



Working With Natural Light

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1. WORKING WITH NATURAL LIGHT

To put it simply, when we refer to natural light, we are usually referring to light from the sun. The concepts covered in this section not only deal with ways of understanding this changing light source and how you can manipulate it, but can also be used with other light sources, both natural as well as man-made.

Understanding light is essential to photography and there are several key areas when describing the type of light.

1.1. INTENSITY

The intensity of light is essentially how bright the light is. The middle of a summer's day with no clouds in the sky would produce a very intense light which is not generally considered a great source of light as objects, or subjects, would cast a heavy downward shadow. For portraiture, this will often cause excessive shadows in your subject's eyes. For photography where shadows are part of the composition, an intense light source can be beneficial however, the light direction is also important.

The intensity of daylight on an overcast day is much less, as the clouds act as a diffuser for the light. In addition, moving under the shade of a building or tree will reduce the light's intensity. The same effect can be created with a diffuser which acts much the same way as clouds do, lessening the light and scattering the light's direction.

1.2. COLOUR

As described with white balance, the colour of light is different depending on the time of day. White balance helps to either balance the colour or, to purposefully adjust to capture the colour given by the light source.

1.3. DIRECTION

Understanding the direction of your light source helps you to compose your photo. Is the light source coming in directly overhead? Is it coming from the sun moving toward the horizon? Is the light coming in through a window or doorway? How does each of these directions change the look of your photo?

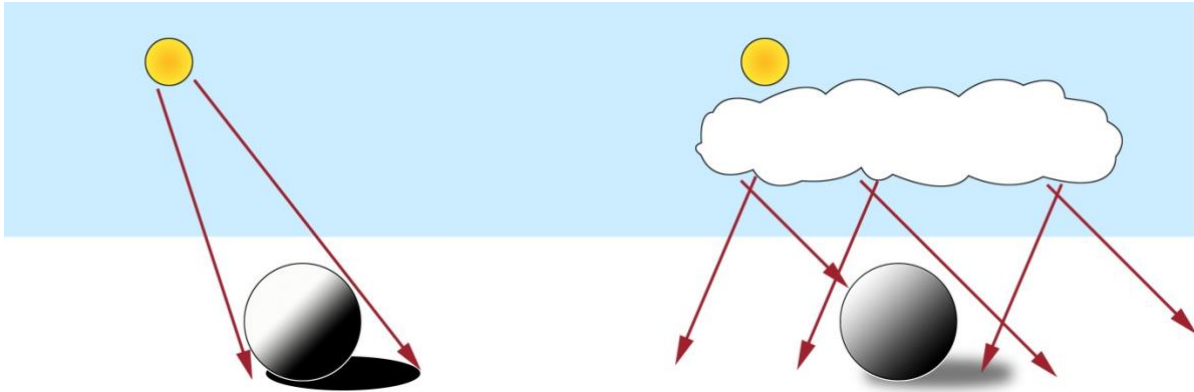
Direction, along with the intensity of the light, allow you to use the shadows being cast for artistic effect. When shooting portraiture, understanding the light's direction, and moving your subject can drastically change the look and feel of the photo.

The best way of determining optimal light direction is to move your feet. Walk around a subject or have your subject move if possible. Sometimes it's also about the time of day you choose. Midday makes for very short shadows where morning or afternoon allows for long shadows to appear which can add a more dramatic effect.



1.4. APPARENT LIGHT SIZE

The size of a light source in relation to the subject will affect how 'hard' or 'soft' the light is on the subject. A light source that is small in comparison to the subject will create 'Hard' or high contrast light on the subject. A large light source will create a 'Soft' or low contrast light source. The Sun is 1,392,684km in diameter, very large, but since it is 149,598,262km from Earth, apparent size of the sun is small here on Earth. The Sun is a 'Hard' light source. A cloudy sky turns the Sun into a giant diffused light source, and becomes a 'Soft' light source.



This same effect is produced by any light source size to subject combination. A person's face next to a large window would have soft light on it, while the same face being illuminated by a bare light bulb from a ceiling would produce a hard light on the face. By changing the apparent size of the light source the contrast of the light on the subject can be altered. One way to achieve this change is through the use of light modifiers.

1.5. LIGHT MODIFIERS

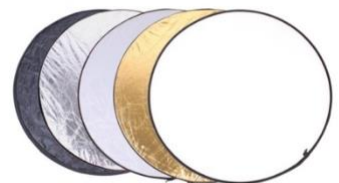
Light modifiers are pieces of equipment that will reshape or redirect light. They can be used to soften, or reduce the intensity of light, change the colour of light or change the direction of light.

There are many different types of light modifiers. This section aims to deal with the more common ones used when working with natural light.

