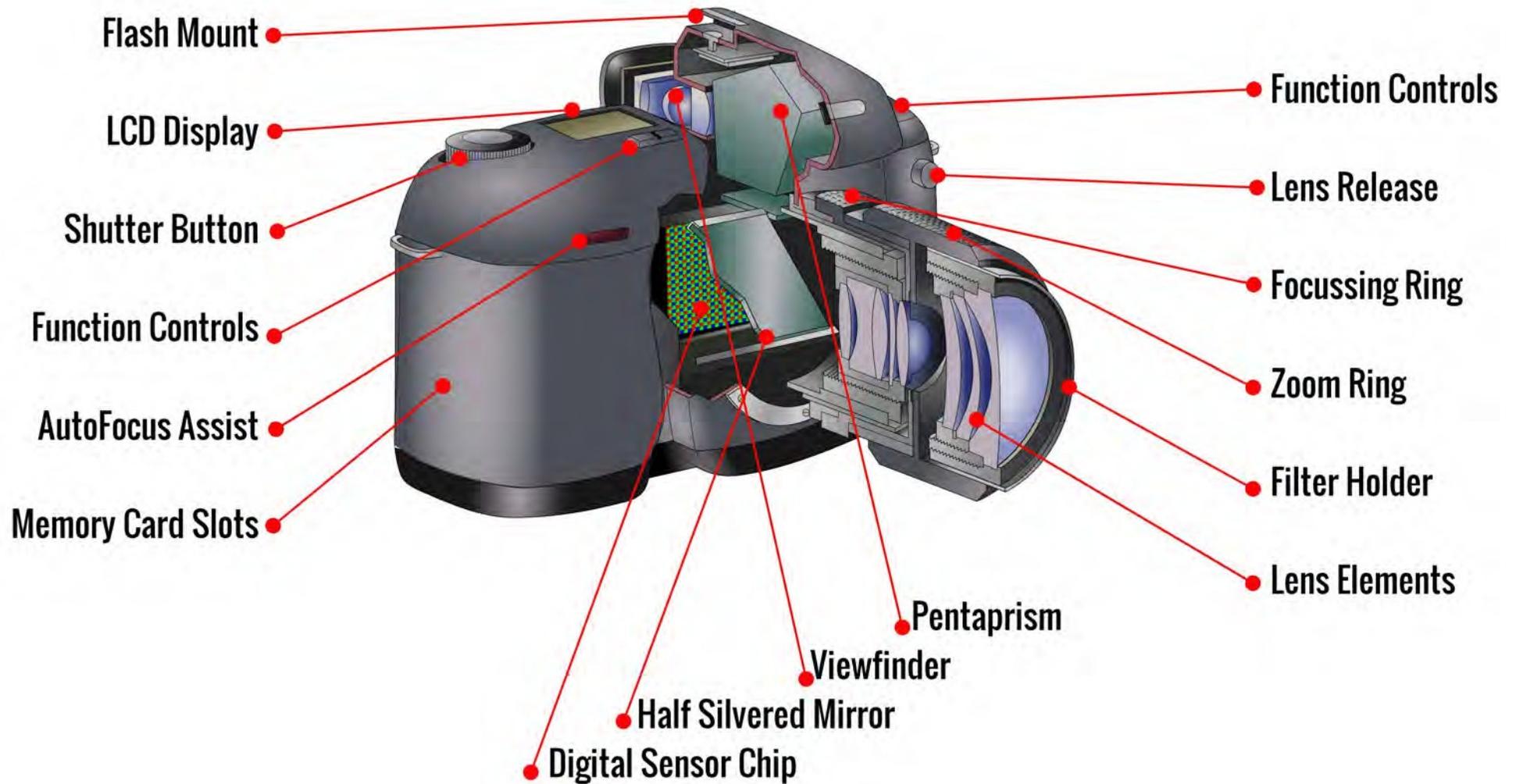


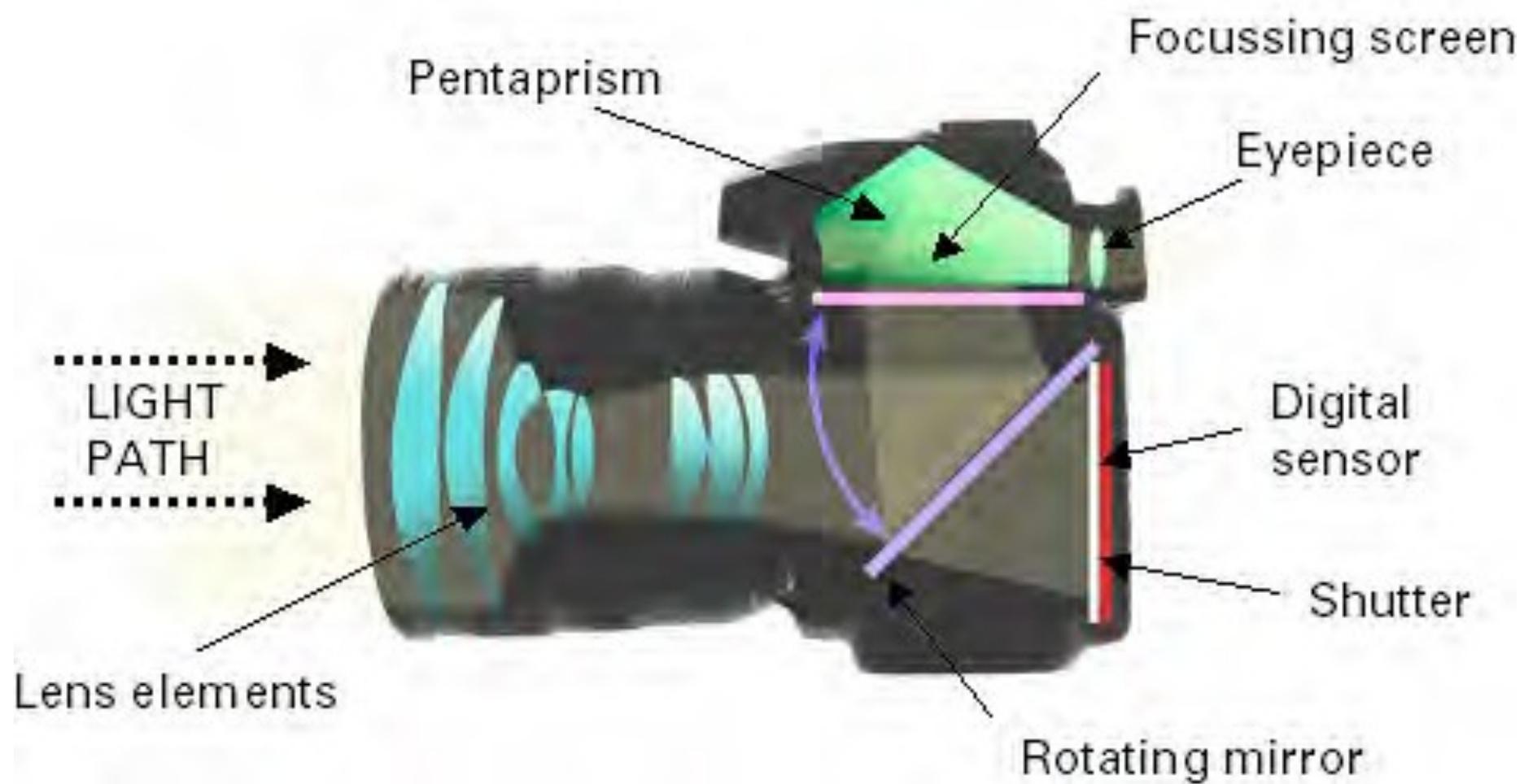
