



Cary Photographic Artists

Present

Photography Fundamentals

A “Mastering the Art of Photography” Topic

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▶ Note 1: All notes are on the final page

Agenda

- ▶ Camera Basics
- ▶ Basics of exposure (Aperture, Shutter Speed and ISO)
- ▶ White Balance and the Histogram
- ▶ Q&A



Camera Basics

- ▶ Cameras come in many different forms
- ▶ Film 35mm
- ▶ Point and shoot
- ▶ DSLR (Digital Single-Lens Reflex)
- ▶ Mirrorless
- ▶ Phone Cameras

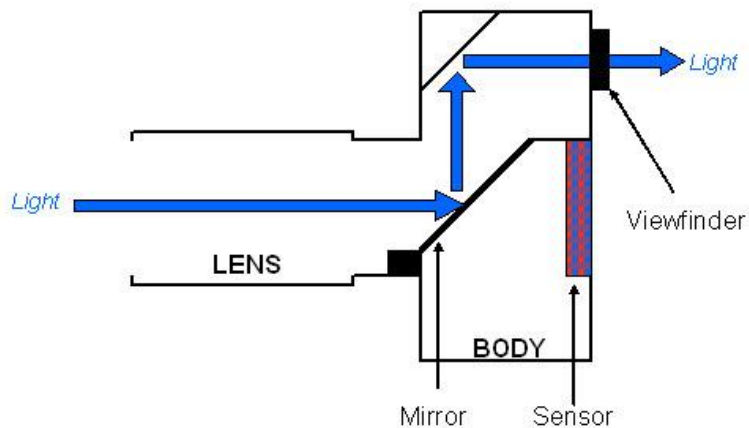


Camera Basics (cont)

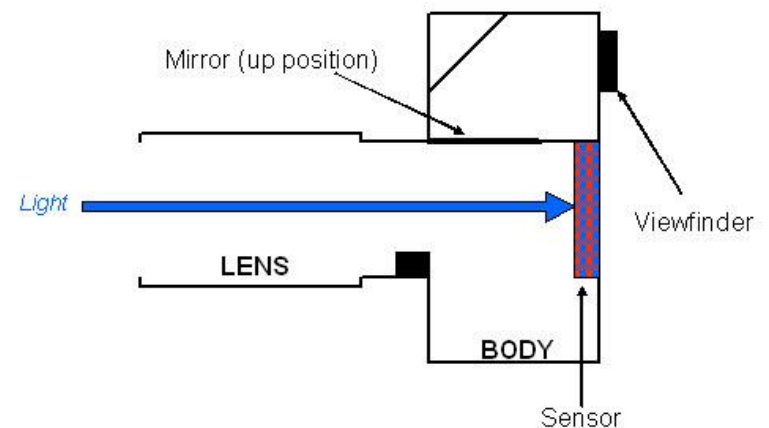
- ▶ A camera is a lightproof box with a lens on one end and film or a sensor on the other end
- ▶ When you press the shutter it allows light to travel through the lens and record the image onto the sensor. This is called an exposure.
- ▶ Depending on the camera that you have will allow how much you can control the exposure.

Camera Basics (cont.)

BEFORE THE SHOT



DURING THE SHOT



Basics of exposure

- ▶ Aperture
- ▶ Aperture also known as F-Stop is the size of the opening in the lens. The larger the hole the more light it will allow in. The smaller the hole the less light will be allowed in
- ▶ This can sometimes be confusing as the larger the F-Stop number the smaller the opening in the lens
- ▶ Aperture controls the depth of field in the exposure
- ▶ Minimum and Maximum aperture is dictated by the lens not the camera

Basics of Exposure

▶ Aperture



Large Aperture

f/2



Medium Aperture

f/8



Small Aperture

f/22

Basics of Exposure

▶ Aperture



Shot at F4.5



Basics of Exposure

▶ Aperture



Shot at F14



Basics of Exposure

- ▶ Shutter Speed
- ▶ Shutter speed simply refers to the amount of time that the shutter is open exposing the sensor to light
- ▶ It is mostly measured in fractions of a second (ie. 1/1000sec, 1/60sec)
- ▶ The slower the shutter speed the more light that is allowed onto the sensor
- ▶ A faster shutter speed will freeze motion while a slower shutter speed can blur motion and will require the use of a tripod.