1.5.1. DIFFUSERS

Diffusers are used to soften the intensity of the light. As per the explanation earlier, clouds are a great example of a natural diffuser as they take the sun's rays and scatter their direction allowing for a less intense, broader spread and ultimately softer source of light.

The more common type of diffuser available for purchase is a foldable white panel which is either round or rectangular in shape. The more common forms have a reversible cover which is



black on one side, reflective white on the other and the reverse will have a silver and gold reflection.

1.5.2. COLOUR AND DIRECTION

These often go together as changing the colour of the light often involves reflecting the light and changing its direction.

Often sold along with a diffuser, a reflector will bounce light back into the photo with the option to change the colour. Using a gold colour reflector will warm your photo while a silver will cool it down.

1.5.3. OTHER MODIFIERS

Anything that can diffuse or redirect light is effectively a light modifier. A bright wall will bounce light back so positioning your subject against, or close to a wall will have the same effect as using a portable reflector. A mirror in a house can also be used to reflect light back at a subject for good effect or to even out a light source.

Not all photographic equipment needs to be bought from a store. Some aluminium foil wrapped around a paper plate can make for a cool coloured reflector too.



2. WHITE BALANCE

To understand White Balance, you first need to understand that different light sources will produce light at different colour temperatures from red to blue.

Think about the light that's produced from a candle. The light that it produces is considered a "warm" kind of light making objects that it illuminates appear "warmer". Now consider the light that is produced from fluorescent tubes in a workplace. These are considered to be "cold" in colour.

Colour temperature, recorded in Kelvins, is a scale used by your camera to determine how to balance this colour cast to your images.

As a colour cast is most noticeable on white, and to reproduce colour accurately, your camera ultimately wants to balance the colour tone to make white look "white". Cameras have pre-set modes for white balance that deal with the most common conditions:

Auto – The camera reads the situation and makes a best guess.

Tungsten – The camera compensates by cooling down the image.

Fluorescent – The camera compensates by warming up your image. Traditionally, fluorescent light has a deficit of blue. If your subject appears too yellow or green, switch to this setting.

Daylight/Sunny – Used for outdoor photos taken on a generally cloudless or lightly cloudy day.

Cloudy – The camera compensates by warming up your image.

Flash – The camera compensates by warming up your image.

Shade – The camera compensates by warming up your image.

1000K	Candlelight
2000K	Incandescent (Tungsten)
3000K	Sunrise & Sunset
4000K	Flourescent (White)
5000K	Daylight
6000K	Flash
7000K	Cloudy
8000K	Shade
10000K	Clear Blue Sky

2.1. Manually Adjusting White Balance

There are a few ways to manually adjust white balance in camera. If you really know your Kelvin scale, most cameras will allow you to manually enter a value.

You can also optionally use a "gray card" or a pure white card which can be purchased through most photography stores or cheaper online. The steps in using one involve taking a photo of the card then, so long as your camera supports it, adjust the white balance by selecting the photo to determine the optimal setting (review your camera manual to determine if its capable of doing this).



For the most part, when shooting in RAW, adjusting your white balance in this way is not necessary and should you require this level of accuracy, there are many post processing methods now available that ensure your photo shoot runs smoothly and quickly without spending time with a gray card. If shooting only in JPG, a gray card would be a good way of ensuring you do not lose information when trying to adjust settings in post processing software.

2.2. Why Understanding White Balance Is Important

Understanding white balance is important for a few reasons.

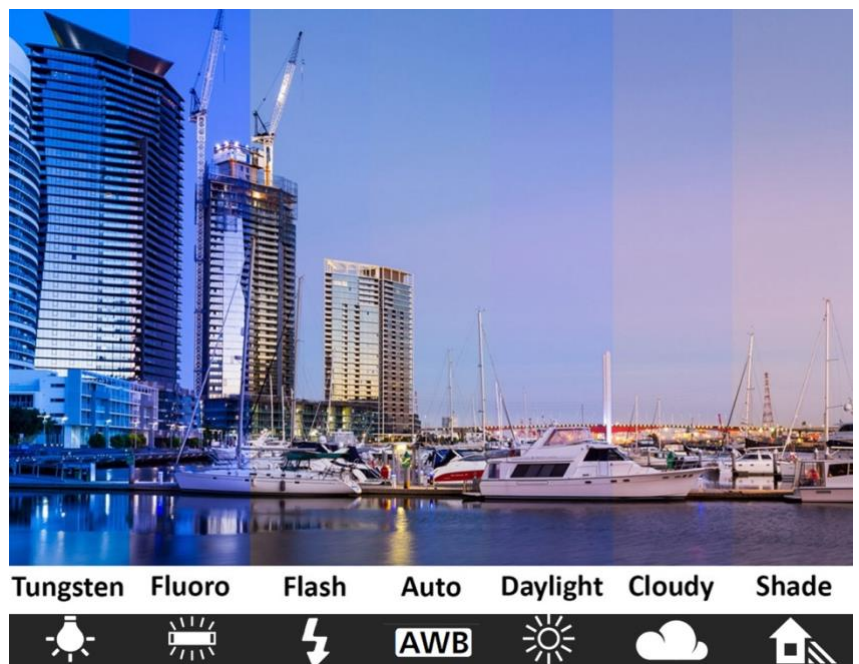
The obvious one is that, if you take a photo and it starts to look “blue” or “yellow”, you should immediately know that this is a white balance issue.

