



Module 9: **Light**

Module overview

In this module you'll learn about the following:

- Understanding Light
- Natural Light
- The Magic Hour
- Artificial Light
- Shadows and Highlights
- Light Tips



“Embrace light. Admire it. Love it. But above all, know light.
Know it for all you are worth, and you will know the key to photography”

George Eastman
(1854 – 1932)

Tip: there are some naturally occurring light sources that are not created by sunlight. The most commonly seen one is the lightning created during an electrical storm.

It's not easy to photograph, but when you get it right it looks amazing.

You'll need a tripod and cable release (and possibly a large umbrella). Set the aperture to f/8 and set the focus to infinity. Then set the shutter speed to bulb mode. Press the cable release and lock it.

If lightning doesn't strike within a few minutes, close the shutter and start again. When the lightning does strike, close the shutter immediately.

If you don't have bulb mode you will have to shoot a series of 30-second exposures and hope for the best.

9.1 Understanding Light

It's quite simple: without light there can be no photography.

That may sound like an oversimplification, but it's true. When it comes to photography, light is the most important thing. It doesn't really matter what camera you're using: if there's not enough light, then you can't shoot.

There are two basic types of light – natural and artificial.

Natural light comes mostly from the sun and the intensity depends on several factors: time of day, weather conditions, reflective surfaces (such as mirrors or water and, technically speaking, the moon because moonlight is predominately created by reflected sunlight) and the environment you're in (a city may have less natural light because of shadows created by buildings).

The two main types of artificial light you will see the most are incandescent and fluorescent. Traditionally incandescent light was mainly household light bulbs and fluorescent lights were the large strip lights used in offices and places of business. Now many household light bulbs are fluorescent (known as energy saving bulbs). These can be used for photography, but keep an eye on the colour temperature and set your white balance accordingly.

The two types of light used mainly in photography are LED (light emitting diodes) and flash (also referred to as strobe). LED can be used for photography but is employed mainly for shooting video and most LED lights aren't able to generate a sufficient amount of light to be useful for photography. Flash (like the name suggests) delivers a concentrated burst of light.

Most DSLR cameras will have a built-in flash. This is fine for snapshots or used as fill during the day (more on that later); but if you're serious about flash photography, an external flash is recommended because they are more powerful and have articulating heads (meaning that they can be positioned at multiple angles), which is required to bounce the light off a wall or ceiling. Bouncing the light is the best way of increasing the light without the harsh glare and shadows made by a flash.



Pop-up Flash



External Flash

Tip: most DSLR cameras have an AF (auto focus) assist light. This gives the camera the ability to focus correctly in low light situations.

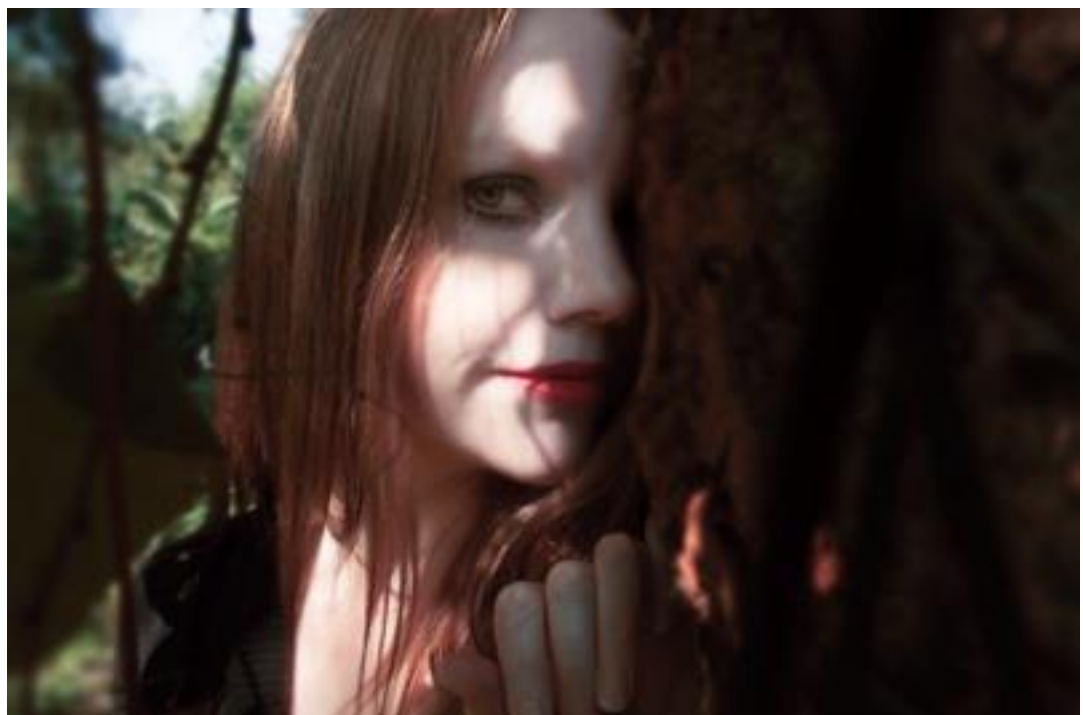
Sometimes in very low light, your camera may have trouble focusing. The best solution is to switch to manual focus. Try taking a few test shots and then making manual adjustments to get the perfect focus.

