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dictionary

/dɪkʃ(ə)n(ə)ri/

noun

a book or electronic resource that lists the words of a language (typically in alphabetical order) and gives their meaning, or gives the equivalent words in a different language, often also providing information about pronunciation, origin, and usage.

The Photography Dictionary



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The Photography Dictionary

Learning the Lingo. Your guide to understanding the language of digital photography.

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A

AA - Battery type.

AA Filter - AA (Anti-Aliasing) Filter helps eliminate colour aliasing problems, or the "moire" effect. Also known as a "Low Pass Filter" (LPF)

AC Power - Mains power supply. Alternating Current which is used to operate your digital camera rather than a battery.

Aberration - A lens defect. An imperfection in image formation by an optical system

Achromatic Lens - A lens that is designed to correct for chromatic aberration.

Acutance - The ability of the system to quickly change one tonal value to another in the shortest space. In photography the term "acutance" describes a subjective perception of sharpness that is related to the edge contrast of an image.

Additive Primaries - The colours red, green and blue which when added together produce white. Used primarily with light sources.

Add-on Lens - Some point and shoot cameras have a filter thread on the front of the fixed lens that will enable a wide-angled or telephoto lens to be attached.

Adobe RGB (1998) - The preferred colour space for professional printbased photography with a gamut that closely approximates the CMYK printer's gamut.

AE - Auto Exposure. Camera modes that pre-set some or all of your camera settings to ensure the correct amount of light reaches your sensor to correctly expose your image.

AE Lock - Locks the current exposure reading and enables you to re-frame the shot using the same setting. Activate by pressing the shutter button half way. Fully depress it when you are ready to take the image.

AF - Auto Focus. The lens automatically locks onto the subject and focuses when the shutter is depressed half way.

Aliasing - Smoothing the jagged appearance of diagonal lines in a bitmapped image. The pixels that surround the edges of the lines are changed to varying shades of grey or colour in order to blend the sharp edge into the background. This technique is also called "dithering," but is usually known as anti-aliasing when applied to diagonal and curved lines.

Angle of View - The result calculated by the focal length of the lens and the size of the image sensor.

Anti Aliasing - This is the process whereby you can reduce the "Stepping" effect on your images, by smoothing the edges where individual edges are visible. A great program for correcting this is Genuine Fractals by LizardTech. It is a plug-in for Photoshop.

Aperture - The lens opening that allows light onto the sensor formed by a diaphragm inside the actual lens. The aperture setting controls Depth of Field in your image. A large aperture (small number) lets more light reach the sensor, giving a shallow depth of field. This means only some of the image will be in focus. A small aperture (larger number) allows less light in, meaning more of the image will be in focus.

Aperture Priority AE - A camera mode where you select the aperture setting to control Depth of Field, and the camera calculates the required shutter speed or shutter speed and ISO settings (depending on your camera) to ensure a well exposed image.

Apochromatic Lens - A lens designed to most accurately correct for chromatic aberration by focusing all wavelengths into the same plane of focus.

Archive - Relocated images/data or files into storage away from your everyday files

Aspect Ratio - The ratio of the horizontal to the vertical dimensions of an image. For example, 3:2, 4:3, 16:9.

Aspherical Lens - A lens with edges flattened so that it is not a perfect sphere. These can produce a superior image.

Automatic Exposure - Camera modes that pre-set some or all of your camera settings to ensure the correct amount of light reaches your sensor to correctly expose your image.

Automatic Focus - The lens automatically locks onto the subject and focuses when the shutter is depressed half way.

Automatic Lens - A modern SLR lens which remains at maximum aperture regardless of the selected aperture, until the shutter is depressed.

AVI - File format that can be used for movie clips.

AWB - Automatic White Balance. The digital camera determines the type of light and automatically adjusts the colour to suit.

B

Back Lit - Light is visible behind your subject.

Backlight - A situation where the light source is mainly behind the subject.

Banding - An imperfection in a print resembling coloured lines or bands in a block of colour.

Barrel Distortion - A common geometric lens distortion causing an image to pucker towards the centre and be rounded along the outer edges.

Bayer Pattern Array - The most common colour distribution pattern on CCD and CMOS digital sensors. This array employs twice as many green receptors as it does red or blue receptors.

Bellows - A flexible, light tight rectangular tube, which is placed between the lens and the camera to facilitate close up photography.

Bit - The smallest unit of memory. The word comes from binary and digit or 1 and 0.

Bit Depth - Refers to the colour or grey scale of each individual pixel. For example a pixel with 8 bits per colour (red, green and blue), gives a 24 bit image. 24 bit resolution is 16.7 million colours.

Bitmap - The method of storing information that actually maps an image pixel bit by bit. Formats include; .bmp, .pcx, .tif, .tiff, .gif. Most picture files are bit-mapped.

Blooming - Occurs when a sensor element receives too much light and the stray electrons spill over into adjacent sensor elements. This can be common in CCD sensors.

BMP - Bitmapped graphics file format which is popular with Windows PC's. It is an uncompressed file format like a .TIFF.

Borderless - An image or page with no border around it.

Bracketing - Can apply to flash or exposure. It is used to automatically take 3 or more images. One is exposed as per your settings, one under exposed and one overexposed by a predetermined number of stops. See "exposure bracketing".

Brief - A set of instructions, usually visual, used in advertising to convey ideas to the creative team.

Brightness - Value of a pixel in a digital image giving its value of lightness from black to white, with 0 being black and 255 being white.

Buffer - Temporary storage area where data can be held in your camera or computers RAM before being saved as a permanent file.

Bulb - Term used for a long exposure setting of 30 seconds or more.

Burst Mode - Sports or action shot mode that can take up to 8 images per second.

Byte - A collection of 8-bits of memory in a computer. I.e. 8 bits is a Byte, 1000 bytes is a Kilobyte (KB) or 8000 bytes, 1000Kb is a Megabyte (MB) or 8,000,000 bytes and so on.

C

Cable Release - An attachment which allows the tripping of the shutter from a distance either by a hard wire cable connection or by wireless connection. Cables vary in length from several centimetres to many metres. They are often used to reduce camera shake when using slow shutter speeds.