If set to Auto White Balance (AWB) and you notice the colour looks wrong, you may need to adjust it to another setting as your camera is having a problem working it out itself. You may notice this happening when shooting in a setting where “mixed light” is occurring (for example, you have daylight coming through a large window into an area which is lit by fluorescent lighting).

The second most important reason is that there are times you want to break the rule.

When shooting at sunrise and sunset, you most often want to capture the glorious warm tones and need to set your camera accordingly otherwise, on AWB, you will lose this colour quality. In the example below AWB has created a very neutral sunrise photograph, while setting the camera to Cloudy or Shade would bring back those warm colours of sunrise.

Lastly, should you start getting creative with your photography, you may want to intentionally influence colour temperature to reflect mood to your photos.



3. METERING

Metering is essentially how your camera interprets the amount of light in your composition.

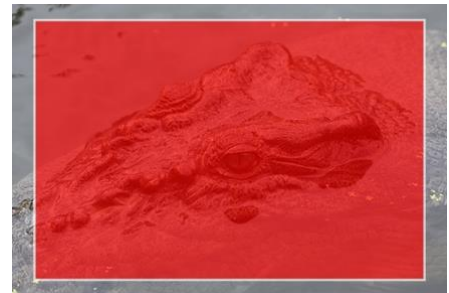
The way in which your camera reads a scene will be how it tells you if your picture will be exposed correctly. In the automatic, and semi-automatic modes, it is how it interprets the adjustments it makes to the exposure triangle.

Different cameras have different modes of metering. Refer to your camera manual as to what they are and how to set them.

Common Types Of Metering

3.1.1. Matrix/ Evaluative Metering

Matrix Metering or Evaluative Metering mode uses the entire frame to determine exposure. While some heavier weighting is given to your focus point, it tries to balance the entire image.



3.1.2. Spot Metering

Spot metering takes a reading from the centre of your screen (Canon, Sony and Olympus) or your focus point (Nikon). It will ignore other elements in your image when determining exposure.



3.1.3. Partial/Centre Weighted Metering

This mode is like spot metering but uses a wider area in the centre of your frame.



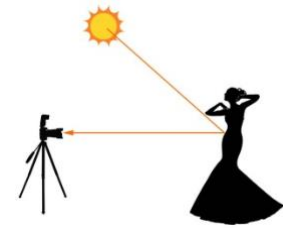
3.1.4. Centre Weighted Average

A combination between Centre Weighted and Evaluative, this mode gives more “weight” to the centre of the frame when calculating exposure but will use the entire frame in its overall calculations.



3.2. Exposure compensation

The part of the camera used to measure the light in a scene is light meter. Cameras have what is termed a ‘reflected’ light meters, which meters the light bouncing/reflecting off a subject. They don’t meter the light emitted by the light source.



Reflected light meters are designed to assume all subjects appear average in brightness, the brightness equivalent to ‘middle’ or 18% grey; halfway between pure black and pure white.