9.2 Natural Light

When you're taking photographs outdoors, the light can vary sometimes between shots; and unless you live in a place that's sunny all year round, you are usually at the mercy of the weather. If you have a good idea what the weather will be like, it helps to choose what time of day you'll be shooting at, and that will depend on the type of shot you're looking for.



When you shoot at midday, the sun will be at its highest point, which means the light will be coming from above you. This can create harsh shadows, which can be good or bad; for a regular portrait, it's not ideal – because strong midday sunlight can cast shadows over facial features. However, if you're shooting your subject in a specific environment (like a forest), then the shadows can add a sense of depth and give your photographs a more dramatic feel.

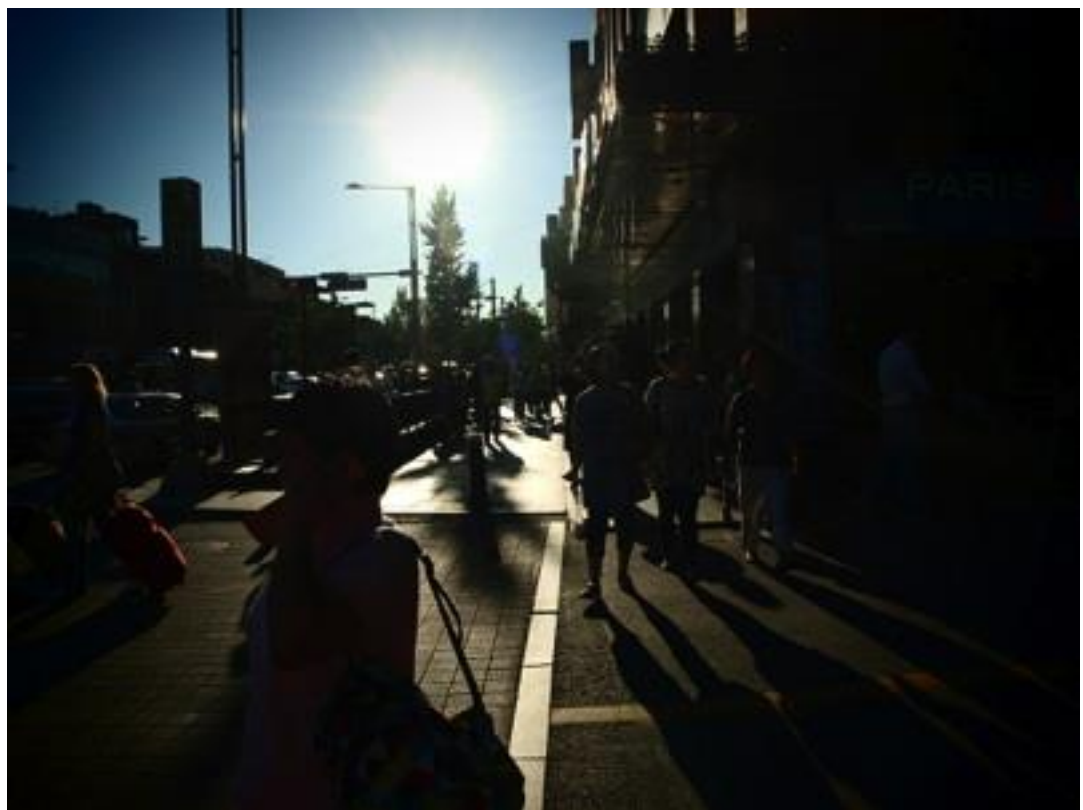


Tip: a prime lens will give you more freedom in terms of large aperture settings, which is helpful for low light.

If you shoot earlier or later in the day, the sun will be at a lower angle. The shadows will be longer; how long will depend on how early or late it is.



Technically speaking, this is an indoor shot; but because of the amount of glass in this corridor and also the angle of the sun, there is lots of natural light available and no artificial light is needed. Another important factor is the reflective floor; this not only increases the amount of light but also adds symmetry to the composition.



One of the first rules of photography is to make sure the sun is behind you when you shoot. It's important to learn the rules, because then you know when to break them. This technique is called backlighting.

Tip: is there a solar eclipse happening soon? If so, then try photographing it.

Be careful though; do not use the viewfinder, because if you didn't already know, looking into the sun can damage your eyes. Use the live view screen instead; this works better if you have an articulating screen. Position the camera on a tripod and then angle the view screen away from the sun for safe viewing.

Try to get everything set up before the actual eclipse and then you'll have time to take some test shots and get the correct exposure.

When you're set up, take a series of photographs at five-second intervals for the duration of the eclipse. In this way, you can choose your best shot and even make a time-lapse video from your photos.

Shooting into the sun can be an interesting experiment and the results will vary depending the relative positions of your camera and subject in relation to the sun.



