer the same type of aspect ratio control in your viewfinder.

In your image editor, open one of the raw files. It's possible it will already have a crop defined for your chosen aspect ratio. However, this crop is just a metadata tag, so you should be able to remove or alter the crop. Your entire original image will still be there, beneath the crop.

Assess compressed raw size

Some cameras offer an option for a compressed raw file. On many cameras, vendors will clearly state that this compression process is “lossless” meaning there will be no image quality loss. On some cameras, though—particularly older Nikon cameras—the smaller raw files are not labeled lossless. A little web searching will reveal a lot of discussion as to whether there's really a quality price to pay when using this compressed format. With storage so affordable these days, there may not be a reason to use a compressed raw format. To get a sense of how much space compressed formats might save you, try the following:

- Shoot the same image with your camera's normal raw mode and its different compressed options. Images can vary in their sizes depending on their content, so it's important to shoot the same scene with each format.
- Copy the images to your computer and compare the sizes.

If there's not a huge difference in size, then it might not be worth bothering with compressed raw format.

Exploring different-sized raw files

Some cameras offer the option of shooting several different sizes of raw files. These are not compressed raw files, but rather files with different pixel dimensions. So, if you have a 23-megapixel camera, it might offer full-sized 23-megapixel raw files as well as 12-megapixel raw files and possibly something like 7-megapixel raw files. These smaller raw files still offer all of the usual raw advantages. The point of this feature is simply to provide you with space saving options. Opting for a smaller raw file not only impacts the storage in your camera, but on your computer, and backup system as well. In addition, older computer hardware might be sluggish with very large files. The option to shoot less data can help boost performance on older computers.

My recommendation, as it is with JPEG files, is to shoot at the largest size you can manage, because you never know what you might want to use the files for later. While smaller files are more convenient, if you later find a use for a crop of the image, or a bigger print size, you'll be glad for the larger file.

Lightroom and Photoshop Camera Raw updates

As you saw in Chapter 11, there is no standard for Raw files. Consequently, creators of raw software have to build custom files for each different type of raw file. These special profiles vary from camera to camera, even within the line-up from one manufacturer. Adobe uses this fact to turn Raw support into a lever to get you to upgrade. So, even if an older version of Photoshop or Lightroom has all of the features that you need, and runs well on your computer, if you have a newer camera whose raw format isn't supported by that version, you might be forced to upgrade to get that Raw support. This can be frustrating, but there's no way around it.

EXERCISES FOR CHAPTER 12

Special Shooting

Re-assess your images for black and white potential

If you've not spent time shooting in black and white you don't necessarily have to go out with your camera to get some black and white practice. You might already have good black and white candidates in your image library and looking for them can be a good workout for your black and white visualization skills. Here's a simple activity that you can do any time you have access to your image library.

- Browse through your library and look for images with very strong geometric features—strong lines or obvious shapes. Use a keyword or label to mark these for conversion to black and white.
- Next look for images with high contrast. Images that have large areas of shadow along with bright highlights are good black and white candidates. If the main attraction of the image is something to do with tone, then that's an image that you want to mark for black and white conversion.
- Strong textures—sunlight hitting peeling paint or cracked pavement, for example—are also good candidates. Look for these and mark them.
- Finally—and this one might require a more experienced eye, but give it a try anyway—work through your images, and for each one try to assess whether color is actually contributing to the image or not. If it's not, then it might simply be a distraction. Mark that image for conversion.

Now you're ready to test your selections. Convert them to black and white and see if you think they're better. If you're using Lightroom then you might want to make a virtual copy

of the original before you perform the conversion. Then you can easily compare the color and black and white versions. If you're on the fence about which looks better, that's okay. Sometimes it's hard to say. You can try altering the toning of the black and white version, or simply set those images aside for now. It may be that you can't decide until you have a little more experience.