Digital photography 1

Week one

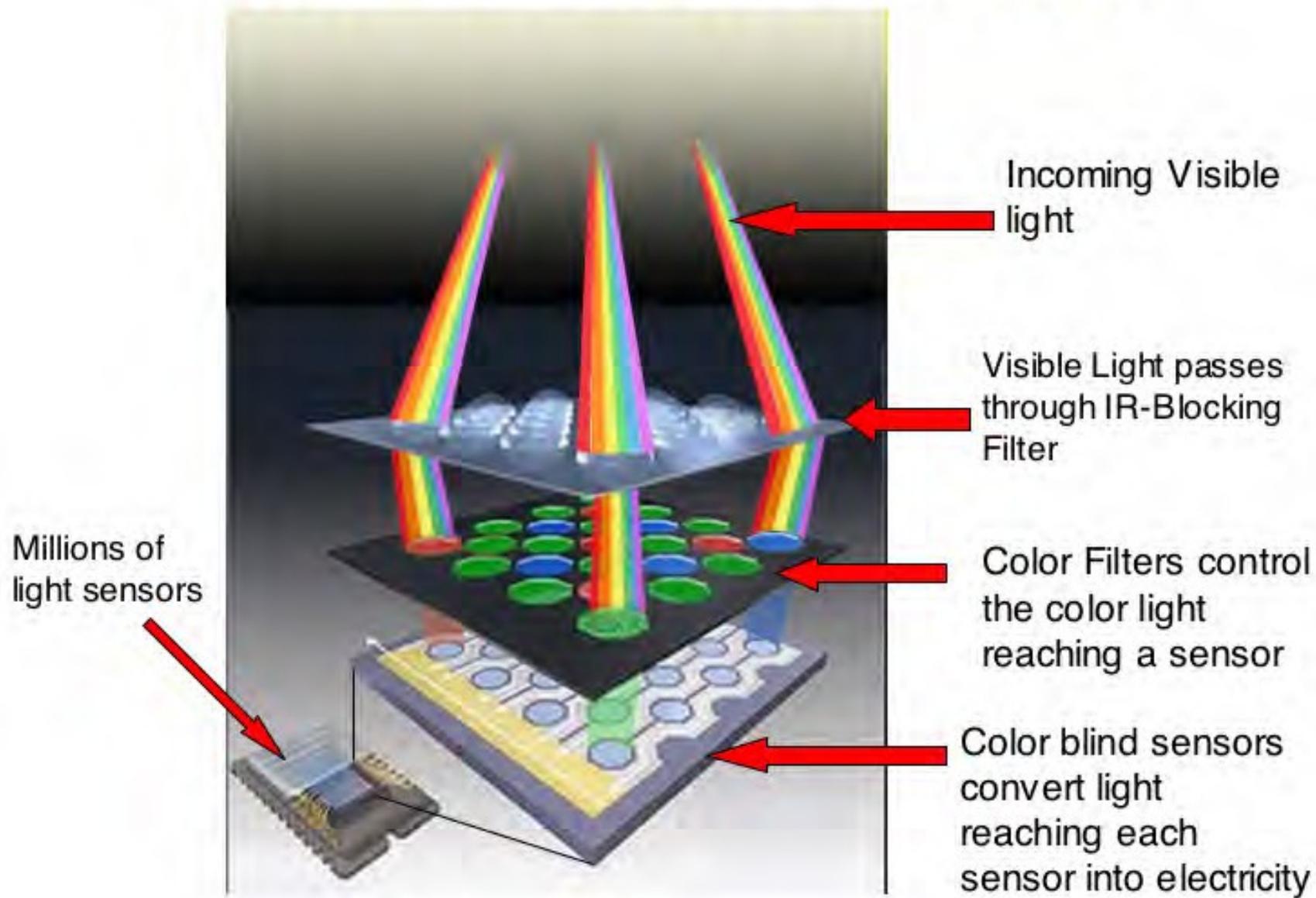








RGB Inside the Camera



Check your battery level!