Calibration - The act of adjusting the colour of one device to match that of another. For example when you match the calibration of your screen to that of your printer to ensure what you see is what you print. It is also used in the film SLR's Canon EOS-3 and EOS 5 which have eye-controlled focussing. You calibrate the cameras focussing to where your eye is looking in the viewfinder.

Calotype - An early photographic process invented by Englishman, William Henry Fox Talbot in 1835, which produced the first reproducible negative image on paper.

Camera Obscura - An ancient and room sized forerunner of the modern camera.

Camera RAW - A digital capture format which captures the raw information from the digital sensor without interpolation or compression. It is generally the preferred format for professional image capture.

Card Reader - Used for transferring data from your flash memory card to your PC.

CCD (Charged Coupled Device) - This is a light sensitive chip used in your digital camera for image gathering. The CCD Pixels gather the colour from the light and pass it to the shift register for storage. CCD's are analogue sensors, the digitising occurs when the electrons are passed through the A to D converter. This "Analogue to Digital" converter converts the analogue signal to a digital file or signal.

CD - Compact Disc. Storage media capable of holding around 650MB of data.

CDR - Compact Disc Recordable. Can only be used once, no matter how little information you write to it. Can be re-read many times.

CDR-W - Compact Disc Re-writeable. This can be erased and re-used many times.

Centre-Weighted - Centre-Weighted Average Metering is an all-round metering mode that evaluates the whole scene as a mid-tone. It weighs up the scene as a whole, taking in the highlights, mid-tones and shadows, before averaging the readings.

CF - Compact Flash card used in digital cameras to store digital images.

Channel - Colour information for each of the primary red, green or blue (RGB) colours, received from the digital sensor, is each stored in segregated locations or channels.

Chroma - The colour of an image element or pixel. A chroma is made up of saturation plus the hue values, but is separate from the luminance value.

Chromatic Aberration - (*Also known as purple fringing*). Lens fault. In a dark area is surrounded by a highlight, purple pixels that should not be there are visible between the dark and light.

Chip - Digital silicon sensor.

Chromatic Aberration - A lens fault whereby all colours do not focus at the same point. Chromatic aberration is a common fault in telephoto lenses.

CIE - French for Commission Internationale l'Eclairage which translates as the International Illumination Commission. See also LAB colour.

CIFF - Camera Image File Format. This is an agreed type of image storage used by many camera makers.

Circle of Confusion - A non-sharp circle of light on the film plane, which originated as a single point of light. The largest circle, which appears to the eye as a point is known as the largest circle of confusion.

Close-up Rings - An extension ring, which fits between the lens and camera to facilitate close-up photography. A type of inflexible, fixed length bellows attachment. They usually come in sets of different length tubes.

CMOS - Complementary Metal Oxide Semiconductor. An imaging system used by some digital cameras. These produce lower amounts of power consumption, but are not as popular as the CCD sensors used in most digital SLR's

CMS - Colour management system. A software program that tells a device how to handle colour. *Also known as a Colour mapping system.*

CMYK - A subtractive colour system using Cyan, Magenta, Yellow and Black. The CMYK colour system is the industry standard in the print and graphic art industry. This is because inks, paints and pigments reflect light, they do not capture it, so a subtractive colour system is used.

Codec - A Codec compresses information to enable it to be sent across a network much faster. It will also decompress information received via the network.

Colour Balance - The accuracy with which the colours captured in the image, match the original scene.

Colour Cast - An unwanted tint of one colour in an image.

Colour Correction - To modify or enhance the colour in an image.

Colour Depth - Digital Images can approximate colour realism but the process is referred to as colour depth, bit depth or pixel depth. Most modern computer displays use 24 bit true colour. It displays the same number of colours that the human eye can discern, about 16 million.

Colour Space - The colour profile used by cameras and other devices to generate their images. The most common is RGB or Adobe RGB. The colour space information ensures that graphic programs and printers have a reference to the colour profile that the camera used at the time of taking the exposure.

Compact Flash - See CF. Compact Flash card used in digital cameras to store digital images.

Colour Fringes - Extraneous colouration, often along edges, which can be caused by poor quality lenses, poor registration in multi-shot systems and interpolation artefacts in 1-shot systems.

Colour Temperature - The colour of a light source expressed in degrees Kelvin.

Colour Temp. Meter - An electronic meter, which displays the colour temperature of a light source.

Compression - A Digital photograph creates an image file that is enormous. To enable image files to become smaller and more manageable cameras employ some form of compression such as JPEG. RAW and TIFF files have no compression and take up more space.

Continuous Autofocus - The auto focus system is continuously working on focussing on the subject.

Contrast - Is an edge effect whereby the edge between black and white is more defined than the edge between two greys.

Copal Shutter - A shutter mechanism used primarily with large format cameras in which the front and rear lens elements can be removed by the operator, exposing the diaphragm blades.

CRT - Cathode Ray Tube. These are old style computer monitors, which employ an electron gun and a phosphorescent screen to produce an image.

CRW - The RAW CCD file format used by Canon Digital Cameras. Comes from Canon RAW.

D

Daguerreotype - An early photographic process developed in 1839 by Frenchman Louis-Jacques-Mandé Daguerre, which produced a positive image on a polished metal plate; usually copper.

Dark Frame - A noise reduction process where a camera takes a *second* exposure of a black frame after the camera takes a long exposure image. The image **noise** is easily identified in the black frame shot and is then electronically removed from the actual image. This helps to reduce the amount of **hot** pixels that normally show up in long exposure shots from digital cameras.

DC - Direct Current. Battery power such as 9v DC battery

Decompression - Process by which the full data content of a compressed file is restored.

Dedicated Flash - An Electronic Flash Unit that is made to be used directly with a specific make or model of a camera. Canon, Nikon Minolta and Olympus for example, all have electrical contacts in the hotshoe which

passes TTL (through the lens) metering and AF range information to and from the flash unit or speedlight. Flash units are not interchangeable between camera brands.