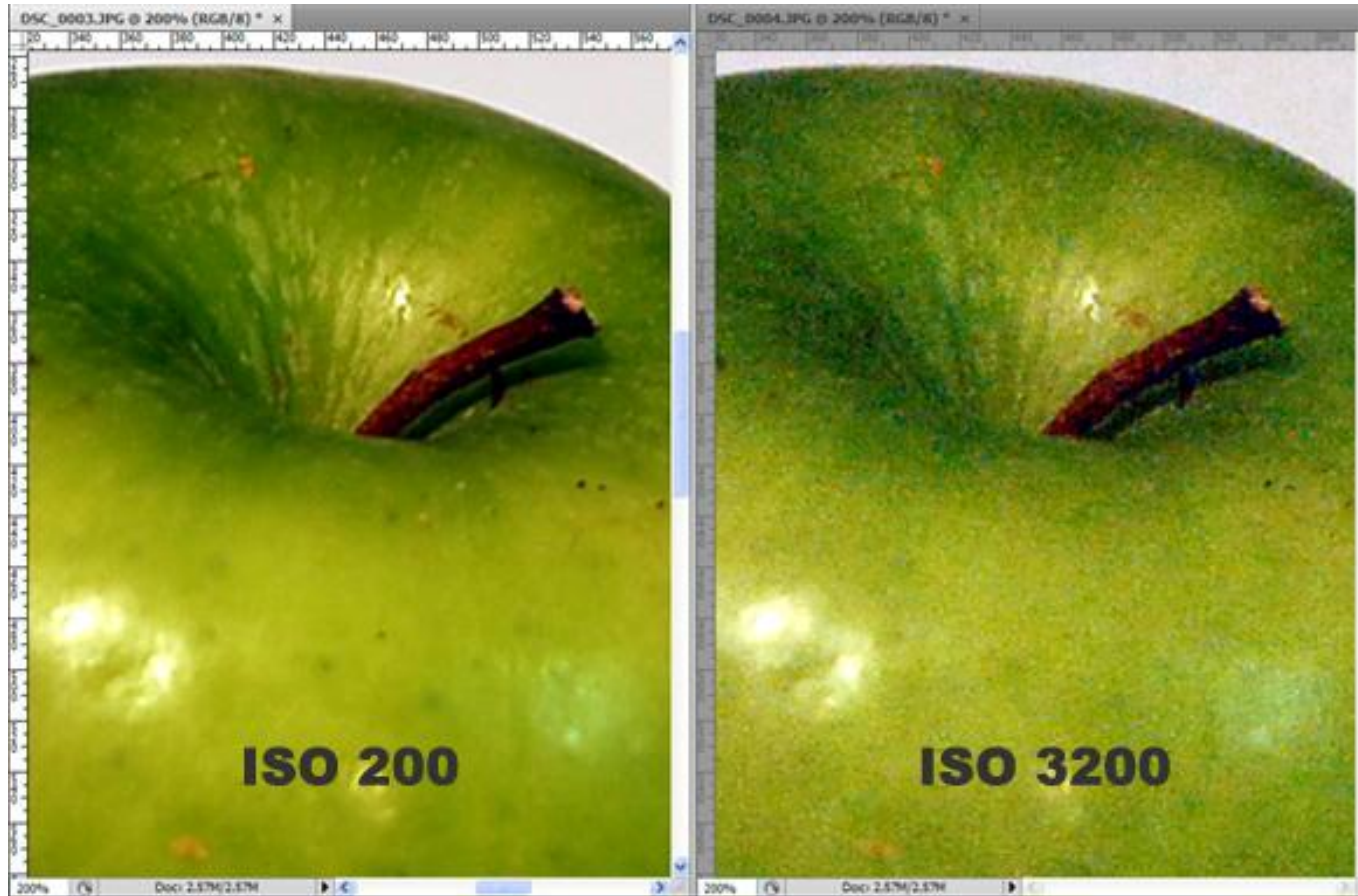


Basics of Exposure

- ▶ ISO
- ▶ ISO also known as film speed denotes how sensitive the sensor is to light. The higher the ISO the more sensitive it will be to light and allow to take a picture in low light situations
- ▶ ISO values can range from 100 to 64,000 depending on the camera
- ▶ If you use a very high ISO you will get more noise on the picture (grain)