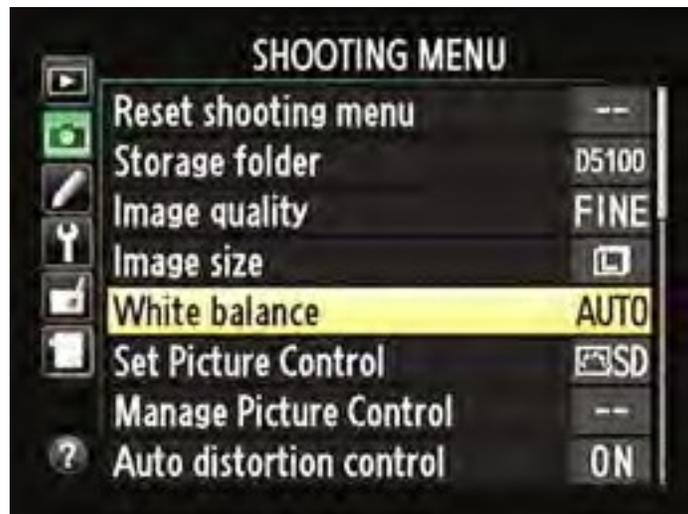
Begin by formatting your SD card for the semester!



Setting your Color Space in Camera to Adobe RGB



Setting your White Balance to Auto (AWB)- just for now!