Re-do the “photographing light as subject” exercise

Hopefully you took a stab at the “photographing light as subject” in chapter 9 of this book. As I mentioned before, that's an exercise that is worth returning to any time you feel stuck or uninspired. It's also a great exercise for black and white shooters because it's rare that color is a factor in recognizing interesting light as subject matter. Working through that exercise with black and white conversion in mind might help you see potential photos that you weren't seeing before.

Photograph Shadows

Shadows are often very compelling subject matter and photographing them is a great way to develop your eye for lines and shapes. Like reflections, shadows are something that our brain often filters out of our awareness, so looking for shadows is a good way to knock your visual system out of its usual comfort zone. Because the color of a shadow (blueish, if the sun is



FIGURE 20: I always enjoy shooting shadows because they're so easy to compose with. Paying attention to shadows is a good way to make your eye pay attention to forms that it often ignores.

casting the shadow) is irrelevant, shadows make great fodder for black and white photos.

- Spend some time photographing shadows. You can do this indoors or outdoors, but you'll have the easiest time working outside in the late afternoon, when shadows are long. If it's winter, you might find that you can work this exercise at just about any time of day.
- Try to find ways to compose the lines and shapes of shadows with the lines and shapes of other things in your field of view. This is similar to the layers exercise you worked through earlier.

I shoot a lot of shadows because I live in a city where walking is my main form of transit, so I spend a lot of time looking at pavement. Because there are always shadows around, I almost always have some simple subject matter to play with as I move about my day.

Simple Macro Practice

The macro world can yield a lot of fascinating subjects and beautiful imagery. However, it can be hard to recognize compelling macro subject matter if you aren't practiced at macro shooting. Fortunately, you don't have to pay for an expensive macro lens to give macro photography a try. As you saw in Chapter 12, it's possible to attach your lens to your camera backwards and gain an effective macro capability. Special adapter rings will accommodate this, but you can even try out some quick macro shots without a ring. Give this a try.

- Find something that might be interesting when viewed very close. This could be a berry of some kind, or a small toy, or your computer keyboard.
- Choose a lens with a focal length range that is close to normal ("normal" being the field of view of the human eye). This could be a 50mm equivalent prime lens or an 18-35mm zoom lens.
- If your camera has a "Shoot without lens" feature, activate it now.
- Place the lens on your camera so that the front of it completely covers the opening to the front of the camera, where you usually attach the lens. You will hold it there as you shoot, and will need to be careful not to move it so that light leaks in around the edges.
- Place your camera in manual mode. Your lens aperture will be whatever that lens' fastest aperture is.
- Frame up a shot of your chosen macro subject. Note that autofocus will not work—your only method of focus will be to move closer and farther from your subject. Note that, to achieve focus you might have to get very close to your subject. Finally, depending on your camera's widest aperture, depth of field might be very shallow so don't look to get the entire frame in focus. Choose a specific area of your subject and try to position the camera so that area is in focus.
- Adjust your shutter speed and aperture until you have good light at a shutter speed that supports handheld shooting, and then take your shot. Remember, aperture is not an exposure parameter you can control when working with the lens this way.

- If you're working with a zoom lens you can change the amount of zoom to get different levels of magnification. Shorter focal lengths will produce more magnification when working with a reversed lens.

Because it can be hard to achieve focus when working at macro distances, I always take several shots to try to ensure that I get something useful. Also, don't try to judge focus on-screen. After you've shot a few images, take them into your computer and see if your focusing efforts are working.

If you're using a Canon camera then you can take control of aperture, using the process described in Chapter 12.

The world looks very different when viewed close-up, especially since your depth of field is so shallow. You'll still want to consider all the composition elements that were discussed throughout the book and you may find that you need some experience shooting macro before you can begin to recognize interesting macro subjects.