Basics of Exposure

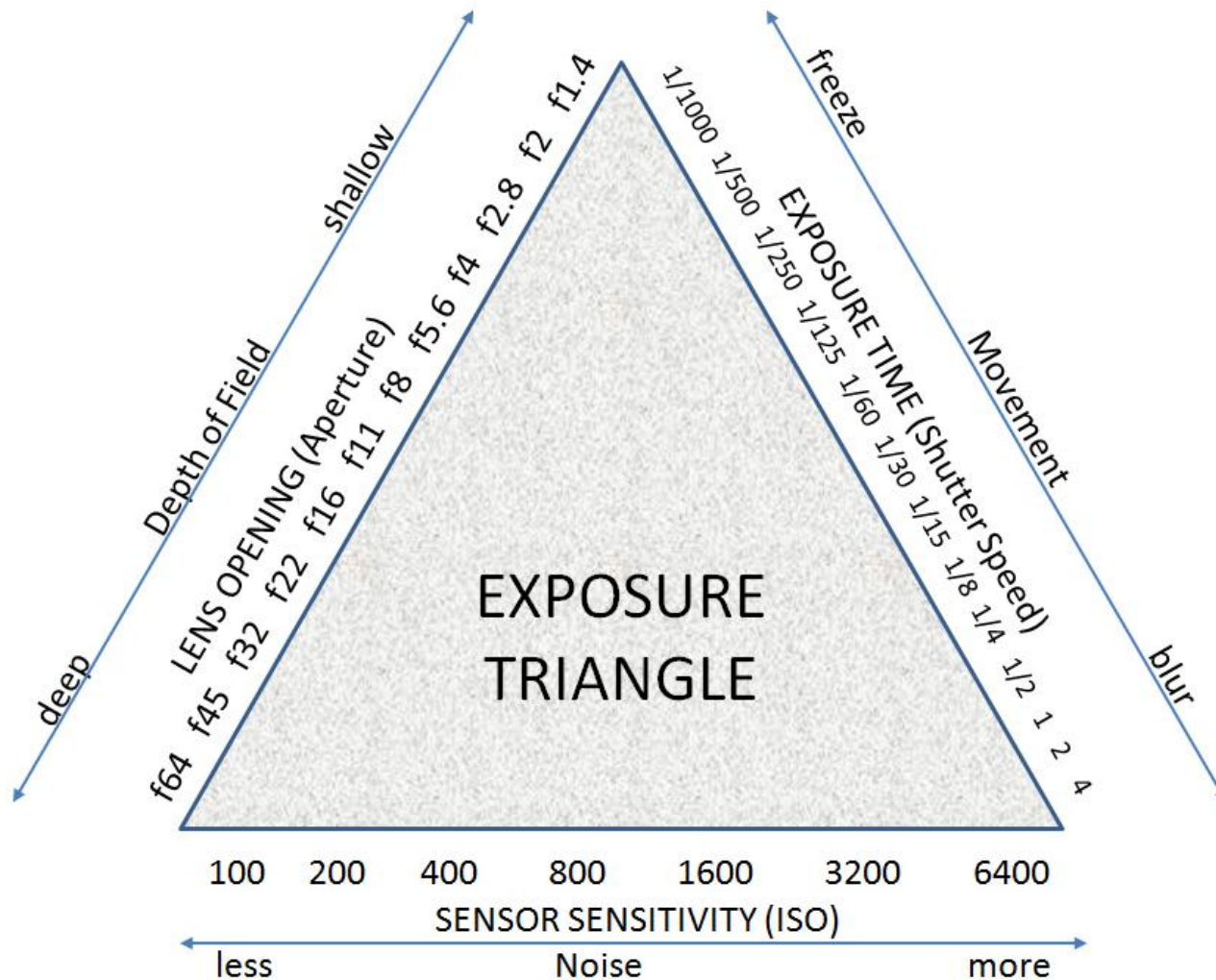
▶ ISO



Basics of Exposure

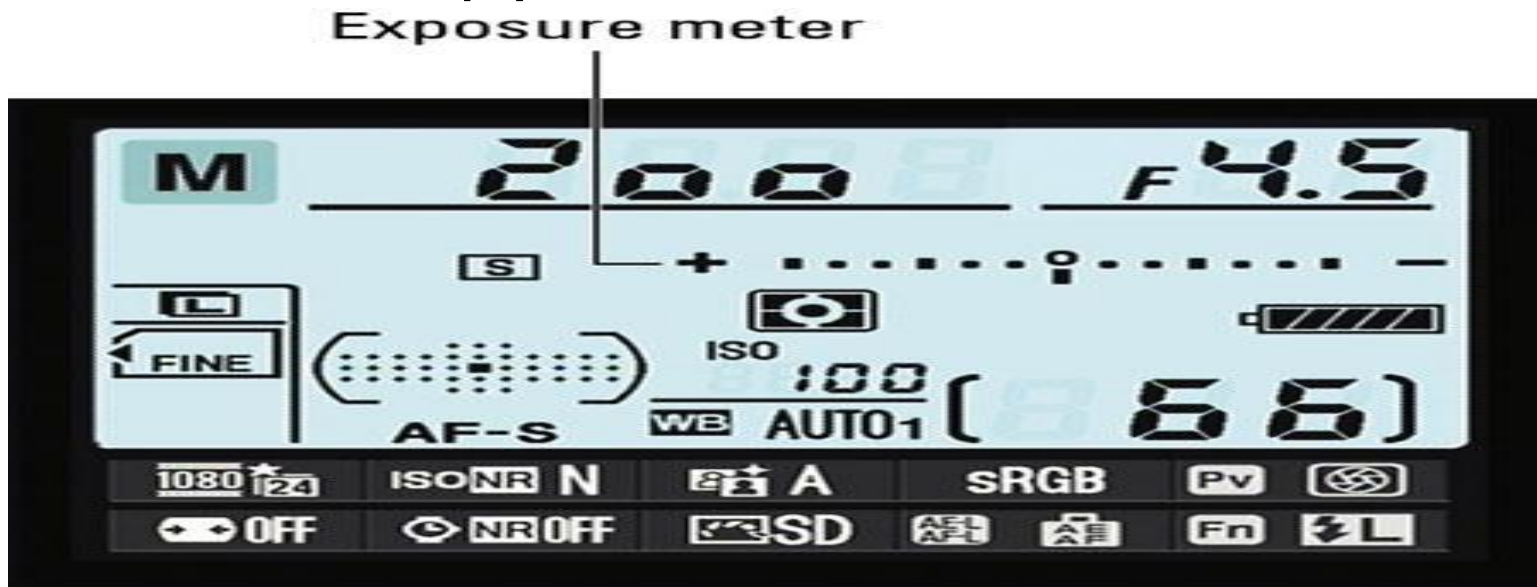
- ▶ Now we need to put it all together
- ▶ When we take a picture we will use Aperture, Shutter Speed and ISO to get a correct exposure
- ▶ This is known as the exposure triangle