Depth of Field (DOF) - The amount of an image that is in focus. This is controlled by the focal length and aperture opening of a lens. A large or wide aperture gives a shallow depth of field (not much range in focus) and a smaller or narrow aperture give a large depth of field (more range in focus).

Depth of Field Preview - Activated by pressing the shutter button half way, this is a facility on most SLR cameras which enables the lens to be closed down to the shooting aperture. This is useful to evaluate the depth of field at a particular F/stop.

Depth of Field Scale - A delineated scale on a lens or camera body, which indicates the depth of field for a given aperture on a given lens.

Diaphragm - A set of adjustable blades, inside the lens, which vary the opening in the lens. Setting the aperture opens or closes the diaphragm.

Diffraction - A lens fault caused by the scattering of light within the lens causing a reduction in lens sharpness or resolution.

Digital Zoom - A digital magnification of the centre 50% of an image. These give less than sharp images because the new zoomed image has been interpolated. The optical zoom gives much more clarity to an image.

Digitisation - The process of converting analogue information into a digital image that can be understood by a computer.

Dioptre Adjustment - This adjusts the optical viewfinder's magnification factor to suit the eyesight of the cameras user. There should be a knob or dial near the viewfinders eyepiece, however, not all cameras have this feature.

DOF - Abbreviation for Depth of Field.

Dot Gain - A percentage measure of how much printing ink spreads on paper.

Download - Term used for transferring an electronic file from one device to another. For example, transferring an image from the camera to your computer.

DPI - Dots per Inch. This is a measurement value used to describe the resolution of a printer or a screen.

DPOF - Digital Print Order Format. This allows you to embed printing information on your memory card. You just select the photographs that you want printed and how many prints to be made.

DRAM - Dynamic Random Access Memory. A type of volatile memory, which is lost when the power is turned off.

DRAM Buffer – The amount of fixed memory camera use to process an image before the finished picture is saved to the flash memory card. **DSLR**. Digital Single Lens Reflex (SLR). Camera with interchangeable lens.

DSLR - Digital Single Lens Reflex camera.

DVD - Digital Versatile Disk. DVD is DVD recorded on a DVD-R or DVD-RW disc.

Dye Sub - Dye sublimation is a printing process where the colour dyes are thermally transferred to the printing media. The printers use CMYK colour format. The paper is run in and out of the printer 4 times, once for each colour (C, M and Y) and a fourth time when a protective overcoat is applied. Dye sub is continuous tone printing, it prints tiny square dots each of which is denser in the centre and lighter on the edges. The dyes are transparent so different coloured dots can be printed on top of each other to form any one of 16 million colours.

Dynamic Range - The range of light intensity in stops, which can be recorded in a particular film, paper or digital sensor. The greater the dynamic range of the camera, the more finer detail the camera is able to capture and record.

E

EPP - Enhanced Parallel Port. This is the newer, hi-speed, bidirectional printer port on modern PC's.

E-TTL - Canon's "Evaluative Through The Lens" exposure system that uses a brief pre-flash before the main flash in order to calculate the correct exposure.

EV - Exposure Value. The ability to override the auto exposure system to under or over expose the image.

EXIF - Exchangeable Image File Format. The embedded information about camera and exposure for each image.

Exposure - Amount of light that hits the image sensor. This is controlled by the shutter speed, aperture and ISO.

Exposure Bracketing - Camera will automatically take 3 or 5 images on one click of the shutter. Images are taken at various exposures (either side of selected exposure) ensuring at least one will be well exposed.

Exposure Compensation - You can lighten or darken the image by under or over exposing the image.

F

Fast Lens - A lens that has a wide maximum aperture. Fast lenses are more expensive than slow lenses and allow more light into the camera.

F-Stop - F/stop - An aperture or shutter speed adjustment, in which the light entering the camera is increased or decreased by a factor of two; i.e. doubled or halved.

File - A collection of electronic information like data, text or images which are saved on a computer, camera or other storage device.

File Format - Type of image, program or data file. Includes JPEG, TIFF and BMP

Fill in Flash – Flash or light used to light up any dark areas in the front of the subject.

Filter - A piece of optical glass, which is often coloured and placed in front of, or preferably behind the lens. Filters can have many uses; from colour correcting, to magnifying, polarising and for special effects like starburst and soft focus.

Filter Factor - A factor used to describe the amount of light, which is lost in the filter. A filter factor of 2 represents a loss of one f/stop.

FireWire - Officially known as the IEEE 1394 protocol. A high speed data transfer interface used on digital camcorders and the more expensive Digital SLR's.

Firmware - A micro program often used and stored in ROM (Random Onboard Memory). This is usually the base programming (the brain) that makes your camera, smartphone, computer or other electronic device work.

Fixed Aperture - Aperture remains constant regardless of the lens' focal length. For example: The Canon "L" series lenses have a constant fixed aperture when zooming.

Fixed Focal Length – A lens that does not zoom. The focal length does not change. You cannot zoom in or out.

Flare - A condition whereby bright light enters directly into the lens, causing a reduction in contrast and a hazy effect.

Flash Duration - The amount of time it takes for a flashtube to fully fire.

Flash Lighting - A high intensity, brief duration light source used to light subjects for photographic purposes.

Flash Memory - This is the card storage device that your camera uses to store images. Types include Compact Flash (CF), Smartmedia, memory stick etc.

Flat Bed Scanner - Optical Scanner in which the original image remains stationary while the CCD sensors pass over or under it.

Focal Length - A measurement, in millimetres, of the distance from the optical centre of the lens, or nodal point, to the point of focus. Lenses are usually described by their focal length.

Focal Plane Shutter - A shutter common to many SLR cameras, that sits in the focal plane, just in front of the film or sensor.

Focus Assist - Cameras with this send out a light, either normal or infra-red to light up the subject to assist with the autofocus in low light or darkness.

Focus Lock – Pressing the shutter half way locks the focus of the camera. You can then re-frame the subject without the focus changing before pressing the shutter the rest of the way. It is also referred to as Pre-focussing.

Focusing Screen - Is a piece of ground glass, or optically diffused glass that allows the image to be viewed in camera.

