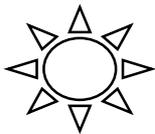


# Light

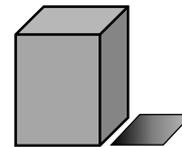
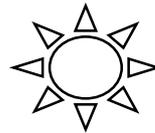
Taking photographs is all about light. Once you start to feel a little more comfortable with your camera you can start to think more about how your image is lit. More often than not you will be dealing with reflected light, but this isn't always the case, you might be working with transmitted light ... such as sunlight through leaves.

## Sun and Shadows

Being aware of the shadows cast by a light can add drama and depth to what is, essentially, a two-dimensional image.



A low, strong sun which could be in the winter or at sunrise or at sunset casting a long shadow



A high sun, for example at midday, will cast short, strong shadows

## White Balance

The source of light that illuminates your subject when you take a photograph will have an effect on how the colours are represented. Different light sources are referred to as having different temperatures which depends on the amount of red or blue available to the camera.

Sunrise / Sunset	Tungsten Light	Fluorescent Light	Sunlight	Flash	Overcast
<i>Red</i>			<i>Neutral</i>		<i>Blue</i>
2,000 K	3,000 K	4,000K	5,000 K	5,500 K	6,000 K

You can compensate for this by setting the white balance on your camera. If you save your images as JPG then you should do this on the camera. If you shoot in RAW then it's easier to do this on the computer afterwards.



Most cameras have an **AWB** (automatic white balance) setting which means that the camera itself will measure the ambient light and compensate for it.

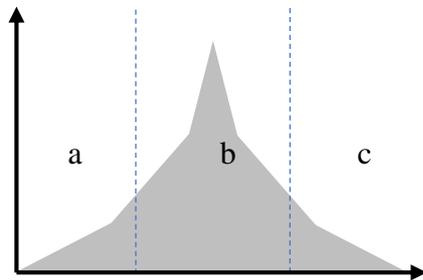
The display above is from my own camera, a Canon, but the symbols are similar on other makes and models. There are nine options for setting white balance. The first is the automatic white balance; then there's daylight, shade, cloudy, tungsten light, fluorescent light, flash and then a custom setting. The final option enables me to enter the colour temperature in Kelvin as a number.

Modern packaging for lightbulbs often includes the temperature to give an indication of the colour of light produced.



## The Histogram

You might have noticed a setting on your camera where you can display a little bar chart, or *histogram*, and wondered what it meant. On an evenly lit, nicely balanced, conventional image, the histogram should look a little like the one shown here.



The section on the left (a) indicates how much *shadow* there is in the picture; on the right (c) is the *highlights* and the middle third (b) is called the *midtones*.

In Auto Mode, your camera will aim to get a histogram with a similar shape: it produces a nice, pleasant image.

Many cameras will display a histogram as you compose your photographs. Whether you use the live-view graph is a matter of choice and it is usually possible to turn it off.

Your camera may also show areas that it considers to be over- or under-exposed by changing their colour or causing them to blink. This can also be switched off.

## High and Low Key Images

It may be that the image you want to make has much more dark than light in it and, conversely, you may wish to emphasise the lighter shades in your picture.



The image to the left is a **low key** portrait of a colleague of mine. It was taken with a single flash behind the sitter.

To the right is a **high key** fashion-style photograph. This was taken outside on a dull, breezy day in Aberystwyth.

I have altered the light levels in Photoshop to emphasise the light levels. Below each picture you can see the histogram produced when they are viewed on the computer.

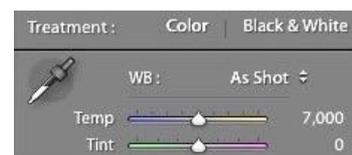


## Changing White Balance in Post Production

If you take your pictures in RAW then it is possible to work on the white balance later, after the shoot, when you're at home.



The screengrabs shown here have been taken from *Adobe Lightroom*. The image on the right shows a slider that can be used to adjust the temperature of the colours in the picture ... sliding left increases the blue and right highlights the yellows. Alternatively, you can use the eye-dropper to pick a neutral part of the image and all the colours in the picture will adjust accordingly.



# Going further with Exposure

Switching to manual mode gives you a lot more to think about however it does give you the ability to take full control over the process of taking a picture.

## Photographing the Moon

On clear nights it is tempting to take a photograph of the moon. If you set your camera to automatic mode though, you are likely to be disappointed with the resulting image. This is



because the camera averages out the blackness of the night sky and subsequently over-exposes the moon itself.

Shutter: 1/400  
Aperture: f/4.5  
ISO: 100  
Focal Length: 135mm

To take a clear picture you need to compensate for the brightness of the light reflected from the moon. Use the longest lens you have, set its focus

to infinity, and use a fast shutter speed.

## Neutral Density Filters



Conversely, there may be times when you wish to take a long exposure but the conditions are just too bright. In this picture I wanted the reflections in the river to be clear so the slow shutter helped to smooth the surface of the water.

Shutter: 4 seconds  
Aperture: f/22  
ISO: 100  
Focal Length: 24mm

By adding a Neutral Density (ND) filter to the front of the lens the amount of light coming into the camera was reduced and I was able to slow the shutter down.



Shutter: 3.2 seconds  
Aperture: f/22  
ISO: 100  
Focal Length: 105mm

They are also useful for taking pictures of dramatic sunsets. In this photograph I had pointed the camera in the direction of the setting sun so the foreground is in silhouette but the clouds are lit from below. It's almost like putting on a pair of sunglasses so that you can see the details against the sun's glare.

## Painting with Light

This is a technique that is fun to do but I find that it teaches me a lot about controlling the camera and about using other light sources.

### Light Painting 1 – Indirect



To do this you need to darken the room that you are in ... but not before you have set up your subject, a tripod and the camera.

Shutter: 10 seconds  
Aperture: f/20  
ISO: 200  
Focal Length: 24mm

In the light, focus on the subject of your photograph. Then turn the lights off and open the shutter on your camera. Use a torch to shine light over the object. The longer the light dwells on an area the brighter it will be. Shiny surfaces will reflect the light better so be careful with them. The slow

shutter means that your moving arm and hand will not be recorded.

### Light Painting 2 – Direct

This is a technique that is seen quite often but can be tricky to master. For these images (and the guitar above) I chose quite a wide angle and, in some cases, a small aperture. This gives me a forgiving depth of field so the images stay in focus.



Shutter: 10 seconds  
Aperture: f/10  
ISO: 100  
Focal Length: 24mm

Set your camera up on a tripod or a solid surface and have it pointing towards where you are going to be.

Press the shutter then

switch on your torch and move it in a pattern until you hear the click of the shutter closing.

I used the same camera setup for each of these images however I have cropped the final pictures to concentrate solely on the patterns made by the torch.



If you want to write with light then you must remember to form the letters and word backwards (which is why I wrote 'Love' instead of 'Lovely Llangwm').

Of course, you don't have to use a torch. Battery-operated fairy lights; old-style mobile phone handsets and glow-sticks will produce interesting results. But most fun of all are sparklers. This image was taken with a short party sparkler that burned for about twenty seconds