Exposure Triangle



Basics of Exposure

- ▶ To determine the proper exposure you will need to adjust Aperture, Shutter Speed and ISO to gain the correct exposure for the shot
- ▶ Most cameras will have an exposure meter built into the camera to help you.



Basics of Exposure

- ▶ Camera modes



Basics of Exposure

- ▶ P (Program Mode) The camera will control the aperture and shutter speed and you control the ISO
- ▶ A (Aperture Priority) The camera controls the shutter speed and you control the aperture and ISO
- ▶ S (Shutter Priority) The camera controls the aperture and you control the shutter speed and ISO
- ▶ M (Manual) You have full control over aperture, shutter speed and ISO

Basics of Exposure

- ▶ White Balance
- ▶ White balance is adjusted to get the colors in your images as accurate as possible.
- ▶ This is measured as a temperature called Kelvin. They range from a very cool light like a blue sky to a warm light given off by a candle
- ▶ Different sources of light will have a different color (temperature) to them. Florescent light gives a bluish cast to them and tungsten (incadescent/blubs) lights will add a yellowish tinge to the photos

Basics of Exposure

- ▶ Most cameras will have preset white balance settings
- ▶ Auto: The camera will make the best guess on each shot
- ▶ Tungsten: Used when shooting indoors. It will cool down the colors in the photos
- ▶ Fluorescent: This will warm up your photos
- ▶ Daylight/Sunny: Used in outdoor shots
- ▶ Cloudy: Will warm up the photos a bit more than Daylight
- ▶ Flash: The camera flash can be a cool light so it will warm up the shots a touch
- ▶ Shade: Light in the shade is cooler than sunlight so it will warm up the photo



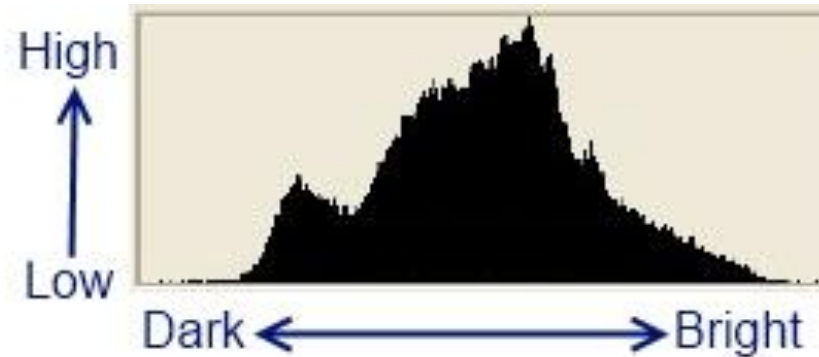
Basics of Exposure

- ▶ You can also Manually set the white balance by using a grey card. This will help set the proper white balance using the Pre setting if your camera has this.
- ▶ If you shoot in RAW format you will be able to change this in post processing.



Basics of Exposure

- ▶ The Histogram
- ▶ The histogram is a graph that will show the tonal range in any given image
- ▶ It will graph the tones in your image from black on the left to White on the right



Basics of Exposure

- ▶ Using the Histogram will allow you to adjust your exposure to get the shot that you want.
- ▶ Don't rely just on the histogram. Look at your picture to see if it is exposed to your liking.
- ▶ If you shoot in RAW format a lot of this can be adjusted in post processing

References

▶ Books

- ▶ Understanding Exposure by Bryan Peterson
- ▶ The Digital Photography Book Vol 1-4 by Scott Kelby

▶ Online

- ▶ www.FroKnowsPhoto.com
- ▶ <http://www.adorama.com/alc/category/AdoramaTV>
- ▶ www.youtube.com



Q&A