Setting your Image Quality in Camera to RAW



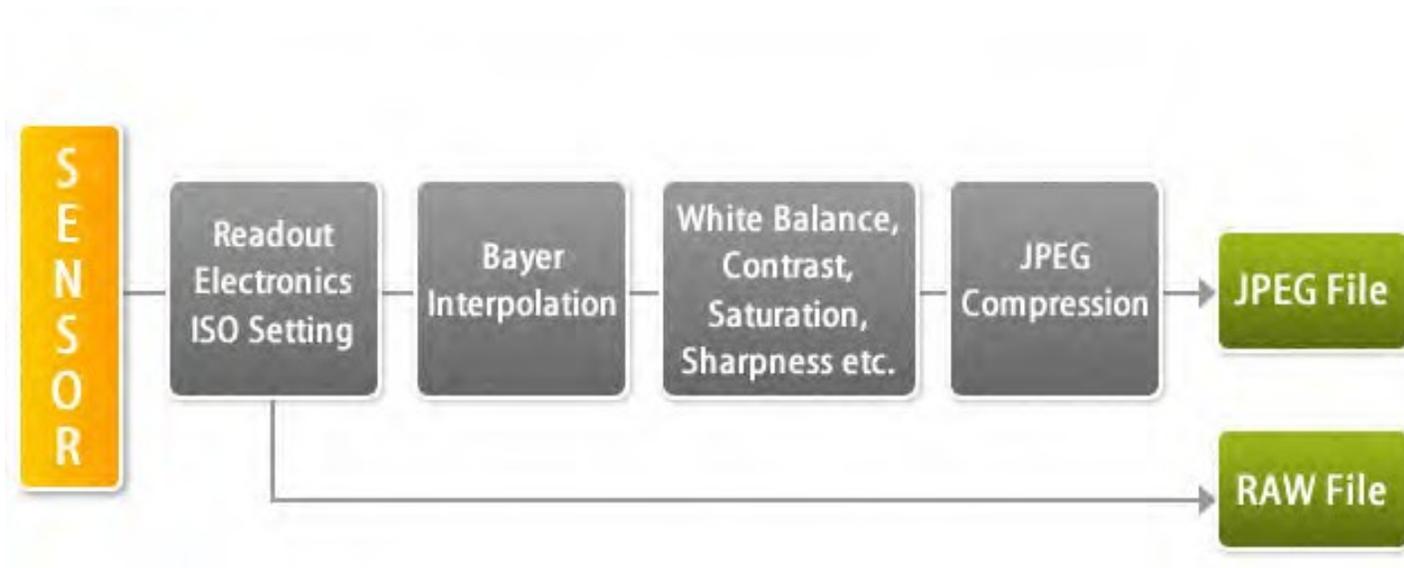
Jpegs
Large
Medium
Small



Choose RAW

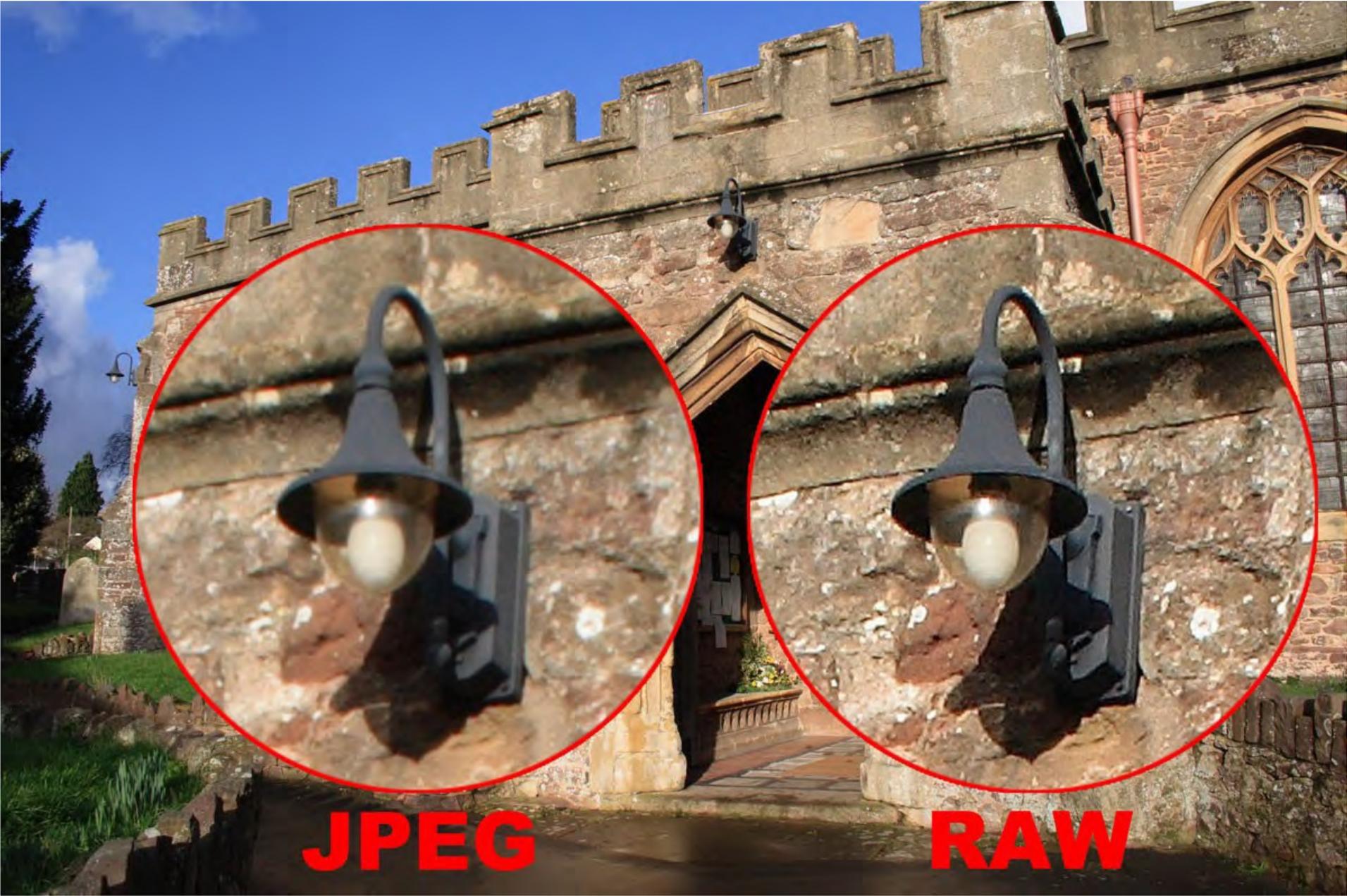
What is a JPG or JPEG?