Frame - One of many still pictures that make up a video. Also refers to the area visible inside your viewfinder. Also means the border or edging around an image.

Frame Rate - Number of frames (images) that are shown or sent each second. Live action is around 30 frames per second.

Full Bleed - Means the ink limit extends to all 4 edges of a print. There is no border around the edges.

G

Gamma - Measure of the level of contrast in an image according to the properties of a gradation curve. A high gamma means a high contrast image.

Gamma Correction - Gamma correction controls the overall brightness of an image when displayed on a screen. Images which are not properly corrected can look either too dark or bleached out.

Gamut - This is the range of colours that are available in an image or output process. Gamut is generally used in describing the capabilities of a printer to reproduce colours accurately and vibrantly.

GIF - A graphic file format mainly used for Web graphic or small animated (GIF) files. Not generally used for photography because it only contains a maximum of 256 colours.

Gigabyte (GB) - A gigabyte is a measure of computer memory or disk space consisting of approximately one billion bytes (a thousand megabytes). The **actual** value is 1,073,741,824 bytes (1024 megabytes).

Gradation - A *smooth* transition between black and white, one colour and another or colour and no colour.

Grey Level - This is the brightness level of a pixel representing its lightness from black to white. It is usually defined as a value from 0 to 255, with 0 being black and 255 being white.

Grey Scale - For our purposes it is a black and white scale which progresses in one stop intervals from black to white.

Guide Number - The power output rating of a speedlight flash unit.

H

Halftone Image - An image reproduced through a special screen made up of dots of various sizes, to simulate shades of grey in an image. Normally used for magazine or newspaper reproduction of images. It is also how modern inkjet printers work. Half toning or dithering are the methods used to produce a smooth gradation of colour versus distinct bands of colour or moiré patterns.

HD - Hard drive (HDD). This is the internal, large-capacity storage unit in home computers, camcorders and some cameras.

HDTV - High Definition Television. The aspect ratio is 16:9 versus 4:3 of normal TV's.

High Key Image - A photograph of a scene, which lacks deep shadows and contains mostly mid-tones and highlights.

Highlight - The brightest area in the photograph; usually close to pure white.

Histogram - A histogram is a graphical representation of the highlights, midtones and shadows contained within an image. It is an analysis tool used to identify the amount of contrast and dynamic range captured in the image.

Hot Shoe - A flash connector found on the top of DSLR cameras that lets you attach an external flash unit and trigger it in sync with the camera's shutter.

Hue - A term used to describe the complete range of colours of the spectrum. Hue is the component that determines what colour you are using.

Hyperfocal Distance - The distance between a camera lens and the closest object which is in focus when the lens is focused at infinity.

I

i-TTL - Similar to Canon's "E-TTL", Nikon's new flash exposure system is used on the new D70 DSLR and SB-600 and SB-800 Speedlights.

ICC Profile - "The International Colour Consortium" is a group that sets the standard guidelines for colour management in the imaging world. Most monitors, printers and scanners (as well as digital cameras), usually come with a driver disc for Windows and Mac systems that includes ICC profiles for that particular device. Colour profiles simply let one piece of hardware or software know how another device or image has created its colours and how they should be interpreted or reproduced.

IEEE-1284 - High-speed, bidirectional parallel port specification used on Windows PC's, used mostly for printers.

IEEE-1394 - Better known as **FireWire**, it is a high-speed input or output bus used by digital video devices, film or flatbed scanners, and high end digital still cameras & PC's.

iESP - Olympus' exposure metering system.

iLink - Sony's term for the IEE-1394 FireWire data port found on Sony camcorders.

Image Resolution - This refers to the quality of the image in terms of to the number of pixels in the image. The higher the pixel count, the higher the image resolution.

Image Sensor - Digital cameras use an electronic image sensor (CCD or CMOS) to gather the image data.

Image Stabilization (IS) - An optical or digital system built into a lens to assist in reducing camera shake visible in images.

Incident Light Meter - A type of light meter, typically hand held, which measures the light falling or incident upon an object. These meters, while a bit slow to use, can be very accurate in evaluating correct exposure.

Infinity Focus - A focused object so far from the lens that the rays of light entering the lens are parallel. Infinity is graphically illustrated by the ∞ symbol. This symbol appears on the lens barrel and is usually the end stop of the focusing ring.

Inkjet - A type of printer that "sprays" dots of ink onto paper to create the image rather than paint or laser it on. Modern inkjet printers now have resolutions of up to 2880dpi and create excellent photo quality prints.

Interlaced - This is the term used to describe an image sensor that gathers its data by first processing the odd lines, and then processing the even lines.

Interpolated - Most software programs can enlarge image resolution beyond the actual resolution by adding extra pixels. This normally decreases the quality of the image but can be enhanced by a program (or plug in for Photoshop) such as LizardTech's "Genuine Fractals".

Intervalometer - (Or Interval Recording) Another term for Time Lapse Photography. You can capture an image or images at preset intervals automatically. Good quality remote releases have this function built in, meaning you don't have to stand around pressing the shutter every 5 or 10 seconds.

IR - Infra Red. This uses a beam of light that is invisible to us humans to either control a device without wires or as a method of transferring data from camera to computer (or printer) without cables. Some cameras also employ infrared in the auto focusing system.

ISO - Or ASA. (International Standards Organization). The speed or light sensitivity of a captured image is rated by ISO numbers such as 100, 400, 800 etc. The higher the number, the less light that is required to capture an image. In other words, the higher the number, the more sensitive the sensor is to light. Raising the ISO generally results in a less sharp image. The image is grainier (noisy).

J

JFIF - Also known as EXIF , this is a specific type of the JPG file. format.

JPEG - Joint Photographic Experts Group. This is the name of the committee that designed the standard image compression algorithm. JPEG was designed for compressing full colour or grey scale digital images of natural scenes. It doesn't work so well with non-realistic images, such as cartoons however. JPEG does not handle the compression of black and white (1 bit-per-pixel) images or moving pictures.

JPEG – 2000 - The newer JPEG compression standard that may start to be used in digital cameras and software. It will feature higher compression with less image quality loss.

