

PBL SMARTPHONE PHOTOGRAPHY

BASIC CAMERA TERMS

What is the BEST smartphone camera? The one YOU have!!!!

Every camera is different but share some things in common...

- Lens--"see" things
- Sensor--turns image into digital data
- Software--analyzes data and turns it into an image

Aperture – This is the opening in front of the lens that controls how much light passes through the lens and then to the sensor. Aperture is measured in f-stops or f-number (e.g. f/1.8, f/2.0, etc.) and the higher the f-number the smaller the aperture and the lower f-numbers.

It's important to remember that with each f-number increment the light available to the sensor either increases or decreases.

Aspect Ratio – This refers to the dimensions of your photo. Usually an aspect ratio of 4:3 is pretty standard, but now 16:9 aspect ratios are becoming more and more popular, which produce widescreen high-resolution photos. Just make sure that your sensor also has a 16:9, and if your phone has a 4:3 sensor then it's best to shoot in the 4:3 aspect ratio.

Burst mode – This camera feature allows you to take multiple photos in consecutive order. This is especially useful for moving subjects.

Close-up/Macro mode – This is a smartphone camera shooting mode that allows you to hyperfocus on very small subjects in order to take macro shots.

Exposure – A combination of aperture (the amount of light hitting the sensor) and shutter speed (amount of time the sensor is exposed to the light). Various setting combos can lead to different exposures:

- **Normal exposure** – This is what you should be shooting for, the optimal combination of aperture and shutter speed
- **Underexposure** – This happens when not enough light hits the sensor, which typically produces a dark photo.
- **Overexposure** – This is the result of too much light hitting the sensor, which tends to produce a photo that looks washed out

Flash – Usually an LED light (either single or dual) within the camera module which adds more light to a scene. This feature should be used sparingly as there is a high risk of overexposing your photos.

Focus – This is achieved via a property of the lens that brings the scene into focus by adjustments between the various lenses within the camera module of a smartphone camera

- **Autofocus** – A camera feature that automatically focuses on the subject
- **Manual focus** – Many smartphone cameras have a manual mode in which you can control the focus manually. Usually this can be replicated using apps as well.

ISO number – ISO means This is the measurement of sensitivity to light (e.g. ISO 100, 200, 400, 800, 1600 etc.) A higher ISO number makes your camera more sensitive to light (good for low-light shots), while a lower ISO number makes your camera less sensitive to light (good for daytime shots).

Lens – The lens focuses light sharply onto the sensor to produce an image.

Light – Energy in the form of photons (bundles of light) that comes from the Sun. I like thinking of photography as “painting with light”

- **Daylight** – Direct or indirect sunlight
- **Hard light** – This is light produced by a light source that appears smaller than the subject in a scene. For example, if you shoot a photo of someone in direct sunlight, this would be considered ‘hard light’. Photos with too much hard light creates shadows and highlights that can drown out your subject.
- **Soft light** – This is the opposite of hard light which means that this would be produced by light sources bigger in size relative to your subject. Areas with soft light have soft shadows and highlights. Examples include window light, or the sun peeking through the clouds on a cloudy day

Manual mode – This is a camera mode that allows you to adjust exposure, white balance, shutter speed, ISO, manual focus, etc.

Megapixel count (MP) – this refers to the resolution of the pictures taken by a particular smartphone camera. But keep in mind that higher MP count doesn’t always equate to a higher quality photo.

Optical Image Stabilization (OIS) – A camera feature found on many smartphones that reduces camera shake and helps combat unintended motion blur.

RAW – This is a file format that is also used by digital cameras which retains all of the image data details which is better for post-processing than the standard JPEG format since JPEGs lose some data when they compress the image files. The higher end smartphones usually come with this feature.

Sensor – Smartphone sensors are of the CMOS type which means ‘Complementary Metal Oxide Semiconductor’; this is the most common sensor in smartphones due to its high pixel count, lower energy consumption, and lower cost. The larger the sensor, the more light is available to the sensor.

Shutter speed – The speed at which the shutter opens and lets in light to the sensor. A shutter speed of 1-4 seconds is good for night shots while a faster shutter speed (1/125 seconds) is good for action shots and daytime photography