Here the sun is on the edge of the frame and the subject placed in a position where she is starting to move in front of the sun. This creates a lens flare. Lens flare is caused by strong light coming into the camera at a narrow angle; the light bounces around in the lens and creates circular balls of light in the photograph. It's said that sometimes lens flare can be used to add a sense of realism. However, it is created in a lens only: without the camera, it would not be visible to the human eye.

Tip: a large aperture setting is recommended for Magic Hour photography. If you want to maximise that golden glow, then set your white balance to cloudy, even if the sky is clear.

9.3 The Magic Hour

The Magic Hour (also known as the Golden Hour) is the first hour of light after sunrise or the last hour of light before sunset.



The Magic Hour is a great time to shoot, especially on an overcast day. Clouds are nature's diffuser; they scatter light, making it look softer.



Another advantage of shooting during the Magic Hour is the softness of the light. It's perfect for almost every type of photography. The only downside is that it doesn't last very long, so you need to move fast as the light can change very quickly. It helps to check the times of sunset or sunrise in your area, so that you can plan ahead.

Tip: if you want to reduce lens flare, use a lens hood. This will reduce the amount of light entering the lens.



The position of the camera in relation to the sun has created another lens flare, in this case a very large ball of light in the bottom left hand corner and a smaller one above the subject's eyes.

Sunlight may be unpredictable and unreliable; but when in the right situations, natural light cannot be bettered.

Tip: when you're shooting outdoors on a cloudy day, your pop-up flash can supply some extra light.

This is known as fill light.

As it's not the main light source, it shouldn't overpower the image.

9.4 Artificial Light

When there's not enough natural light, artificial light is needed. There are numerous options available and the right one will depend on the situation.

Flash

Either a pop-up or an external flash is a convenient way of illuminating your subjects.



Here's an indoor shot taken without a flash – despite the light meter indicator showing the correct exposure, the image is underexposed.



Due to the short distance between the camera and the subject, the pop-up flash provides sufficient illumination. When shooting from greater distances, an external flash would be required.

Tip: there are many pop-up flash diffusers available.



They are usually a transparent, textured plastic cover that fits over the flash.

This softens the light and reduces harsh glare and shadows.



When using a pop-up flash indoors, don't have your subject close to walls, as this creates a harsh shadow on the wall. This is another reason for investing in an external flash, as the light can be bounced off the ceiling or another wall, which eliminates the shadow.