JPG - This is the most common type of compressed image file format used in modern cameras. It is a "lossy" type of image storage because even in its highest quality mode, there is compression used to minimize its size.

K

KB - A Kilobyte of data, or an abbreviation for keyboard.

L

LAB Colour - Developed by the CIE (Commission Internationale l'Eclairage). This colour space represents each colour by its luminance and where it falls on an a (red/green) and b (yellow/blue) colour axis.

Landscape Mode - This is when you hold the camera in its normal, horizontal orientation to capture the image. The opposite is "portrait mode".

Latent Image - An exposed image, which is as yet undeveloped. A film, which has been exposed to light and has undergone a photochemical change, is described as having a latent image.

LCD - (Liquid Crystal Display). There are 2 types. First, a TFT high-resolution colour display device like a very small TV set. Secondly, a monochrome (B and W) information display using just black alphanumeric characters on a grey or green background.

LED - (Light Emitting Diode). This refers to all the little red, green and yellow indicator lights used on most cameras, power supplies and electronic devices.

Lens Hood - A lens hood attaches to the front of the lens and acts as a shade preventing direct light from entering the lens. The use of a lens hood helps to prevent lens flare.

Light Meter - Used to determine exposure. They can be handheld or integrated within the camera.

Linear - In a straight line, also a straight line response.

Li-ion - (Lithium ION). Some digital cameras are packaged with a lithium-ion re-chargeable battery pack. Lithium ION batteries are lighter but are more costly than Ni-MH or Ni-Cd (NiCad) rechargeables. One advantage is that Lithium cells can be recharged regardless of the amount of discharge; also, they are lighter and maintain a charge much better in colder temperatures than conventional batteries. Li-ion also holds a charge for longer when idle.

Lossless - Refers to storing an image in a non-compressed format, such as TIFF.

Low Pass Filter - Most DSLR's (Digital SLR's) employ a Low Pass Filter (LPF) or Anti-Aliasing (AA) filter in front of the sensor to help eliminate problems with colour aliasing (moiré).

M

Mac - Refers to the Macintosh computers. I.e. Apple MAC.

Macro Lenses - with this feature can focus very close (less than 8") for taking pictures of small objects at a 1:1 ratio.

mAh - (milliAmperehour). A rating used in the consumption of power of an electronic device such as an LCD, or the storage capability of a device like an NiMH or Nicad rechargeable battery.

Manual Mode - The user selects the aperture and shutter speed on the camera.

Matrix Metering - Most digital cameras have a matrix metering option which uses 256 areas of the frame to calculate the best overall exposure value.

MB - (MegaByte). Memory term meaning 1024 Kilobytes. Used to denote the size of a flash memory card such as 4MB, 8MB etc. MB is often confused with Mb (megabit), there's 8 bits in a byte so 256Mb = 32MB.

Megapixel - This is the CCD (or CMOS) resolution of one million pixels. Digital cameras are commonly rated by Megapixels. You multiply the horizontal resolution by the vertical resolution to get the total pixel count. For example 2590 x 1920 = 5 Megapixels.

Memory Stick - A flash memory card type from Sony. They resemble a stick of chewing gum and vary in size.

Metering - Metering is used to calculate the exposure from the existing light conditions. Includes Matrix Metering, Spot metering and Center-weighted metering.

Microprism - A type of focusing screen that is partially composed of very small prisms, which appear to "dance" when the image is out of focus.

Mired Scale - Mired is an acronym for micro-reciprocal-degrees. It is a scale which is used to ease some of the difficulties involved in calculating colour filtration.

Mirror Lens - A lens, which employs mirrors instead to lenses to focus the image, also known as a reflex lens.

Mirror Lock - The mirror lock which is available on most SLR cameras enables the mirror to be taken out of the film plane and locked in the up position. It is used primarily to reduce camera shake during long exposures.

MMC - Multi-Media Card. A flash memory card used in some Digital cameras and MP3 players. The MMC is identical in size and shape to the Secure Digital (SD) flash cards.

Modelling Light - A low to moderately powered tungsten light, which is used to represent the light generated by flash lighting.

Moiré - An interference pattern, which is caused by the conflict between a pattern on the image subject and the pattern configuration of the sensor elements. It often produces a coloured checkerboard (or rainbow) pattern.

MOV - Apple QuickTime Movie file format.

Movie clip - A sequence of motion captured in AVI, MOV or MPEG formats. More and more digital cameras can now capture short movie clips, many can also record the sound.

Motion JPEG - A video clip composed of a sequence of JPEG compressed images. Sometimes abbreviated to MPEG (see MPEG below), although they are slightly different. The main difference is that MPEG provides temporal compression, while MJPEG simply provides spatial compression.

MP - Abbreviation of Megapixel, i.e. 5MP or 8MP.

MPEG - Motion JPEG movie file. See "Movie clip" The digital video compression standard agreed upon by the Motion Picture Expert Group from the motion picture computer industry.

MPEG-EX - Motion JPEG movie file created by Sony cameras. This was the first motion video recording sequence mode that was limited in length only by the amount of available storage space.

MPEG-HQX - Motion JPEG movie file created by Sony in 2002, whose cameras incorporate the MPEG-HQ (high quality, full-screen) and the unlimited recording capability of MPEG-EX in 320x240 resolution.

MPEG-VX - Motion JPEG movie file created by Sony Digital cameras in 2003. Its VGA resolution (640x480) at 16fps with audio and the length is limited only by available storage space. VX Fine is 30fps or very high quality.

Multi-Pattern Metering - Exposure is determined by reading many different zones in the frame. This gives a more optimum exposure than those cameras using just a central zone metering system.

Multi-Point Focusing - The autofocus systems uses several different portions of the image to determine the correct focus.

Multi Zone Focusing - Many digital cameras now offer multi zone focusing. The camera will automatically determine which zone (centre, left, right, upper or lower) to use to perform the auto focusing. You no longer have to make sure that your subject is in the centre of the viewfinder in order to be correctly focused.

N

NEF - (Nikon Electronic Format). The Raw image data file format used by the Nikon DSLR (D2x, D100, etc) also some Coolpix Digital cameras.

