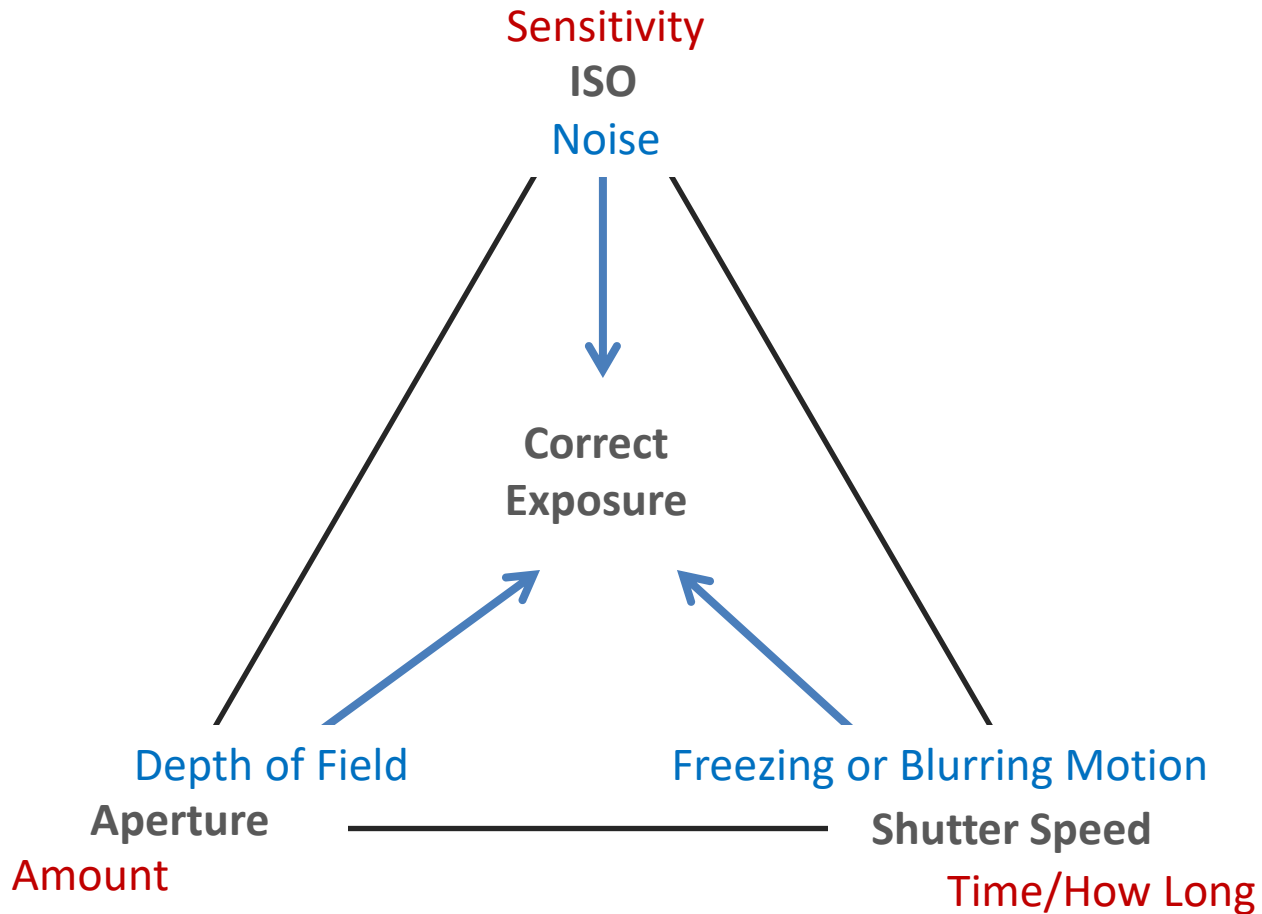


# THE EXPOSURE TRIANGLE



# SHUTTER SPEED, APERTURE & ISO

## Equivalent Exposures

Bulb 30" 15" 8" 4" 2" 1" 2 4 8 15 30 60 125 250 500 1000 2000 4000 8000

← More Light = Slower Less Light = Faster →

**Blur Motion**

**Freeze Motion**

f1.4 f2 f2.8 f4 f5.6 f8 f11 f16 f22 f32

← More Light = "Open Up" = Larger Hole Less Light = "Stop Down" = Smaller Hole →

**Shallow Depth of Field**

**Deep Depth of Field**

100 200 400 800 1600 3200 6400

← Less Light More Light →

**Less Noise & Higher Quality**

**More Noise & Lower Quality**

# ESSENTIAL PHOTOGRAPHY TIPS

## JPEG vs. RAW

- RAW is not an image file per se (it will require special software to view, though this software is easy to get)
- JPEG is processed in camera and ready to go and easy to share immediately
- RAW is the highest level of quality with 4K – 16K levels of brightness, higher dynamic range and more control of exposure, blacks, whites, recovery, contrast, brightness, whites etc.)
- JPEG records 256 levels of brightness.
- RAW you can do extremely refined processing of image
- JPEG camera does processing and dumps a tone of information do=so any future processing is more limited
- RAW is uncompressed “lossless” data
- JPEG is lossy, compressed image
- RAW is not suitable for printing directly from the camera or without post processing.
  - read only (all changes are saved in an XMP “sidecar” file and/or to a JPEG, TIFF or other image format).
  - sometimes admissible in a court as evidence (as opposed to a changeable image format).
  - waiting to be processed by your computer
- JPEG is nicely processed, good looking and ready to share and print (the camera has several JPEG settings, usually referred to as Picture Style)
- RAW much better detail and non-destructive editing (uses a “sidecar” file)
- RAW much bigger file sizes
- RAW much better for making TIFF or JPEG files for digital prints because of tonal range, and colors range.
- RAW easy to adjust White after the fact

# ESSENTIAL PHOTOGRAPHY TIPS

## Aspect Ratio vs. Print Size



## TYPES OF LENSES

Focal Lengths	Lens Type	Lens Usage
Less than 20mm	Ultra Wide Angle	Architecture
21mm - 35mm	Wide Angle	Landscape
35mm - 70mm	Normal	Street and Documentary
80mm - 135mm	Medium Telephoto	Portraiture
135mm - 300mm	Telephoto	Sports and Wildlife
More than 300mm	Super Telephoto	Wildlife

