

Introduction

Although your camera might not look like an artist's brush, it does literally *draw with light*. You create images based on the amount of light that reaches the digital sensor and in this lesson, we'll talk about the light that streams into the camera.

Without some form of light, modern mainstream photography wouldn't work. Once you understand the different types of light and find out how to use them to your advantage, you'll take much better pictures.

We'll be discussing three major types of light in this lesson: **natural light**, **available light**, and **artificial light** (including flash). As you become more acquainted with the different types, you'll be able to recognize them quickly in your shooting environment.

As you become more aware of light, you'll start to see good photographic light even when there's supposedly nothing to photograph.

There are three basic qualities you'll see in each type of light:

- the Intensity of the light,
- the Direction of the light,
- the Color of the light.

As we talk about each of them in this lesson, I'll explain what to look for and primarily how to use each type of light to take better pictures.

As you study more and more about light, you might be surprised at how many different colors and types of light exist! Digital sensors are significantly more sensitive than the human eye—they can see colors that we don't.

Natural Light

Natural light is using the sun as your light source. There are many great options for taking pictures outside; using the early-morning or late-afternoon light, exploring the unique quality of light right after a rain, or capturing silhouette shadows as the light fades away. The sun is truly an amazing light source. When you can, I strongly encourage you to use it to its full advantage.

But as with anything strong and powerful, there is a harsh side to natural light. You'll find it in the middle of the day in the desert, washing away all the color, leaving things parched and pale when just hours before, the color had been vibrant with morning light. As a photographer, you need to know when light will be at its best for the type of image you want, and then be there to capture what you see.

The *character* of natural light changes constantly as the earth moves around the sun. You'll see the changes not only on an hourly basis, but also on a seasonal basis. Winter light is less intense than summer light because of the way our planet moves relative to the sun.

Open Shade

Natural light also changes significantly based on the weather. On a clear day, you'll have hard or direct light. On an overcast day, you'll find softer or indirect light passing through the clouds. This is called **open shade**. Oddly enough, this soft, indirect light can provide some of the **best lighting** for outdoor portraits, providing plenty of illumination but no shadows.

The rain leaves water in the air, and this damp light brings out colors that you won't see at other times.



This overcast day produced excellent open shade
Photo by E. Johnson

One of the best-kept secrets of good photography is heading outside with your camera at the end of a storm. Not only will you find empty trails and great reflection opportunities, but you'll also see colors that last only a short time.

Full Sun

Full sun is when the sun is out and not obscured by clouds. Although there is plenty of light and colors can look vibrant, it is very problematic to take photos in a full sun environment. Most photographers try to avoid direct, overhead light. Direct sunlight can create harsh shadows, blown out highlights, etc.

Middle of the day is the most difficult time of day to shoot. The light is coming from overhead, so if you take an image of someone with nothing to fill in the harsh shadows, you will get raccoon eyes and hot spots at the top of the head. If you need to shoot in the middle of the day, go for shots where the subject is engaged with their activity rather than looking straight at the camera. That way you shouldn't have to worry about unsightly shadows.

SUN IN FRONT VS BACK ... STRAIGHT OUT OF CAMERA SHOTS



CAN YOU SEE A PROBLEM HERE? NO?
IT'S PROBABLY THE SUN IN YOUR EYES



BACKLIT - DEFINITELY NOT IDEAL, BUT
BETTER THAN THE PREVIOUS IMAGE

The Direction of Light

In addition to finding the quality or character of natural light that you want for your pictures, you'll want to pay a lot of attention to the *direction* of the light. You may have heard that you should turn your back to the sun and have your photo subjects face the light. This works perfectly if you're photographing rocks or geraniums, but it's really hard on humans. Most people squint into the sun and the harsh light creates shadows on their faces. These conditions rarely produce good portraits!

Instead, you might want to choose **backlighting** (where the light highlights the edges of your subject), **sidelighting**, or even open shade. It really depends on the subject and how you want to portray it. We'll talk more about portraiture in Lesson 6 when I'll be giving you some good guidelines for working outside with people.