NiCd - Nickel Cadmium (Nicad). A type of rechargeable battery. NiCad was the original type of rechargeable battery and has been all but replaced by the NiMH type.

NiMH - (Nickel-Metal Hydride). A type of rechargeable battery. NiMH is the more modern type of rechargeable battery and has been touted as having no memory effect as is common with Nicad type batteries when they are charged before they have been fully discharged.

Neutral Density Filter - A grey filter that has a neutral effect on the image colour but evenly reduces the brightness of the image entering the lens.

Noise - Relates to pixels in your image that were misinterpreted. Normally occurs when you shoot a long exposure (beyond 1/2-second) or when you use the higher ISO values from 400 or above. It appears as random groups of red, green or blue pixels. Programs such as [Neat Image](#) can remove most noise from an image.

Noise Reduction - Some cameras that offer long shutter speeds (more than 1 second) usually have a noise reduction (NR) feature that is either automatic or can be enabled in the menu. This is to help eliminate random "hot" pixels and other image noise. Can add a more time to the process as it needs to write the new image data along with the recorded image. Again, see [Neat Image](#).

Normal Lens - A standard lens, which has a focal length, which is roughly equal to the diagonal measurement of the digital sensor.

NTSC - Term used to describe the 60 field video output (television) standard used in the U.S. and Japan.

O

OEM - (Original Equipment Manufacturer). Means that a piece of equipment is made by one company but labelled for (and sold by) another company.

Optical Viewfinder - An eye level viewfinder that is used to compose the photograph.

Optical Zoom - Means that the camera has a real multi focal length lens, this is not the same as a "Digital Zoom" which magnifies the centre portion of the picture. Optical zoom gives better quality than a digital zoom.

ORF - (Olympus RAW format). The un-processed image format created by modern Olympus Digital SLR's and high end Digital cameras.

Orientation Sensor - A special sensor in some cameras that can tell when you turn the camera round to portrait orientation to take a vertical shot. It also tells the camera to display it that way later when viewed on a monitor or TV screen during playback.

Overexposure – Exposing your camera sensor to too much light. This is caused by either the shutter speed was too slow or the aperture was too wide or a combination of both. This results in an image that appears very bright and washed out. If an image is severely overexposed, data will not be recorded in the areas of the image that contain highlights.

P

PAL - The 50 field video format used mostly in Europe and other places outside of the U.S. and Japan.

Palette - A thumbnail of all available colours to a computer or devices (much like an artist's palette). The palette allows the user to choose which colours are available for the computer to display. The more colours the larger the data and the more processing time required to display your images. If the system uses 24-bit colour, then over 16.7 million colours will be included in the palette.

Panorama – An image that is very wide and not very high. A panorama is usually created by capturing a series of images and "Stitching" the photographs together.

Parallax - An effect seen in close-up photography where the viewfinder does not see the same as the lens. This is normally due to the offset of the viewfinder and lens. This is not an issue if you are using the LCD as a viewfinder or if your camera is a DSLR.

PC - In camera terms it denotes a type of flash synch connector, popular on most film and high end digital cameras. Otherwise, it means Personal Computer.

PC Card - Refers to a credit card sized device which can be a flash memory card, a network card, a modem or even a hard drive. Comes in two types; The type I/II which is a single slot height and type III which requires a double height card slot.

PCMCIA - These are the card slots found on modern laptop computers to enable the user to insert PC Cards. There are PCMCIA adapters for Compact Flash (CF), SmartMedia (SM), Secure Digital (SD), MultiMediaCard (MMC) and Memory Stick (MS) flash cards.

Perspective Control Lens - A shift lens, which allows the lens axis to be shifted.

Photojournalism - The act of telling a story usually published in newspapers or magazines, through the use of still images.

Photoshop® - The industry standard image retouching software developed by Adobe Systems Inc.

Pincushion distortion - A lens flaw whereby the parallel sides of the image are bent inwards.

Pinhole - The most rudimentary form of camera where a pinhole and not a lens is used to form the image.

PictBridge - This is a new standard for direct USB printing from digital cameras to inkjet and dye sub photo printers. It does not need the use of a computer.

PIM - (Print Image Matching). Epson's new standard of embedded colour and printing information for digital cameras. Many of the camera manufacturers have joined with Epson and now embed the PIM information in the Exif header of the JPEG images created.

Pin-Cushioning - This is a common geometric lens distortion causing an acquired image to pucker toward the centre of the image, usually found at telephoto focal lengths.

Pixel - The individual imaging element of a CCD or CMOS sensor, or the individual output point of a display device. This is what is meant by the figures 640x480, 800x600, 1024x768, 1280x960 etc., when dealing with the resolution of a particular digital camera. Higher numbers mean a higher resolution image.

Pixelization - The stair stepped appearance of a curved or angled line in digital imaging. The smaller the pixels, and the greater their number, the less apparent the "pixelization" of the image. Also known as the "jaggies". If you enlarge an image too far, it tends to pixelate. That means it loses its sharpness because the pixels become visible around the edges creating the fuzzy, jagged look.

Plug-n-Play - This is an automated installation process used in Microsoft Windows to connect peripherals to a computer. When new devices are plugged into the computer the computer automatically recognizes the device and prompts the user to choose setup options and finish installation.

Polarising Filter - A filter for eliminating glare and reflections which attached to the front of your lens on a DSLR camera. Just like your polarized sunglasses, it cuts glare. It can produce beautiful blue skies and increase the saturation of colours.

Point and Shoot - Term used for a simple, easy to use camera with a minimum of user controls. The camera does everything automatically so you literally just point and shoot.

Portfolio - A collection of images usually printed and sometimes bound or boxed, which contains the photographers work.

PNG - (Portable Network Graphics). This is an image file format. It is a compressed file format similar to JPG.

PPI - Pixels Per Inch. A measurement to describe the size of an image. The higher number, the higher resolution the image.

Pre-Flash - Some Digital cameras use a low power flash before the main flash to automatically set the exposure and white balance.

Previsualisation - The process of visualising the final print before the film is exposed.

Prime Lens - A lens with a single, fixed focal length. Prime lenses have superior optical qualities to zoom lenses.