### Specialty Lenses

- Fisheye
- Macro
- Tilt-Shift
- Lens Baby



## MAJOR TYPES OF LENSES

Wide Angle

Normal/Standard

Telephoto

Zoom or Prime/Fixed



## LENSES MARKINGS

**CANON ZOOM LENS EF 28-80mm 1:3.5-5.6 58mm**

**CANON EF LENS 50mm 1:1.8 49mm**





*f* 1.8



*f* 2.8



*f* 5.6



*f* 8



*f* 11



*f* 16



*f* 22

**APERTURE &  
DEPTH OF FIELD**

# DEPTH OF FIELD

## HOW LENS OPENING AFFECTS DEPTH OF FIELD

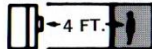
LARGE OPENING



SMALL OPENING

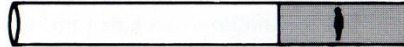


## HOW SUBJECT DISTANCE AFFECTS DEPTH OF FIELD



## HOW FOCAL LENGTH AFFECTS DEPTH OF FIELD

LONG FOCAL LENGTH



MEDIUM FOCAL LENGTH



SHORT FOCAL LENGTH

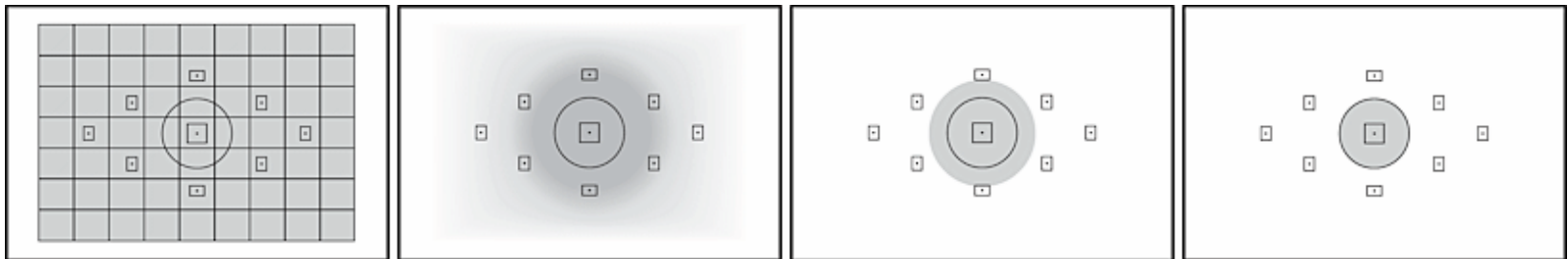


## ISO & THE IMAGE SENSOR







**Is *auto* ISO  
Good or Bad?**


# METERING PATTERNS

Multi-Area/Evaluated/Matrix  
Center-Weighted Average  
Partial Metering (Canon)  
Spot



# WHITE BALANCE

<div>AWB</div> <div>Auto</div>	<div></div> <div>Tungsten</div>	<div></div> <div>Fluorescent</div>	
<div></div> <div>Daylight</div>	<div></div> <div>Cloudy</div>	<div></div> <div>Flash</div>	<div></div> <div>Shade</div>

WB SETTINGS	COLOR TEMPERATURE	LIGHT SOURCES
	10000 - 15000 K	Clear Blue Sky
	6500 - 8000 K	Cloudy Sky / Shade
	6000 - 7000 K	Noon Sunlight
	5500 - 6500 K	Average Daylight
	5000 - 5500 K	Electronic Flash
	4000 - 5000 K	Fluorescent Light
	3000 - 4000 K	Early AM / Late PM
	2500 - 3000 K	Domestic Lightning
	1000 - 2000 K	Candle Flame

