TDCC Info Centre

JARGON BUSTING

We are very aware that when joining a camera club, new members may find that there is an ENORMOUS amount of jargon.
In fact, there is good reason for this as the jargon relates to names of things that are only relevant to photography.
Here is a guide to some of the most important / useful jargon. We have tried to list it under some relevant areas of interest:

GENERAL

Pixels: Every camera has a sensor (same as a film in the old days) and this sensor is made up of many pixels. In simple terms, the more the pixels the better the quality of the image. So this is a key measure of the quality of a phone or camera. An image that you edit or print is made of many thousands of tiny pixels, that come together to create the image.
MB – MegaBytes – the number of pieces of information (bytes) in a file. Again, the more the better for quality. As an image is cropped, the number of pixels are reduced and therefore the number of MB reduces and quality reduces.

ABOUT CAMERAS

There are three primary types:

Interchangeable lens cameras

1. **DSLR – Digital Single Lens Reflex** – where a mirror shows you the view through the lens and then flips up when you press the shutter
2. **Mirrorless** – Same thing but no mirror – and have much more electronic capability

Here is a link to find out more.

3. **Fixed Lens Cameras** - have a built in single lens – Prime (fixed focal length) or Zoom (variable focal length)

So called '**Compact**' cameras are made for your pocket – but these mostly are becoming irrelevant due to the improvement in mobile phone camera capability

Cameras basically consist of a 'Sensor' (used to be the film in the back of the camera) and lenses plus various controls to manage focus and exposure.

The Sensor is a flat electronic thing at the back of the camera that looks like black glass. It must be kept clean and under no circumstances should you ever touch it. Take care when swapping lenses over to avoid dust entering the bidy of the camera and on to the Sensor.

Sensor size and 'Crop Factor' – when you buy a lens it shows the 'focal length' – assuming that this is for a 'full frame' camera sensor. However, different cameras have different size sensors and this affects the actual focal length of the lens on the specific camera. This difference is resolved by the 'Crop Factor' which defines a multiplier for that gives the actual focal length of any lens on any camera. Typically:

- A full-frame camera contains a sensor size equivalent to 35mm film (36 mm x 24 mm). This is the largest sensor size marketed to photography consumers. The focal length would be that written on the lens (Crop Factor = 1).

- An APS-C camera, on the other hand, has a smaller sensor. The specifics depend on the camera brand, but the sensor size is generally around 23 mm x 15 mm. The Crop Factor for this type of lens would be 1.5 – meaning the actual focal length on this type of camera would be 1.5 times that written on the lens.

- Finally, there are Micro Four Thirds cameras, which contain Micro Four Thirds sensors; these are even smaller than APS-C sensors, clocking in at just 17.3 mm x 13 mm. The Crop Factor for this type of lens would be 2.0 – meaning the actual focal length on this type of camera would be 2 times that written on the lens.

- It is important that you understand this when buying a lens so you buy the right one. If you have an Olympus cameras (Micro Four thirds) and bought a lens of 16mm as a wide angle, you'd be disappointed – due to the crop factor this would work on your camera as 32mm – which is NOT wide angle. So you'd need a 8mm lens to give the wide angle 16mm effect

ABOUT LENSES

Lenses are available in three categories:

1. **A Prime lens** is one that has a fixed focal length

2. **A Zoom lens** allows a range of variable focal lengths – typical are:

a. 16 to 35mm (wide angle)

b. 20 to 80mm (normal)

c. 80 to 200mm (slight telephoto)

d. 100 to 400mm (long telephoto)

3. **Macro** – A special lens for close ups. Typically 60mm or 90mm Prime.

All lenses are defined by two things – Focal Length and brightness

- **Focal length** – used to define the distance between the lens and the image sensor when the subject is in focus. On a Full Frame camera a 15mm lens is wide angle, 50mm is mid, 100mm is telephoto, 500 mm is long telepehoto. See previous note about sensor size.
- **Lens speed / brightness** – another measure of the quality and effect of the lens. The brighter the lens the more you can open the aperture ring – allowing more light to hit the sensor. This allows you to take images in darker places and improved the ability to take high quality 'depth of field' shots. BUT the brighter the lens, the more expensive and the heavier. F1.2 is about the best you can get; F2.8 is very good; F6.0 is not great and would not be considered a 'bright' lens.

- **Stabilisation** – Many proper cameras and lenses offer clever electronics that stablise your image, when taking images in the distance. This is a very useful feature. The details is different for the various camera brands.

EXPOSURE

The Exposure Triangle – there are three adjustments available to manage the amount of light that is recorded in camera in an image. Each works in harmony with the other and each is useful to create certain effects:

Aperture: Within the lens there is an adjusted ring that opens and closes to let in more or less light. The size of the ring is the FStop – where F1.2 is very wide open. F4.0 is quite wide open; F8.0 is middle open and F22 results in a tiny aperture. We use this to help manage the amount of light entering the camera and the depth of field. Lenses tend to work less well at F stops higher than F16 – because the hole is too small.