An overhead light created heavy shadows on the subject's face, so an external flash was set up off camera to add extra light.

Tip: flash uses a lot of battery power. If you're using your pop-up flash, it helps to have a spare battery.

If you're using an external flash, which needs AA batteries, having a spare set in your camera bag is advisable.



External flash units can be set up without being attached to a camera. In this case, it was set up on a tripod and directed at the subject to overcome shadows created by the overhead light.



Here the flash unit was attached to the camera and the head set to a 45-degree angle to make the light bounce off the ceiling. This diffuses the light and gives it a more natural look.

Tip: when you feel you're ready to start using studio lights, start with one light.



Multiple light setups can be very complicated and overwhelming for beginners.



In this example, the same technique was used but shot from a greater distance – so the focal length had to be increased. When using the bounce technique, think about your distance from the subject and where the light will hit.

Studio strobes are essentially large versions of external flash units. They usually come with a large heavyweight tripod and a softbox, which is used to diffuse the light.



Using studio strobes is not recommended when you're starting out, especially if you're using multiple lights. It's better to start with simple lighting techniques, using a flash, and then gradually progress into more complicated setups. And when you master studio lighting, you'll find that you can have complete control over consistent light.

Tip: most lenses will have what known as VR (vibration reduction) or IS (image stabilisation). This reduces camera shake, so it's a good idea to use it if you're shooting at slightly lower shutter speeds.



Backlighting can also be done with artificial light. There are two basic ways to do it.

Placing one flash in front of the subject and one flash directly behind the subject creates an interesting look.

The reason for using two flashes is because without the flash aimed at the subject, the image would be a silhouette – also an interesting effect.

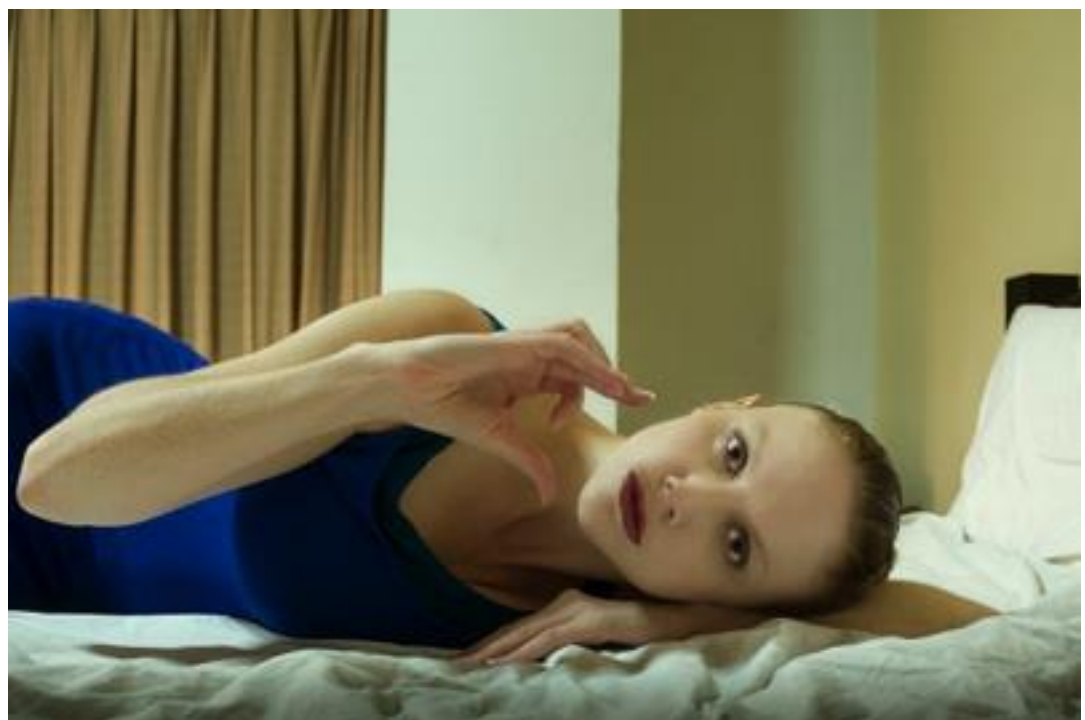
Tip: broad light sources have a softer look than narrow light sources.