# WHITE BALANCE

Example Shot Under Fluorescent Lights



Auto

Cloudy

Daytime

Fluorescent

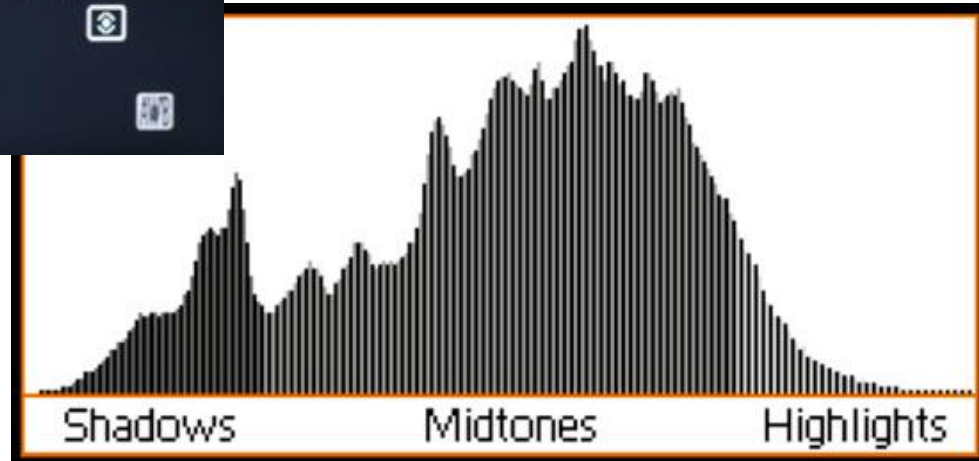
Shade

Tungsten

## EXPOSURE COMPENSATION

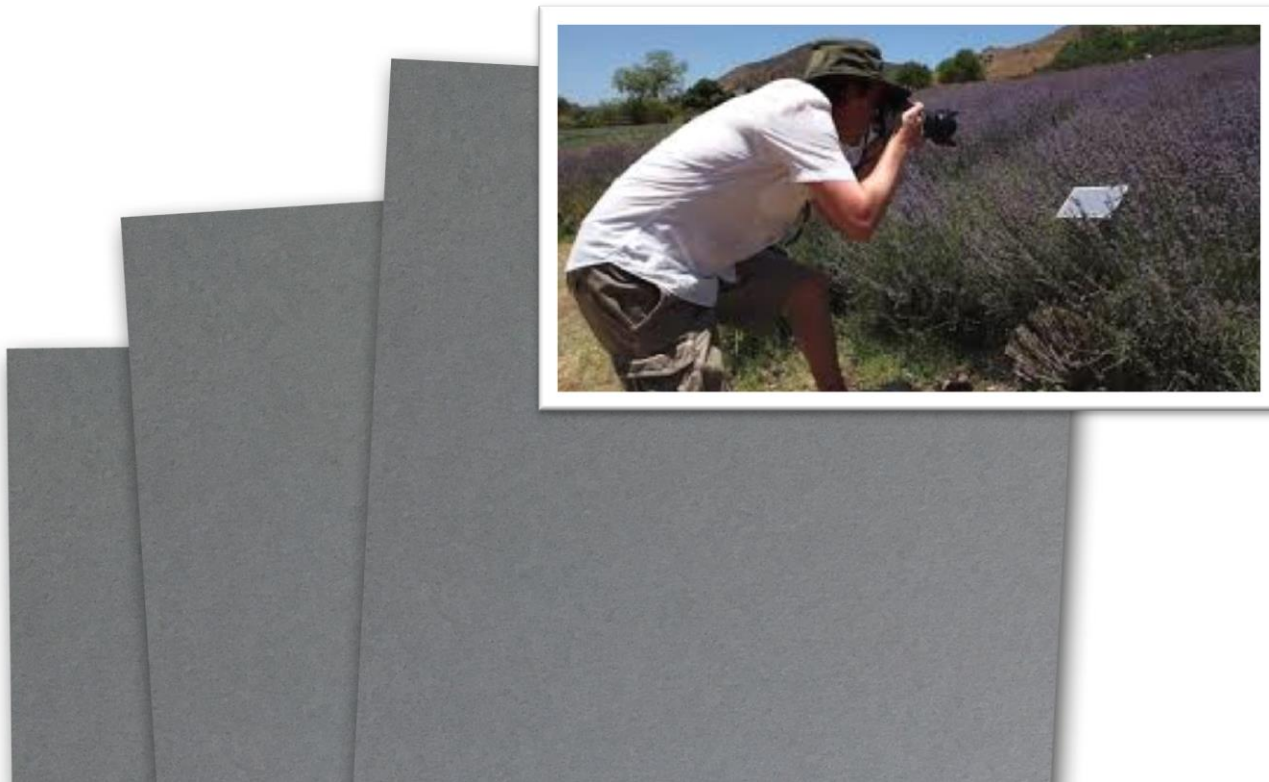


# HISTOGRAM



# GREY CARD

Correct Exposure & White Balance



# CLEANING



# FIRMWARE UPDATES

Drivers & Downloads

Operating System: Windows 10 (x64) (Detected) | Language: English

Software | **Firmware** | Utilities

File Name	Date	File Size	
EOS 70D Firmware Update, Version 1.1.2 [Windows]	09/29/16	23.80 MB	<a href="#">SELECT</a>
EOS 70D Firmware Update, Version 1.1.2 [Mac OS X]	09/29/16	23.86 MB	<a href="#">SELECT</a>



## FULLY MANUAL MODE



## ESSENTIAL PHOTOGRAPHY TIPS

### The Sunny 16 Rule

On a clear and sunny day, at an aperture of F/16, you will get a correct exposure if you use a shutter speed that's the inverse of the ISO speed you're using.

*Example: If it's a sunny day, and have your aperture set to F/16 and ISO set to 200, to correctly expose your image the shutter speed needs to be set to 1/200 (the inverse of the ISO number).*

## ESSENTIAL PHOTOGRAPHY TIPS

Other “F-Rules” for Different  
Shooting Conditions

The snowy/sandy F/22 rule.