Program Mode - A shooting mode where the camera selects both the aperture and shutter speed.

Prosumer - Refers to more expensive semi-professional Digital cameras aimed at a consumer market.

Pyrex - A transparent and heat resistant glass used to protect electronic flash tubes.

Q

Quick Cycle Portable Flash - This type of flash unit can be held in the palm of the hand. It attaches to the camera's hot shoe or can be used in another location and triggered using a separate flash or an infrared trigger. It is battery powered and has relatively low power output. Some cameras have an inbuilt flash that also qualifies as this type of flash unit.

QuickTime - A motion video standard created by Apple. QuickTime video sequences can contain an audio track and are stored as .MOV files.

QVGA - Refers to Quarter VGA resolution (320 x 240) motion video sequences.

R

RAM - (Random Access Memory). The most common type of computer memory where the CPU stores software, programs, and data currently being used. RAM is usually volatile memory, meaning that when the computer is turned off, crashes, or loses power, the contents of the memory are lost. More RAM usually means faster manipulation or faster background processing.

Rangefinder - This is the viewfinder on most smaller digital cameras and is a separate viewing device which is independent of the lens. It is often above and to the right or left of the lens. It exhibits a problem known as parallax when trying to frame subjects closer than five feet from the camera so it is advisable to use the colour LCD when shooting close-ups for just this reason.

RAW - RAW files store the unprocessed image data at 12 bits per channel. Directly from the camera's imaging chip to its memory storage device. "Lossless" compression is applied to reduce the file size slightly, without compromising the quality. RAW image files must be processed with RAW processing software before they can be viewed or printed. The advantage is that you have the ability to alter the white balance, exposure value, colour values, contrast, brightness and sharpness as you see fit *before* you convert this data into the standard JPEG or TIFF format. Professional digital photographers generally shoot in RAW format.

Reciprocity - The non-linear response of film at low light levels whereby an increase in exposure has a diminished effect upon film density.

Red-Eye - An effect caused by an electronic flash reflecting off the retina at the back of the eye making it look red. Compact cameras with the flash located close to the lens suffer the worst from this problem. Professional photographers use a bracket to hold an external flash unit above and off to the side of the lens to eliminate red-eye. It can also be easily reduced using most post-editing software.

Red-Eye Reduction Mode - A special flash mode whereby a pre flash or a series of low powered flashes are emitted before the main flash goes off. This causes the iris of the eye to contract meaning less light gets in the eye, therefore reducing red eye.

Reflected Light Meter - An exposure meter of the type found integrated in SLR cameras, which measures the light, which is reflected from the subject. Hand held versions are also available.

Reflector - Typically a white board used to reflect light.

Reflex Lens - Commonly, a long focal length mirror lens.

Render - This is the final step of an image transformation or three-dimensional scene through which a new image is refreshed on the screen.

Resample - In photographic terms, this means to make an image larger or smaller by adding additional pixels or deleting pixels to make the image a different size. This effects the quality of the image.

Resize - In photographic terms, this means to make an image larger or smaller without reducing the quality of the image. This is done by changing the physical size of each pixel.

Resolution - The quality of any digital image depends on the number of pixels used to create the image. A camera's image sensor can physically record a set number of pixels.

RGB - (Red, Green and Blue). An additive colour system that mixes various amounts of red, green and blue to produce other colours. Combining one of these additive colours primary colours with another produces the additive secondary colours cyan, magenta and yellow. Combining all three produces white. Digital cameras capture images in RGB colour.

S

Saturation - The degree to which a colour is undiluted by white light. If a colour is 100 percent saturated, it contains no white light. If a colour has no saturation, it is a shade of grey.

Scanner - An optical device that converts images, etc. into digital form so that they can be stored and manipulated on your PC. Different methods of illumination transmit light through red, green and blue filters and digitize the image into a stream of pixels.

Scene Modes - Digital camera modes that pre-set aperture, shutter speed, ISO and other settings to what the camera considers ideal to capture the best possible image in certain situations such as sports, portrait, landscape, etc.

Scrim - A translucent material used to diffuse daylight.

SD - (Secure Digital). A flash memory card used in Digital cameras and MP3 players. It is identical in size and shape to the MultiMedia Card (MMC). The difference being that SD cards were designed to hold protected (copyrighted) data like songs. Not all cameras that use SD cards can use MMC cards so be sure to read your owner manual before buying additional cards.

Secure Digital - See "SD" above.

Self Timer - Preset time delay (e.g. 2, 5, 3, 5 or 10 seconds) before the shutter fires automatically. This allows the photographer be in the picture without using a long cable release or remote control. It is also great for taking macro or night shots as by not touching the camera, you eliminate the chances of camera shake.

Sepia - The (brownish) mono toned effect seen in images from the original 19th and early 20th Century cameras. This is now a feature often found as a special image effect on some Digital cameras and/or editing software.

Shadowy Scene with Subdued Highlights - This means a scene, which lacks illumination by direct sunlight. It does not mean dappled light. This is a dark scene taken in the shade or on an overcast day.

Shift Lens - A removable lens, usually of medium wide focal length, which has adjustment knobs, which shift the lens elements off axis. This has the effect of straightening converging verticals or allowing one to shoot directly into a mirror without recording your reflection. This is also known as a perspective control lens.

Shutter - The physical device that opens and closes to let light through to the image sensor.

Shutter Lag - The time between pressing the shutter and actually capturing the image. This is due to the camera having to calculate the exposure, set the white balance and focus the lens. While evident in some smaller cameras, this problem has been largely eliminated in modern DSLR cameras.

Shutter Priority AE - This is where the user chooses a shutter speed and the aperture is automatically determined by lighting conditions. Shutter speed priority is used when movement is the priority. A fast shutter speed freezes the action, a slow shutter speed blurs the movement.

Skylight Filter - This is an Ultra Violet absorbing filter that helps overcome the abundance of blue in outdoor photographs. Not really necessary in digital photography as the camera's white balance system adjusts for the colour temperature of the scene. You can also use them to protect the camera's lens from scratching, fingerprints or dirt.