Narrow light sources create strong shadows, increased contrast and more detailed textures.

Broad lights do the opposite.



Another way is to shoot with no forward lighting; the subject is partially silhouetted, which works well for full-body shots but not so well for portraits.



Shooting with fluorescent light has its advantages and disadvantages.

Tip: if you're shooting with fluorescent lights it's better to use RAW because it will give more control over the colour temperature and exposure differences that can occur.

Large fluorescent lights can produce softer light, although some produce different tones, depending on the wattage. The downside is that the light can be inconsistent due to the cycling. In practical terms, this means the exposure and white balance can differ between shots. So it's not an ideal light source for inexperienced photographers.



Two shots taken under fluorescent light, both using the same exposure settings; this shows the inconsistencies with this type of light.

9.5 Shadows and Highlights

Every photograph has (or should have) shadows and highlights. Everyone knows what a shadow is, but what are highlights? They are the lightest areas of a photograph, so of course the shadows are the darkest areas. If a photograph has lots of light and dark, it called “high contrast”; this can work in two ways – it can be bold and dramatic or it can obscure details.

When you overexpose an image, the highlights are usually completely white; and when you underexpose, the shadows are usually black. Although it's better to get the correct exposure, if you have a choice between overexposing and underexposing, it's better to underexpose, especially if you're shooting in RAW. If you overexpose and blow out the highlights (make them completely white), then they can't be recovered.



Tip: want your photograph to have more visual punch?

The clarity function in RAW editing software increases the contrast in the midtone range; this can add depth and sharpness without sacrificing the contrast.

The original file has lots of shadow but it's obscuring the detail in the tree. By reducing the amount of shadow and increasing the highlights, all the leaves and branches are now visible.



Therefore, light can be complex, inconsistent and occasionally frustrating – but essential to good photography. The more you shoot in different lighting conditions, the better you will understand it; and whether you're using natural light, artificial light or both, your knowledge of exposure settings will help you to get the most out of every situation.

9.6 Summary

- Light is crucial (of course).
- Always look at the light before you start shooting.
- If the light is changeable, you have to be ready to adjust your camera to match the changes.
- Artificial light is usually more consistent, but watch out for fluorescent lighting because it can change from shot to shot.
- The Magic Hour can produce amazing natural light.
- Learn when to use a flash and when not to.
- Don't be afraid of backlighting your subject (but don't overdo it).
- Shadows and highlights add depth but can obscure details.
- It's better to underexpose than overexpose (it's best to get the correct exposure, though).

Assessment 9

- 1) Which one is better? The built-in flash or an external flash?
- 2) Explain the reason for your answer to Question 1.
- 3) True or False? Shooting into the sun can cause lens flares.
- 4) What is a lens flare?
- 5) If your subject is backlit with no forward lighting, what will happen to your subject?
- 6) What is the best method of using an external flash indoors?
- 7) True or False? Using a pop-up flash outdoors will have no effect on the lighting.
- 8) Why should you avoid using a direct flash when your subject is in front of a wall?
- 9) True or False? Shooting portraits with strong light directly above your subject will create unwanted shadows on your subject's face.
- 10) What will happen to the highlights in your photograph if you overexpose?

9.8 Assignment

Part One

Set up your camera on a tripod in a position where it can remain for several hours without moving. If you're indoors, make sure you're shooting out of a window. Take a series of photographs at intervals of 30 minutes for as long as possible. Look at the photos and see how the light changes throughout the day, the position and depth of the shadows and the changes in colour temperature (make sure to set your white balance to auto).

Part Two

With your camera still on the tripod, set up a still-life composition (it can be anything you want but try to use a variety of objects) and shoot it using as many different lighting sources as you can, including natural light (if available). Also, use anything that produces light, for example, your flash, a lamp, a tablet or smart phone, candles and anything else you can find.

It will help if you take notes of the different light sources for when you view the images on your computer, so you know exactly what you're looking at and how the different light sources affect your composition.