The overcast F/8 rule.

The slightly overcast F/11 rule.

The heavy overcast F/5.6 rule.

The sunset F/4 rule.

## ADDITIONAL ACCESSORIES



Tripod with Ball  
Head Mount



Grey card



Lens Hood



UV Filter Lens  
Protector



35mm or 50mm  
F1.8/F1.4 Lens



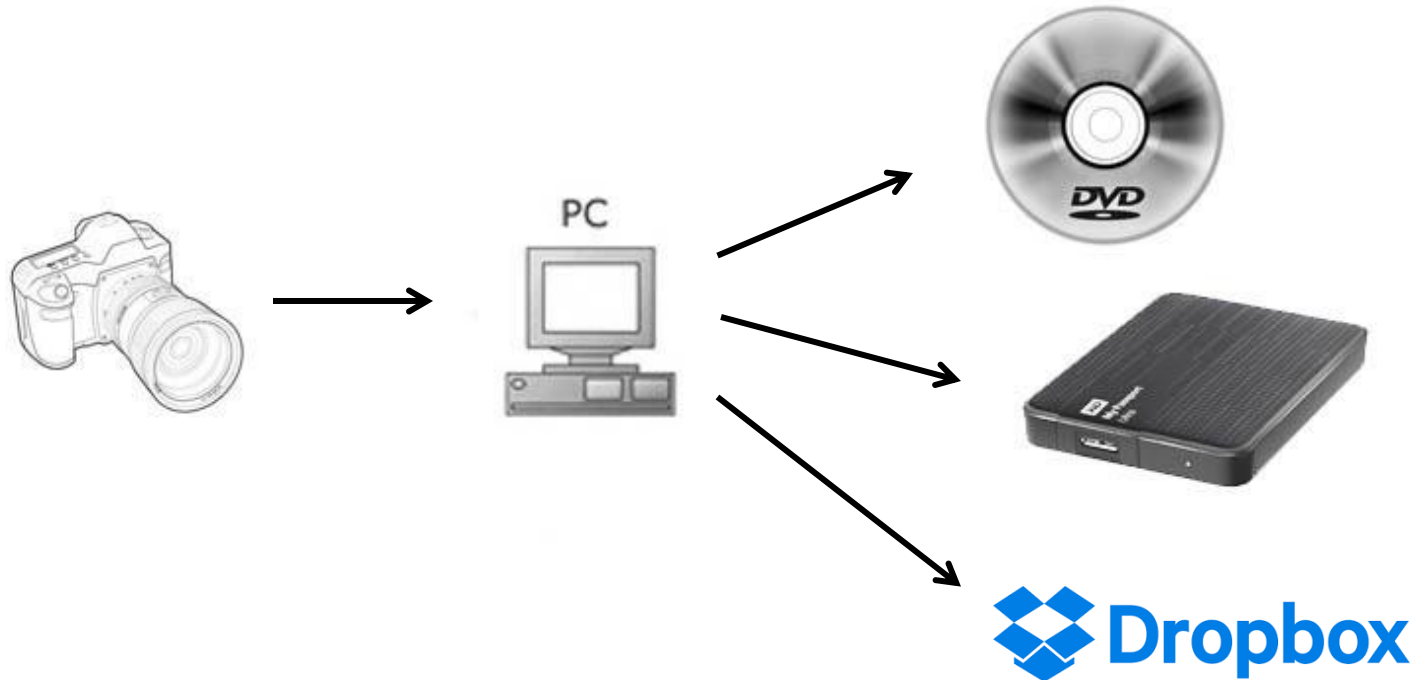
Extra Battery