For other subjects, the light direction can produce all kinds of different looks. Low, almost 90-degree sidelighting (often found in the very early morning or just before dusk) can produce a rough, textured look, showing off every change in a surface. This is sometimes called *raking light*.

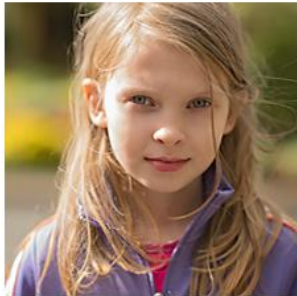


Raking light is often found early in the morning

A more gentle type of sidelighting, about 45 degrees, can be very striking, showing complementary shadows and pleasant angles. The subject will determine whether these are appropriate or not, but be sure to give yourself some choices when it comes to angle. Move yourself around the subject. Move the subject around you (when possible). Look behind you. Get up a bit and look down. Wait a while and come back. Start to see the light, and it will show in your pictures.



Front lit sun



Side lit sun



Back lit sun



Open shade

Silhouettes

Silhouettes are wonderful examples of back-light photography. They most often use natural light, usually at lower levels. Sunset and sunrise silhouettes are effective, but you can also produce silhouettes with the lighting through a window or from another source.



You can capture a silhouette with many forms of natural or available light. Using a flash would have completely changed this image.

The key to an effective silhouette is to make the camera think that the sky or the light is the subject when it sets the exposure. Rather a reversal of the usual procedure. A spot meter or partial metering is essential on a shot like this, and we'll use this as one of our examples in the next lesson.

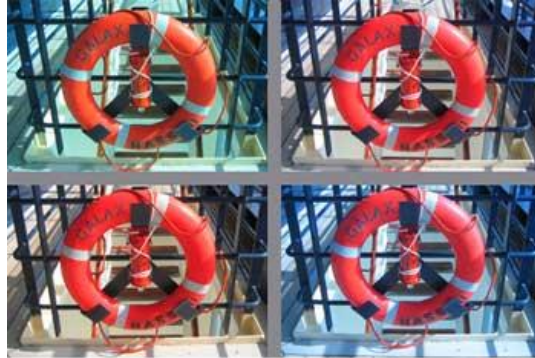
Redirecting Light

On occasion, you may find that you want to bounce light back into the subject, rather than have the light come directly toward it. *Photographic umbrellas* are useful for this, as well as *reflectors*. Reflectors can be anything that send the light back onto the subject. A white piece of paper will work, although you can buy

all kinds of tinted and shiny reflecting tools for photographic work. If you use a reflector, you will probably position the light source behind or to the side of the subject and the reflector in front of it.

The Color of Natural Light

The color of natural light can change dramatically from place to place and from time to time. It often takes on color by reflecting other colors. You can adjust color with color-correcting filters or on digital cameras by adjusting your white balance.



These pictures were all taken in exactly the same light, with a different white balance setting selected on a digital camera

One other filter that works extremely well with natural light is the polarizer. We talked about this in our last lesson. It's the one filter that can enhance the blue of the sky and the other colors in the scene, just like polarized sunglasses work.

Natural light is one of the elements of photography that will add dramatic effects to your work. Watch for it as you go through your day and you may be surprised at how often you see it change.

Available Light

The term *available light* can mean many things. Some interpret it to mean *any light I can get my hands on*, while others patiently wait for just the right intensity or angle. For our purposes, we'll interpret it to mean light from whatever source is present without adding photographic light. In other words, it's the light that streams in a window, the light from candles on a table, or even the spotlight in a theater. The word *available* is the key: You work with what you have, and you don't add flash or floodlights for photographic purposes.

In many cases, available-light photography creates moody, sensual, realistic pictures. It is often used for touching images of babies, nudes, or emotional scenes. Some parts of the picture will be dark, and that's okay—in fact, it's often desirable. Other parts will be lit by reflection or direct light. You might even find that most of the image is dark, even grainy at times, with only a small portion illuminated.



This available-light photo caught the dozing polar bear in the late afternoon

For the photographer, available light presents different challenges. In some ways, it's an easy light to work with because you don't need to use flash and other types of light. You simply work with what you have. Exposure is critical with low-light work, though, because you want to be sure the camera's light meter doesn't average the light (as they're prone to do), but instead exposes for just the portion that you want illuminated and leaves the rest in shadow. Using a spot meter is very helpful in available-light photography.