Sports shooting practice

The problem with practicing sports shooting is that you need a sporting event to serve as subject matter. Probably the easiest way to practice shooting is to go to practice sessions for the actual sport that you're going to cover. You may need permission to do this, and the action may not stay moving all the time, but this can still be an easy way to log some time shooting particular types of events. Other activities that can work your sports shooting skills:

- Skateboard parks.
- BMX or motocross parks.
- Amusement parks/carnivals

Anywhere you can find fast-moving action, you'll find an opportunity to practice working with fast shutter speeds. If you can find nighttime events, you'll get the extra challenging of figuring out exposure and white balance in odd lighting situations.

Hip shooting

Before autofocus, street shooters (or anyone working in a rapidly changing environment) sometimes struggled to focus quickly enough to capture fleeing moments. What's more, standing and focusing is a great way to draw attention to yourself, which can cause your subjects to stop being candid. One method that street shooters used, which can still be useful today, was to prefocus their lens to its hyperfocal distance. When you do this, everything from that point of focus to infinity will be in focus. As long as you choose subjects that aren't too close, you can ensure that you always have good focus.

In Chapter 12 you learned that, when you're focused on infinity, the hyperfocal distance is the nearest point that is acceptably sharp. That distance changes with your current aperture setting, but everything from that point of acceptable sharpness to infinity will be in focus.

To exploit this, you need a depth of field calculator, which you can easily find online. I like the one at dofmaster.com. To use it, follow these steps:

- Choose your camera from the pop-up menu.
- Select the focal length of your lens from the Focal Length menu.
- Configure the Aperture pop-up menu. You can ignore the subject distance menu for now because you don't actually know what your subject will be, or how far away it will be.
- With the menus configured, the data screen on the right will tell you the Hyperfocal distance. Set your focus ring to that distance. From the chart, note the "In front of subject" distance. That shows how much of an area in front of the hyperfocal distance will be in focus.

As long as you don't change the focus on your lens or your aperture, everything from the "In front of subject" distance to infinity will be in focus. You can now shoot anything within that range without worrying about focus. Even if your camera has a good autofocus feature, this can be a very speedy way to work.

If your lens doesn't have focus markings then this technique is more complicated, but not impossible. Try the following:

- Starting at a wall, measure out a distance equal to the hyperfocal distance. Place your camera at that distance and focus on the wall. That should set your lens to the correct distance.
- Alternately, if the EXIF display that your camera shows during playback can display focus distance, you can shoot a shot, review its focus distance, then adjust and try again until you find the right focus setting.

For hyperfocal shooting to work you also have to have a good eye for distance. If the depth of field calculator tells you that anything short of seven feet will be out of focus, then you need to have a good eye for how far away seven feet is. It's not a bad idea to pace off that distance to give yourself a sense of how far it is. Judging distance gets easier with practice.

And remember: if you change aperture, you'll have to re-calculate your distance, and reset the focus on your lens.

ANSWERS TO DRILLS AND QUIZZES

Chapter 6: Shutter speed/aperture/ISO drills

Drill 01 (page 23): $\frac{1}{250}$

Drill 02 (page 23): f/2.8

Drill 03 (page 24): $\frac{1}{60}$ @ f/2.8 or $\frac{1}{125}$ @ f/2

Drill 04 (page 25): 800

Drill 05 (page 26): $\frac{1}{15}$

Drill 06 (page 27): 200

Chapter 8: Histogram Quiz (page 34)

Question 1: The highlights have overexposed to complete white so the image has lost detail in the very brightest areas. You can tell because of the large spike of data on the far right side of the histogram.

Question 2: If she's wearing a white coat then there should be some white somewhere in the image and the histogram clearly shows that this image lacks any white. In fact, the brightest color in the image is not very bright. Of course, on-screen it might look fine – the white coat might look quite white – but you can't trust your screen! You have to keep an eye on the histogram if you want to ensure that you have true black and true white.

Question 3: The histogram in the middle is the correct one for the image shown. The top histogram is for an image with a lot of highlight detail and overexposed whites, which this image doesn't have. The bottom histogram shows a low-contrast image, with no white and barely any black. The image shown is a contrasty image so the histogram should show a broader range of tones than what's in the bottom histogram.