Exposure: This is the speed of the shutter that opens and closes when the trigger is pressed. It is used to adjust the period of time the shutter is open – letting light from the lens, come through the Aperture and hit the sensor. So it is used to manage the period of light entering. It is also used for various effects – fast exposure for capturing an in focus image of something moving fast; slow or long exposure to create movement effects. A long exposure will normally require the camera to be on a tripod, as hand shake will lead to an out of focus image over any period longer than ¼ second. Exposure can range from 1/5000th second to as long as you want (called 'bulb')

ISO: This is a measure of the sensitivity of the pixels on the sensor. This sensitivity can be altered using the ISO setting. It typically starts at 100 – which will provide a sharp image. However, if the light is poor, or if you want to take a very fast shot, then you might increase the ISO to make the sensor more sensitive. Doubling the ISO increases the light sensitivity by one exposure point (the same as going from F8 to F5.6???). Some cameras offer very high ISO (50,000 or more) and this can be useful, BUT the higher the ISO the more likely noise will be created. The level of noise varies by quality of camera. So you should experiment by taking shots on a dull day at various ISO settings and then check what setting noise begins to appear. Note that this noise can be greatly reduced by a) a setting in the camera which reduces the noise and b) using noise reduction in post processing.

ENSURE your camera is NOT set to "AUTO" ISO – Control of the ISO in every image is an important and powerful tool.

EV - Another useful control of exposure is 'EV'. This is a separate control usually marked from minus 5 to plus 5. This is for fine tuning your exposure. A sensor struggles to record the correct colour 'white' – so, as an example, when taking an image of snow, you should increase the EV by plys 2 – this pushes the sensor to exposure more – resulting in white rather than grey. EV is also very useful for 'Bracketing'. See here. for more about EV – It's a relly useful option.

DEPTH OF FIELD / FOCUS (DoF)

Depth of field refers to the distance between the furthest two points in an image that are both sharp. When an image has a shallow depth of field, you'll see a sharp main subject and a blurred, defocused background. With a large depth of field, much more of the image will be in focus

FILES

JPEG – The most common form of shared image. A Camera takes images and internally converts them to JPEG – in doing so, the size and quality are significantly reduced and the JPEG is processed based on an unknown algorithm, which is difficult to process. Each time a JPEG is processed, the quality is reduced. Typical sizes range from 2MB to 12MB

RAW – A datafile that records every colour and light level of every pixel. This is not a 'picture' – and can only be seen in post processing software. It is the perfect form of image to use in photography as it is very high quality and can be significantly altered in processing. Typical sizes range from 20MB to 80MB

TIFF – a way of recording an image in full deatil – thus used for transferring images in post processing software and for archiving. It is a record of each colour (RGB) in each pixel

and the light level. Thus it is very large – typically 3 times the size of a RAW file. Typical sizes range from 50MB to 200MB

PNG – a useful way of simple imagery – such as screenshots. Of no real use in photography – typical size around 0.5MB (500KB)

HEICF / Other similar used by Phones – phone equivalent of a JPEG

Bokeh - The name for aesthetically pleasing out-of-focus areas in an image with shallow depth of field. Technically, the term refers to the character and shape of the points of light that appear in these areas – ideally, for smooth bokeh, you want them to be nice and round. However, these days the term is used pretty generally to refer to the out-of-focus area as a whole. Good bokeh can be achieved from F6 to F1.2 (the widest aperturs possible in a very bright lens)

Aspect Ratio - is the relationship between the width and height of an image or video. It's written in number format, like this: 3:2, 1:1, 16:9, with the first number designating width and the second number designating height. So if we knew an image had an aspect ratio of 3:2 and its width was 3,000 pixels, we could infer that its height was 2000 pixels. An aspect ratio of 1:1 means a perfectly square image.

EXIF (Metadata) - Image metadata is textual information embedded in an image file. Digital cameras will imprint certain amounts of metadata in images that can then be read in various ways this can include the make and model of camera, the exposure settings, focal length of the lens, precise date/time the shot was taken, and much more.

Bracketing – A method of taking a number of shots on different settings. Example: If the sky is very bright and the land below is in deep shadow, you camera will struggle to get one shot that exposes the whole image well. In this case you can take a number (say 3 to 5) on different exposure settings where the first has the sky well exposed (not too bright) and the last has the land well exposed (not too dark). These can then be blended in Lightroom and you end up with one image well exposed all over! This can also be set to do automatically and can also be set to adjust other things such as Focus. See here for more.

See here for more – and there are thousands of google and You Tube explanations for the thousand other!