Measuring the Light

A *spot meter* is often built into a camera, allowing you to specify the exact spot you want the camera to evaluate for exposure. Each camera uses a different method for spot metering. Digital cameras that have spot meters are very helpful because you can actually see the image change in the viewfinder before you press the shutter.

Another useful tool in measuring light is the *light meter*. Most cameras have built-in light meters, but you can also use a handheld light meter, separate from the camera, to read the light from your subject and guide you in setting the exposure. Again, we'll talk more about these in the next lesson.

Shooting in Available Light

Photographers often shoot black-and-white photography in available-light. It can create a very classic look. If you're working digitally with available-light images, I recommend that you switch some of the final images to black and white on the computer to see if you like the effect. If you know you're going to shoot available-light photos in low-light conditions, ISO 400 would be a good choice. That's not to say you can't do available-light photography with other speeds, but you'll remember that lower-light conditions work better with higher ISO settings.

Also, don't forget the advantages of using a tripod in low light. Available-light photography can benefit from a rock-steady camera. Don't sacrifice a perfect shot of your sleeping baby because you don't have the tripod set up (and don't wake the baby trying to set it up!). Just find a good way to steady the camera in dim-light situations.

Sometimes you'll have to make do with the best there is, even if it isn't much. Frustrated with my blurry pictures and the low light in a gymnasium, I tried a new approach. I found one area of the gym where light came in from some upper windows. I positioned myself so that area of the court was right in front of me and took pictures of whatever happened there. I was surprised at how much my pictures improved!

I find that when I come across a wonderful situation, it's best to shoot the picture. Then, if I have time, I go back and set up the tripod, find the filter, adjust the light, and so forth, and shoot again. Sometimes you won't get the second chance, so don't miss the first chance while you try to achieve perfection.

Artificial Light

After learning the advantages of natural light, you might wonder why anyone would want to bother with artificial light. But it has distinct advantages in some situations. Although the beauty of natural light is unchallenged, it is completely unreliable. For those photographers who practice their art professionally in formal portraits, still life, advertisements, and fashion, reliable light is essential.

Artificial light is extremely reliable and predictable. Photographic lights make the work very easy. You can arrange them in exactly the position you desire, modify their intensity with the change of a bulb, and reflect or color them to your exact specifications.

Floodlights and Flash

Photographers use artificial light in two forms: floods or flash (sometimes referred to as *strobe*, although strobe is actually a faster type of flash than most cameras use).

Floods come in two types:

- *Floodlights* light up a relatively large area.
- *Spotlights* have a narrower beam.

Flash works well when a steady light is inappropriate or annoying (such as a performance or casual pictures at a party.) However, flash doesn't let you visualize the light-flow and can be harder to fine-tune. For this reason, commercial photographers often prefer floodlights so they can control how the light falls and prevent unwanted shadows.

Light Color

Light actually has different colors as it changes temperature. Just as you can predict the direction of light and its intensity with artificial lighting, you can also control the color of the light. Digital photographers can adjust the white balance setting on the camera to compensate for the different colors of light. Low light has a reddish color. As it gets hotter, the light becomes more yellow. The light takes on a bluish tint at even higher temperatures. You may have seen low-light or indoor pictures that have a yellow cast to them. This is a result of low light.

Can your eyes tell the difference in the light temperature? No, not really, but your camera certainly can.

Flash

In general, I don't like to use flash because it distorts natural light, creates shadows, and often causes reflections or red eye, but sometimes it's a welcome addition to low light situations. Flash is a great alternative to heat-producing floodlights in the studio. Flash is quick—it remains cool so subjects are minimally inconvenienced by it.

In the image below, a test shot (on the left) clearly showed me that the available light was insufficient. I only had a minute or so to get this shot of an important reunion, so I didn't want to miss the moment. My

camera's built-in flash solved the light problem (clear color and sharper focus) but created shadows, red eye and reflection off the glasses. Nonetheless, the subjects were all thrilled to have the picture!