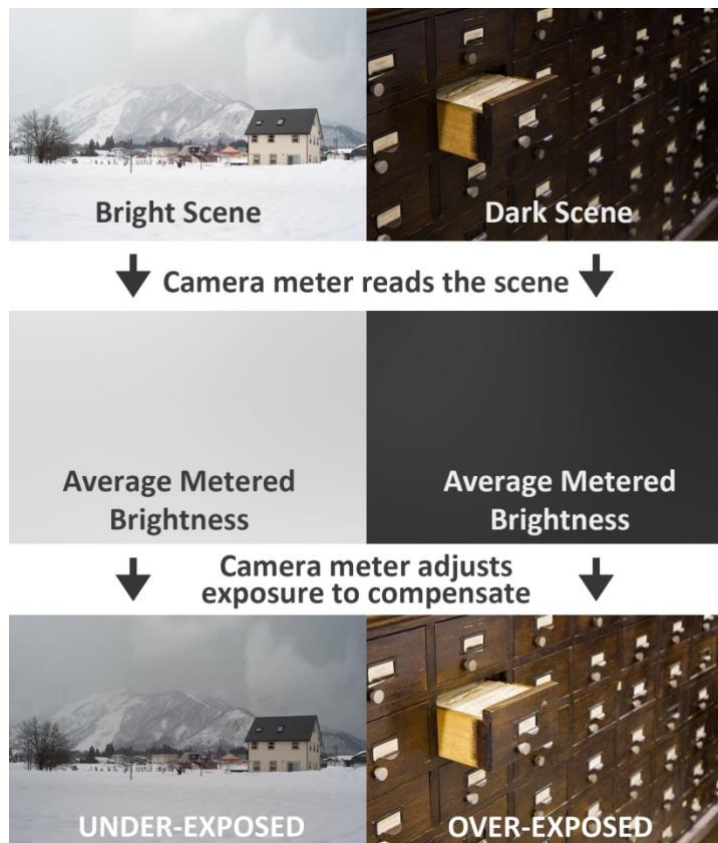


The meter looks at the brightness values in a scene (depending on which metering mode you choose) and then averages them out. It then adjusts the exposure to make that metered average look 18% grey.

This works well for ‘average’ scenes, but when the average brightness in a scene is brighter or darker than average the camera will adjust the exposure to be 18% grey and the resulting image will look either under-exposed or over-exposed respectively.

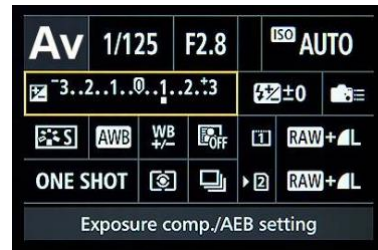
Take for example a snowy landscape, with lots of bright white snow in the scene the meter will read the average tones as brighter than 18% grey and will think there is too much light for a proper exposure. It will then reduce the exposure and create a photo that is darker than it should be, under-exposing it.

It’s the reverse of a dark scene, like a black cat at night, the meter will think there is not enough light and increase the exposure to let in more light creating an over-exposed photo.

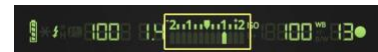


Our cameras have a way to compensate for these times when the meter is being fooled called 'Exposure Compensation'.

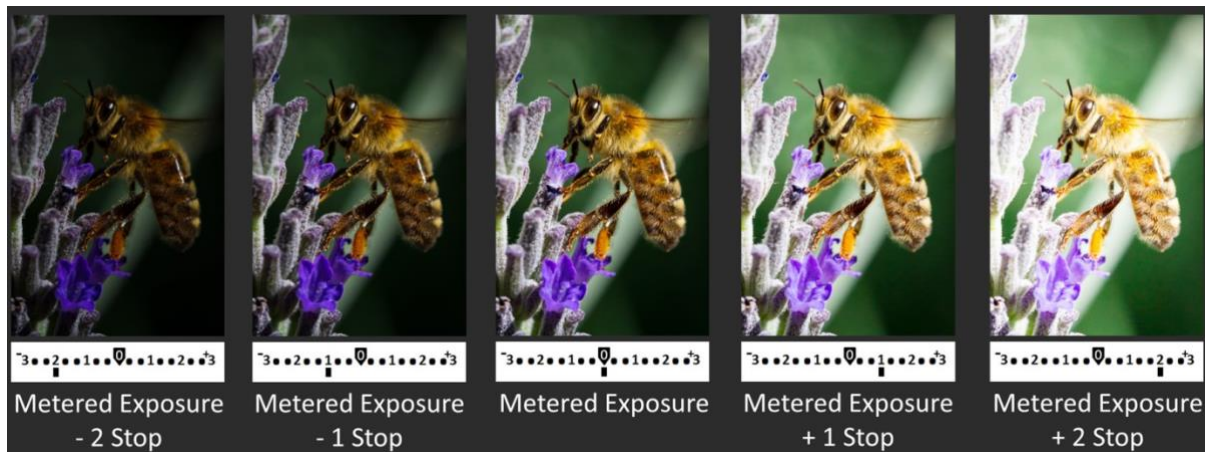
When using the Semi & Automatic modes Av, S & P, exposure compensation can be used to tell the camera to take the metered exposure and make it brighter or darker by a chosen amount. In the camera viewfinder or on the LCD screen there is a meter display (see examples right).



When in one of the automatic or semi-automatic modes this meter will show the amount of exposure compensation being applied.



The scale of the numbers on the meter will depend on your camera but they will be in the range of +/- 2 to 5 stops. Negative numbers give less exposure and therefore a darker photograph, while Positive numbers give more exposure and create a brighter photograph.



Please refer to your camera manual for specifics on how to set exposure compensation on your model camera.

In Manual mode (M), where the photographer sets both the shutter speed and aperture, the exposure scale in the viewfinder or LCD becomes a light meter telling you when you've achieved the correct metered exposure.

Changing the aperture and shutter speed settings until the indicator is under the ZERO mark will attain the exposure the camera has metered, however if more or less light is needed the settings can be changed similarly to exposure compensation moving the indicator to +/- values on the meter display.