

## Digital Photography — Camera Skills

The basis of learning how to use your digital camera are focused in two areas — one is reading your camera manual so that you understand how it works and the second is experimenting. Set yourself little projects and 'play' with your camera. You should be able to explain the various settings on your camera to anyone who asks!

The two main controls or settings that cause most people problems are setting the shutter speed and the aperture value. These two controls work together to create a balanced quality of light called exposure. By selecting the right combinations of shutter speed and aperture values, a perfect exposure showing detail in both bright highlights and darker shadow areas is achieved.

### Aperture Values

The aperture is a circular opening that determines the quantity of light that strikes the sensor in your camera. The aperture can be controlled to expand and contract — like the iris in our eye — to let in exactly the right amount of light in any number of different shooting situations.

The aperture values follow a scale that is common across all cameras:

f2.8, f4, f5.6, f8, f11, f16 and f22

- A small aperture number like f2.8 results in a bigger lens opening and allows the most amount of light through the lens.
- A big aperture number like f22 makes a tiny lens opening and lets the least amount of light through the lens.

So, if you are shooting in dim conditions choose an aperture value of f2.8 or f4 to compensate for the lack of light. However, if you are shooting in bright conditions, use an aperture value of f16 or f22 to limit the amount of light hitting the sensor.

As well as helping you achieve perfect exposure, the aperture value allows you to manipulate the depth of field in an image. The depth of field can be described as the 'range of sharp focus in an image'. With an aperture value of f22, a maximum depth of field can be achieved. This would result in an image that is sharp from the foreground to the background with the zone of sharp focus running into miles. Whereas, an aperture value of f2.8, would create a shallow depth of field with the range of sharp focus reaching only a matter of centimetres.

The shutter in a digital camera is a thin, black wafer, which is designed to control the amount of time that your CCD sensor is exposed to light. When the camera shutter release is pressed, the shutter opens for a fixed amount of time to let an exposure take place.

As well as allowing you the control to shoot in very bright or very dark conditions, the range of shutter speeds enables you to control movement. Fast shutter speeds are used to freeze fast-moving action, whereas, slow shutter speeds are used to create blurred effects.

## Shutter Speeds

These are calibrated in fractions of a second as listed below:

$1/1000^{\text{th}}$ ,  $1/500^{\text{th}}$ ,  $1/250^{\text{th}}$ ,  $1/125^{\text{th}}$ ,  $1/60^{\text{th}}$ ,  $1/30^{\text{th}}$ ,  $1/15^{\text{th}}$ ,  $1/8^{\text{th}}$ ,  $1/4$ ,  $1/2$  and 1sec.

A fast shutter speed like  $1/1000^{\text{th}}$  second, would mean that the shutter is open for a very short amount of time. At the slower end of the scale,  $1/2$  second; there is a noticeable delay between the shutter opening and shutting. When using slower shutter speeds (under  $1/60^{\text{th}}$  second) a tripod should be used to minimise the possibility of camera shake.

When shooting fireworks try shutter speeds of  $1/2$  to  $1/8^{\text{th}}$  second to create motion trails and stunning light patterns. Remember to turn off the flash, as this will spoil the effect.

Some cameras have a B or Bulb setting which allows you to keep the shutter open for as long as you have your finger on the shutter release. This can allow fantastic creative effects. If you hold the shutter open too long, your images will be completely overexposed.

### Task 1 - Take a portrait shot

When taking a portrait shot, you are aiming to keep the subject in focus with the background out of focus. In order to achieve this, you will need to select an aperture value of f4 or f5.6. Set your camera to one of these apertures and then work through the shutter speeds listed below until the correct exposure is achieved.

$1/60^{\text{th}}$ ,  $1/125^{\text{th}}$ ,  $1/250^{\text{th}}$ ,  $1/500^{\text{th}}$ ,  $1/1000^{\text{th}}$

If you have a histogram feature on your camera, the graph should show a gentle 'hill-like' curve filling the whole space from light to dark pixels. Record your findings. If you use a shutter speed below  $1/60^{\text{th}}$  second you will need a tripod.

### Task 2 — Show Movement

Ask your partner to talk to you as you are taking their picture and flap their hands about. Set the aperture as above (f4 or f5.6) and find out the point where you have a slow enough shutter speed to show blur or movement in your image. You should really use a tripod but if don't have one, just experiment.

What was the shutter speed that allowed you to record movement?

### Task 3 — Create the greatest depth of field

You will again be taking a portrait shot, but this time you want as much of the scene as possible to be in sharp focus. To achieve this, you will need to choose the smallest aperture possible on your camera. (This is the biggest aperture number). On the library camera, the smallest aperture is f8, what is yours?

Now you have set the aperture, move through your shutter speeds working down from  $1/1000^{\text{th}}$  second until the correct exposure is achieved. What setting did you use?