

HOPEFULLY HANDY HINTS: 4

Back to Basics

The camera

To take a photograph we need a **camera** - simply a light tight box to contain a light sensitive medium (sensor or film) via which we record our image.

It needs two fundamental things:

An Aperture

A Shutter

Everything else is bells and whistles - granted some very useful ones:

- A memory card or film to store the images (note - film acts as the sensor and store).
- Exposure meter to determine the intensity of light
- Expose control modes
- White balance modes
- Shutter release modes, including remote
- Lens (to focus the light and make the scene appear larger or smaller)
- Focus modes (to actually focus the light thro the lens)
- Vibration reduction/image stabilization
- Image review options, including histogram, highlight "blinkies", exposure info
- Eyepiece adjustment
- In-built flash
- Ability to connect external flash
- Tripod socket
- Custom functions - to change just about everything...

We'll come back to bells and whistles later but we do need to get our heads around Light Intensity, Aperture, Shutter/Shutter Speed and Sensor Sensitivity (ISO)

Light Intensity

How bright our light source is eg. full sun, cloudy bright, overcast, etc

Aperture

A hole to allow light into the box (camera).

Variable in size

Affects brightness of the image - and '**depth of field**'

depth of field - *The area in front of and behind a subject that appears acceptably sharp in an image; is affected by aperture, lens focal length and how far the subject is from the camera.*

Shutter/Shutter Speed

The shutter is effectively a curtain that opens and closes to allow light to reach the light sensitive medium

The shutter speed is the duration for which the curtain is open and is variable

Affects the brightness of the image - **and how subject movement is captured**

Affects the image quality - the longer the shutter speed the more degraded the image becomes

Light Sensitive Medium (film or sensor)

Something sensitive to light that captures the image.

Digital sensors have user variable sensitivity to light (film in general has a fixed sensitivity)

Affects the brightness of the image - **and the quality**; the more sensitive to light the lower the quality of the image (contrast, sharpness, & ability to record fine detail)

Because all four are variable, when we change one we need to change one or more of the others to compensate to still obtain a correctly exposed image.

A simple analogy - filling a bucket of water.

Filling a bucket

Water Pressure
Size of bucket
Size (diameter) of pipe
Length of time tap turned on

Taking a picture

Intensity of light source
Sensor sensitivity
Aperture
Shutter Speed

The greater the water pressure the faster the flow of water; the brighter the sun the more light there is

The bigger the bucket the more water we need; the less sensitive the sensor the more light is needed

The larger the pipe the more water flows through it per second; the larger the aperture the more light we let in per second

The longer the tap is open the more water, the longer the shutter speed the more light we get

Fortunately in photography changes to each are measured in the same way:

A halving or doubling of each is called "1 stop".