

SLR Cameras

SLR stands for 'single lens reflex', which means you see the subject through the lens of the camera, by use of mirrors inside. This means that you see what will end up in your shot - so no excuses for chopped-off heads!

An SLR camera, whether it uses film or is digital, has four main controls that you need to understand and use to take full control of picture-making. Many cameras have a scary number of buttons and dials, but it all boils down to getting four things right.

1. Focus

Getting the subject in focus (or out, if that's what you're after) is vital.

Autofocus cameras do it for you, but they often get it wrong, so you need to know how to override the camera's focusing if it's not doing what you want. These cameras let you switch between different focus 'modes', or ways in which the autofocus works. You can also switch to 'manual focus', where you turn the focusing ring on the lens yourself until the subject is sharp.

Some cameras are manual focus only, so you have to do it yourself all the time.

It is OK to use the camera in autofocus, most photographers do, but switch to manual if the autofocus is not focusing in the place you need it to.

2. Shutter

The shutter opens and closes, usually very fast, to let a measured amount of light into the camera to take the picture.

How long the shutter is open for also affects the amount of blur or sharpness of a moving subject, and you can suggest movement by controlling this. A typical shutter speed for outdoor photography is 1/125 second, and this will 'freeze the action' for something fairly slow moving, like somebody walking nearby, but you would need a shutter speed of more like 1/1000 second to freeze a car. Using a slow shutter speed, like 1/8 second can make passers by look blurry and appear to be going fast, but it's very difficult to hold the camera steady when the shutter is open so long, and you would need to rest it on something.

Most cameras will set the shutter speed automatically, but only by overriding this and doing it yourself can you show movement the way you want to.

'Firing' the shutter is how you actually take the picture, because until then the light can't get into the camera itself and onto the film or chip which records the image.

3. Aperture

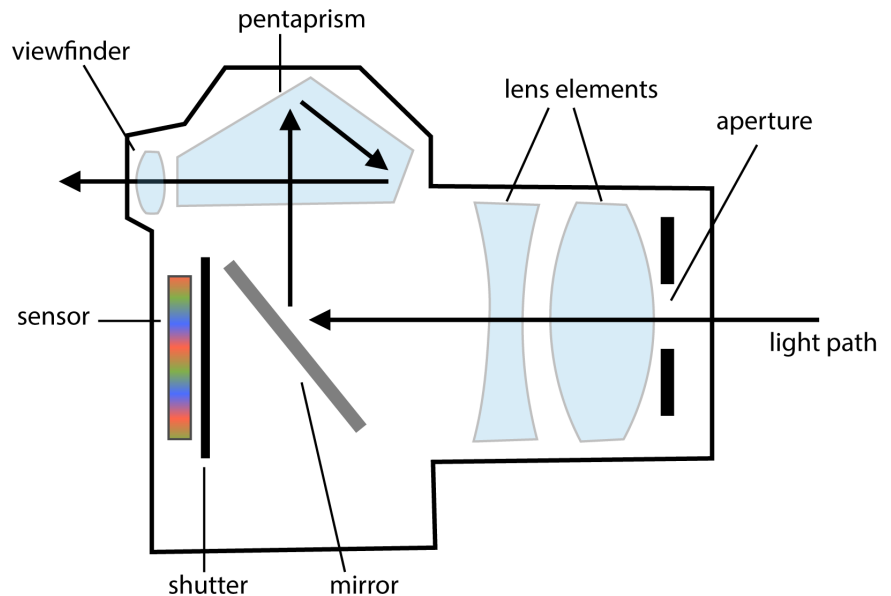
The aperture is the 'hole' in the lens which lets light through and into the camera when the shutter is open. You can vary the width of this hole to let in more light or less, so that a 'wide' or 'large' aperture lets in loads of light while a 'small' or 'narrow' one lets in relatively little.

On all SLR cameras you can control the aperture size, which is measured in 'f-stops'.

(For the scientifically inclined, the f-stop is the ratio of the focal length of the lens to the diameter of the aperture, but you don't need to know this to be a photographer.)

An f-stop like f/4 is quite a large aperture, and lets in plenty of light, while f/16 is a small one and lets in little. A typical zoom lens has a range of something like f/4 at the widest and f/32 at the narrowest.

The aperture you set affects something called 'depth of field', which is how much of the subject is in sharp focus, from near to far. A wide aperture gives you a 'shallow depth of field', where what you focus on will end up sharp in the picture, but anything nearer or further will look out of focus. This is how things look when you look through the camera's viewfinder, because until the point at which you take the picture, the camera sets the widest aperture for the brightest view of the subject.



A narrow aperture gives a large depth of field, where things seem sharp right from the foreground to the distance. Most cameras don't actually adjust the aperture to what you set until it takes the picture, so you can't usually see exactly what depth of field you're going to get.

(The terminology here can get a bit confusing, with all these 'wides' and 'narrows' and so on meaning different things in slightly different contexts. You'll get used to it!)

As with the shutter, most cameras will set the aperture automatically if you let them, but then you are no longer in charge of your own photograph. Set it yourself.

4. ISO

This is a measure of the sensitivity of the recording chip to light, and hence controls the range of shutters and apertures which will give a good exposure.

The higher the number, the more sensitive the chip is to light, and therefore the less light is needed to get a correct exposure on it. This enables the use of faster shutter speeds or smaller apertures.

In dull light it is often best to use a high ISO setting and make the camera more sensitive to what little light there is. However, a low ISO setting generally gives a better quality image in terms of colour and sharpness, so there is a trade-off here between speed and quality. A high ISO can generate digital 'noise', which affects the quality of the image. A setting of ISO 400 will serve most purposes. Some professional cameras can go as high as 64,000, but the image is very noisy at that speed.

5. Exposure

This refers to getting the right amount of light onto the film or chip in order to record the image well, with good detail in highlights and shadows. Too much exposure and the picture will be too light, or 'burnt out'. Too little and it will be too dark, or 'underexposed', to make out any detail properly.

The shutter and the aperture both control how much light gets into the camera, each in their own different way. To let in the right amount of light these two controls have to work together in balance. If you use a long shutter speed to get a bit of blur, it will also let in lots of light, and you will probably need to set a small aperture to compensate for that.

The ISO sets the sensitivity and the range of usable shutter speeds and apertures.

SLR cameras have a built-in light meter to measure the amount of light reaching the film or chip; the light meter tells you when the shutter and aperture are in balance and the exposure will be correct. One of the most common technical faults in photography is getting the exposure wrong by not paying attention to the light meter and histograms.

A few more bits

Many cameras have a built-in flash to help when there is not enough light for a correct exposure. This can be useful, but flash light is harsh and can kill any atmosphere you are after in the shot. In general, use the flash only if there is really no choice - natural light is better in most cases.

Also, you will probably be using a zoom lens. They are very handy, but are no substitute for using your feet to get into the best position.

Finally, on a digital camera, there are settings for quality and 'white balance' (the colour of the light). These are one-offs for a shoot and not done for each picture.

The usual setting for JPEG quality would be 'large + fine'. White balance can normally be set to 'auto' for most conditions. RAW files are higher quality, but need special software to process.

Finally...

All this technical stuff is a means to an end; and that end is the ability to make good photos.

Take care over composing your images in the viewfinder, in order to show the scene as accurately and objectively as possible.

Think about why you are taking each picture before you line it up and fire the shutter. What are you aiming to show, and how?

Consider whether you need shallow depth of field or lots in focus, in order to emphasise the item you are recording.

Do you need a tripod to steady the camera or is there plenty of light?