

Setting up for an image

You're going to need to "balance" the Exposure Triangle - a small aperture letting less light in through the lens may require a longer shutter speed or higher ISO sensitivity to achieve the desired image. Think about which of the three aspects is most important first.

If you are looking to isolate your subject against the background, you'll want a wide aperture - say $f/1.8$ or $f/2$ (if your lens goes that wide - not all will). This will let in a lot of light so your ISO will not need to be high, and you will probably be able to use a fast shutter speed too.

But if it is evening or night time, you may need to boost the ISO - maybe from 100 to 3200 (or more) - or lengthen the shutter speed; for example, to a full second or more... A higher ISO will allow you to retain a shutter speed that you can hand-hold.

Likewise, if you are looking to photograph car trails, you firstly want a long shutter speed. So to allow that without over-exposing your image, you would choose a 'daytime' ISO of maybe 100, and a small aperture to let in less light - like $f/22$ - to allow you to use the longer shutter speed.

Remember too, in this latter situation, you may need a tripod to keep things steady!



Hayling Island Camera Club

Beginners Guide to the Exposure Triangle

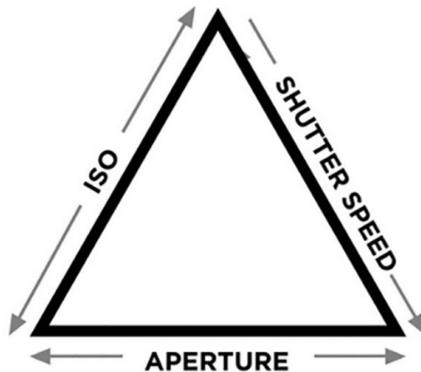
Types of Camera

There are many types of camera - DSLR's (Digital Single Lens Reflex), Mirrorless, Compact, and mobile phones. They are all tools for you to record images (pictures) and video.

They have controls enabling you to take images. Some are limited in functionality and can struggle in certain lighting conditions but every camera manufacturer will have controls on their cameras to enable you to take an image.

Photography is light

The three main things to think about when taking an image are shown in the graphic below:



This is known as the “*Exposure Triangle*”.

What is ISO?

ISO is the sensitivity of the sensor in your camera to the light that hits it. In old-school terms it was the sensitivity of the film, whereas in the digital world, it is the gain applied to the sensor's output before processing and saving the image to your memory card.

High ISO values allow your camera to be more sensitive in low-light situations, however the downside is graininess - or 'noise' - being introduced into your image.

Low ISO values are perfect for bright, sunny days, with little or no graininess.

Aperture

Aperture is, as the name suggests, all about the 'opening'. In much the same way the pupil of your eye expands to let in more light, the opening in the lens can too. The wider the opening, the more light is let in to the camera in a given timespan. If the opening is narrower then less light is allowed into the camera in the same amount of time.

Why would you want a smaller opening and 'less light'? Well, the aperture of the lens is also a contributing factor to something called Depth of Field, which affects how much of the image is in focus.

Aperture settings are known as f stops and generally range from about $f/1.4$ to $f/22$, though you may have a lens that has minimum and maximum values outside this range.

Counter-intuitively, the smaller values represent wider apertures, and larger values represent smaller apertures. This is because the f stop is a ratio.

Shutter Speed

The shutter speed controls the amount of time the shutter is open. The faster the shutter speed, the less light gets in. Equally, a slow shutter speed allows more light in.

Slower shutter speeds however do come with a drawback - which is that your image may end up with some blurriness if you cannot hold the camera still enough for that amount of time.

Generally speaking, to achieve an image without blurriness you should aim to use a shutter speed 1 over the focal length of the lens. So for example if you have a 24mm lens then 1/30th shutter speed is required, and if you have a 105mm lens, then 1/125th could be required. So with longer focal length lenses, it will be harder to get handheld sharp shots and a tripod may be required.