## ADDITIONAL ACCESSORIES

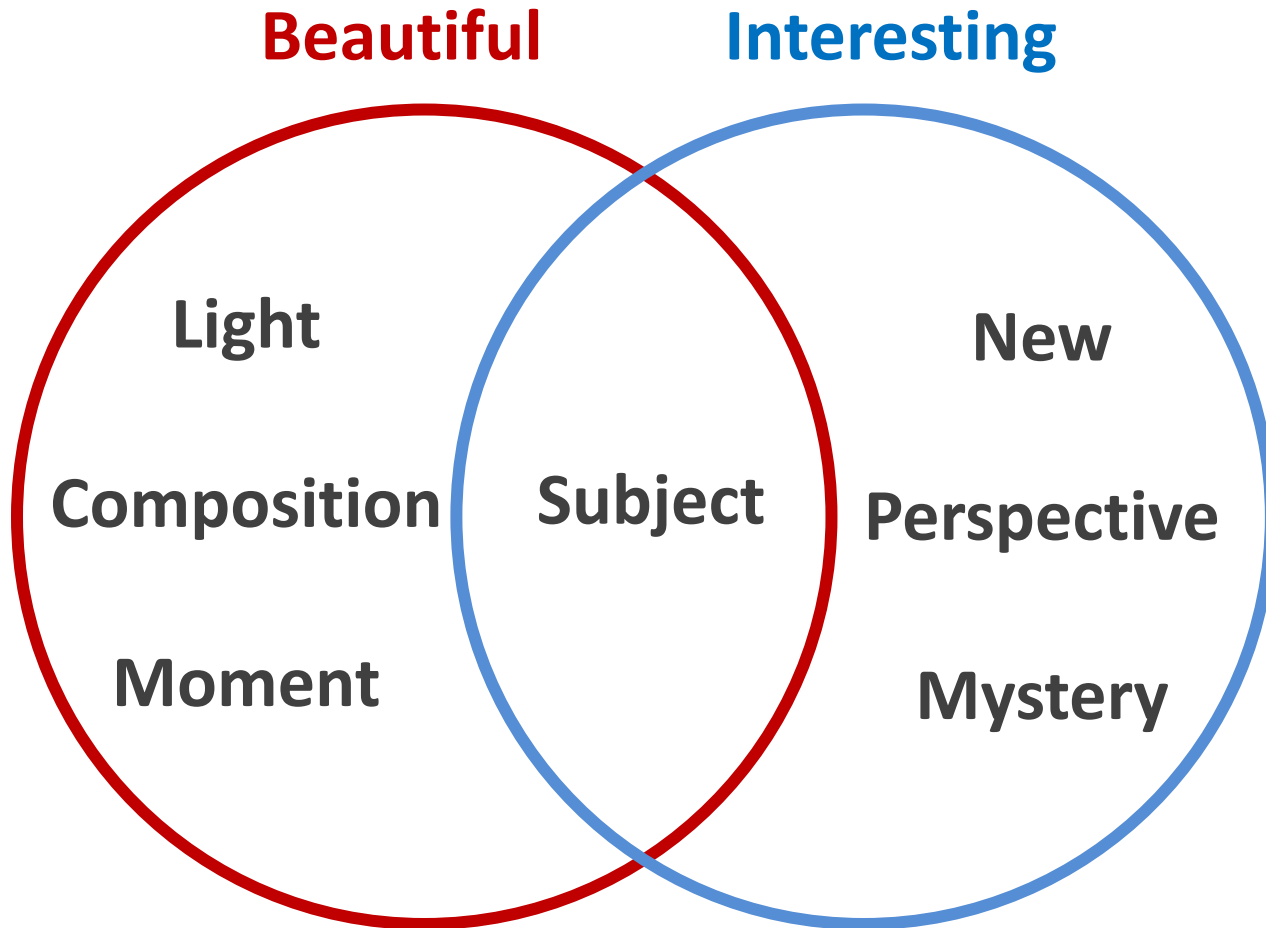
UV Lens Filter/Protector



# BACKUP!

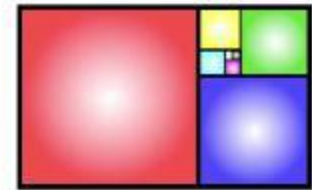


# A GREAT PHOTOGRAPH



# THE PHOTO 5-STEP

Not Necessarily in Order



**Subject + P.O.V. + Exposure + Focus + Composition**

*“The single most important  
component of a camera is  
the twelve inches behind it.”*

*– Ansel Adams*