Low light often creates a yellowish tint

Unfortunately, the same brief spark of light that makes flash desirable also makes it much harder on the photographer. You can't see the results of the flash until after you've taken the picture. In a studio setting, you might need to experiment with flash to determine the position and intensity you want. The built-in flash that comes with most cameras is a very low-level flash. It's most effective when you use it as fill flash to lighten close shadows and help even out nearby lighting. Surprisingly, this technique can be very effective when used outside in daylight.

Most flash units that attach to the top of 35 mm cameras provide additional flash. This is called a **Hot Shoe**. Many digital cameras, point-and-shoot cameras, and APS cameras don't allow for additional flash. In these instances, you'll need to provide sufficient light from other sources. There are instances when additional flash will make the difference between usable and unusable pictures.

Flash photography works well outdoors as a supplement to natural light, and it works well in the studio. As early as the mid-1800s, photographers created bright flashes of light by igniting magnesium powder. It was effective, but dangerous, and further research led to the invention of flashbulbs. (You might recall the little square bulbs that twirled around on the top of cameras several decades ago.) Electronic flash has superseded all previous technology, and the interaction between flash and camera can be perfectly synchronized and very effective.

Electronic flash uses battery power to build up the necessary power to emit a strong flash. Rather than burning out like flashbulbs of old, electronic flash can be used over and over again, so long as your batteries or power source remains steady. The momentary delay you experience between flashes allows the power to rebuild itself. This delay increases as the batteries wear down.

Whether you use flash, floodlights, or a mixture of natural and artificial light, keep in mind that light is the essence of photography. By being aware of its direction, intensity, and color you'll continue to improve your photographer's eye and add that much needed spark to your images.

Review of Terms

- **Natural light:** Light provided from the sun. This will vary considerably during the day and is generally thought to be the best type of light for many styles of photography.
- **Available light:** Although this term can be used in many ways, it generally refers to a low light situation that results in some parts of the photo remaining dark or unlit. This is a desirable situation and can produce some very interesting images.
- **Artificial light:** This type of light is generated by man-made sources, such as household lights, photo lights, fluorescent lights, etc. The primary advantage of artificial light is that it remains the same regardless of the type of day or location. It is primarily used for studio lighting and many commercial purposes.
- **Strobe or flash:** This is high-speed light used to illuminate dark areas or shadows. It can be used in small amounts, such as fill-flash, generally coming from the flash built-in to your camera, or in larger amounts, with high-intensity flashes. The primary advantage of flash is that it is temporary and does not create the ongoing heat that artificial or natural light might produce.

When working with light, the direction, intensity, and color of the light can change the way your image looks and make significant differences in your final picture. Consider these various attributes of light when positioning yourself, your subject and any artificial lights.

- **Backlighting:** The light comes from behind the subject. It does not illuminate the front of the subject, which may or may not be desirable. It can create a very pretty halo effect. Usually some form of fill-flash is needed for front lighting. If you are after a silhouette image, you'll want to use backlighting only and expose for the light, not the subject.
- **Low side lighting:** This is usually found in natural light, early in the morning or late in the evening. It produces a very textured look, which can be very nice in some scenic work, but may not be flattering for portrait work.
- **Open shade:** This is one of the most attractive lighting situations for portraits and deep colors. It is created usually on a sunny day under a shady object, or in the open on an overcast day. Although it may not seem like a good day for pictures, the results can be outstanding. Open shade eliminates facial shadows, which can be caused by bright light outdoors. Watch out for spotty shade! It doesn't work as well.
- **Full sun:** Contrary to popular belief this is generally not a lighting situation for portrait work. You do not want your subject squinting into the sun! If you must work in this environment, you, the photographer, should look into the sun. This type of bright daylight will produce a more washed-out color than sunlight in early morning or later evening. For some scenic work, it can produce interesting effects.
- **Exposure:** You want to set your exposure based on the lighting of the image. With many types of cameras, the exposure is set automatically by averaging all the light in the viewfinder. Many times this is just great and the picture turns out well. Other times, that may not be the desired setting. You can adjust this by using a light meter, or the spot meter in your camera.