Slow Sync - A flash mode in some Digital cameras that opens the shutter for a longer than normal period and fires the flash just before it closes. It is used for illuminating a foreground subject, but allowing a darker background to also be well exposed. Good for night time shots of buildings with people in the foreground.

SLR - (Single Lens Reflex). This means the camera has a viewfinder that sees through the lens (TTL) by way of a 45°-angled mirror that flips up when the shutter fires and allows the light to strike the image sensor. Basically, what you see is what you get.

SmartMedia - (SSFDC) A flash memory card that consists of a thin piece of plastic with laminated memory on the surface and uses a gold contact strip to connect to the camera. SmartMedia cards are available in various sizes.

Specular Highlight - A highlight, usually small, which is so bright that the sensor contains no colour information. It appears as pure white.

Spot Meter - A type of reflective light meter, where the reading is taken from a small area of the image. Useful in contrasty lighting situations where a separate highlight and shadow reading is required. Can be camera integrated or hand held.

Spot Metering - The camera's auto exposure system is focused on a very small area in the centre of the viewfinder to adjust the overall exposure value just for that area.

sRGB - A colour space developed in 1995 by HP and Microsoft to approximate the gamut of LCD monitors, scanners and the internet.

Standard Lens - A normal lens. Roughly 50mm on small format SLR, 75mm on medium format, 150mm on 9x12 cm large format and 300mm on 18x24cm large format.

Stitching - Combining a series of images to form a larger image or a panoramic photo.

Stop - See F/stop.

Stop Down - Closing the aperture to a lesser amount (higher number).

Subtractive Primaries - The colours cyan, magenta and yellow, which when added together produce black. Used primarily as inks for colour printing. Black is added making CMYK to give a richer black.

SuperCCD - Fujifilm's image sensor used in their line of digital cameras.

SVCD - (Super Video Compact Disc). A CD-ROM disc that contains high quality video and audio. Normally, a SVCD can hold about 35-45 minutes (650MB) of video and stereo quality audio. The video and audio are stored in MPEG2 format, much like a DVD. SVCD video has better quality than VHS video.

SVGA - (Super VGA). This refers to an image resolution size of 800 x 600 pixels.

SWOP - The abbreviation (SWOP) refers to a special set of uniform standards in printing known as the "Specifications for Web Offset Publications".

Synch Speed - The maximum shutter speed at which the flash and shutter will enable a fully exposed image to occur without clipping.

T

Telephoto - This is the focal length that gives you the narrowest angle of coverage, good for bringing distant objects closer. (i.e. 100mm, 200mm, 500mm etc.)

Tethered - Connected via a cable as in a camera to computer connection.

TFT - (Thin Film Transistor). Refers to the type of hi-resolution, colour LCD screen used in Digital cameras.

Thumbnail - A small, low resolution version of a larger image file, which is used for quick identification or speedy editing choices.

TIFF - (Tagged Image File Format). An uncompressed image file that is lossless and produces no artefacts as is common with other image formats such as JPEG.

Time-Lapse - Capturing a series of images at preset intervals. Also known as Interval Recording or Intervalometer.

Tran reflective - This is a type of LCD display that uses ambient light as well as a backlight to illuminate the pixels. It can be seen more easily in bright, outdoor conditions.

Tripod - An adjustable camera support with three legs.

True Colour - Colour that has a depth of 24-bits per pixel and a total of 16.7 million colours.

TTL - (Through the Lens). Used when talking about either an auto focus or auto exposure system that works "through" the camera's lens.

Tungsten Lights - An incandescent light globe used as a constant light source, whose filament is constructed from tungsten material.

Twain - (Technology Without An Industry Name). Protocol for exchanging information between applications and devices such as scanners and digital cameras. TWAIN makes it possible for digital cameras and software to communicate with each other on PCs.

U

Under exposure – An image that has not been exposed to sufficient light. An underexposed image may not have captured all of the detail in the shadows (dark sections) of an image.

Unsharp Masking - (Unsharp Mask). The process by which the apparent detail and sharpness of an image is increased. Generally accomplished by manipulation using editing software.

USB - (Universal Serial Bus). This is the data I/O port on most Digital cameras and is also found on modern home PC and Mac computers. It is faster than the serial port and transfers up to 12Mb/s (megabytes per second) with v1.1 interfaces.

USB 2.0 - The newest USB standard which is close in throughput speed to FireWire, up to 400Mb/s.

UV Filter - This is an Ultra Violet absorbing filter that helps overcome the abundance of blue in outdoor photographs.

UXGA - Refers to an image resolution size of 1600 x 1200 pixels.

V

VCD - (Video Compact Disc). A CD-ROM disc that contains video **and** audio. Typically a VCD can hold about 74 minutes (650MB) of video and stereo quality audio. The video and audio are stored in MPEG-1 format and follow certain standards (White Book). VCD video quality is roughly the same as VHS video.

VGA - Refers to an image resolution size of 640 x 480 pixels.

Video Out - This means that the digital camera or camcorder has the ability to output its images on television screens and computer monitors using either NTSC or PAL format.

Viewfinder - The eye level device you look through to compose the image.

Vignetting - A phenomenon, whereby the centre of the image is brighter than the edges. Can be caused by faulty lens design or more commonly, through using a filter assembly or lens hood that is too long for the lens. Most common in wide-angle lenses.

W

White Balance - Refers to the adjustment of the brightness of the red, green and blue components, so that the brightest object in the image appears white. White balance is used to ensure colour in images is as accurate as possible.

Wide angle - The focal length that gives you the widest angle of view. I.e. 10mm, 16mm, 24mm etc.

Wratten Filters - Named after the English inventor of commercially available colour photographic filters, Frederick Wratten. Filters of different colours and density are given unique Wratten numbers.

X

X3 Image Sensor - Foveon's image sensor for digital cameras that captures red, green and blue data on every pixel.

xD-Picture Card - A flash memory card standard that was co-developed by Fuji film and Olympus in mid 2002.

XGA - This refers to an image resolution size of 1024 x 768 pixels.

Y

Z

Zoom Lens – A lens with a variable focal length.