- JPEG file is a commonly-used image file format, which will be processed and compressed by the capture device according to the settings made by the user before archiving. It is a very popular image format, and can be easily opened in most computers.
- The file size of JPEG format is much smaller than RAW format.
- JPEG is a standard format readable by most of the image program on the market.
- JPEG is more common and "user-friendly", even for computer amateurs.



What is RAW?

- RAW file is basically an image preserves most of the information from camera, such as sharpness and contrast, without processing and compressing.
- A raw file is a collection of unprocessed data. This means the file has not been altered, compressed, or manipulated in any way by the computer.
- A popular type of raw file is "Camera RAW," which is generated by a digital camera. Instead of processing the image captured by the camera, the data is left unprocessed and uncompressed until it is opened with a computer program.
- Shooting in Raw format will give you more control over how your photograph shows and even be able to correct several small flaws when you capture the photo, such as the exposure. You can easily fix the white balance in RAW file if the white balance cannot be properly set with the camera when taking a photo.
- If you choose to shoot in RAW, the photograph can be enlarged beyond the sensor's resolution of you camera and the scene of image will contain high contrast.
- The quality of a JPEG file generated from RAW format is much better than the one directly shot in JPEG. So you can shoot in RAW and then convert it to JPEG, especially for those photos which will be printed as wallpaper or other large files output.



JPEG

RAW

Mode Dial Cheat Sheet

GPS-Photography.com

(C1) Custom User Modes

Set your favorite settings to each of the C1, C2 or C3 modes for quick selection.



Scene Modes

Various Auto shooting modes by subject. Typical modes include Portrait, Landscape, Macro, Sports, Night Portrait and No Flash,

(M) Manual Exposure Mode

Manual selection of shutter speed, aperture and ISO sensitivity. Maximum control of the Exposure Triangle!

(Av) Aperture Priority "Aperture Value"

Good for changing Depth of Field (DoF). Manual selection of aperture with camera selecting shutter speed and ISO sensitivity.

(Tv) Shutter Priority "Time Value"

Good for freezing or blurring motion. Manual selection of shutter speed with camera selecting aperture and ISO sensitivity.

(P) Program Mode

Camera's Auto functions select shutter speed and aperture with ability to override camera's choice.

Auto Mode

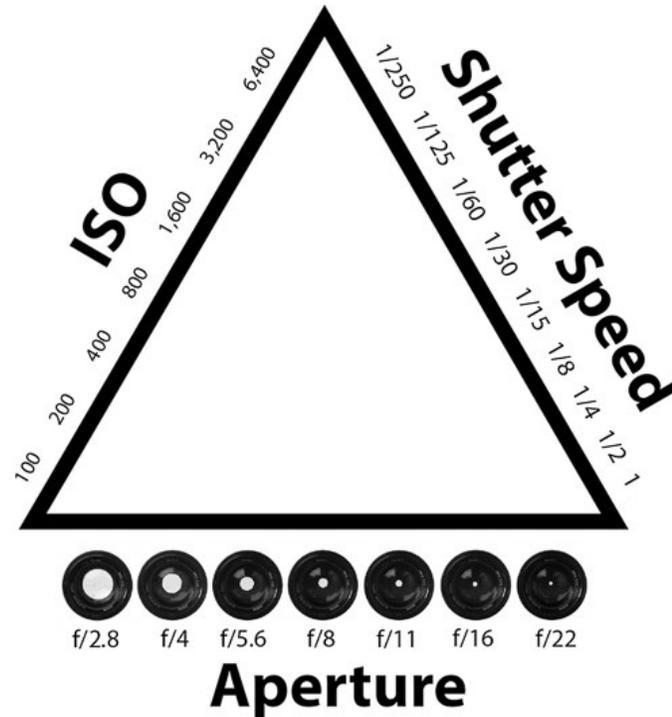
Camera will select all settings based on the scene to include auto focusing and flash.

EXPOSURE:

Defined in photography-

- the act of presenting a photosensitive surface to rays of light.
- the image resulting from the effects of light rays on a photosensitive surface.

Exposure Triangle



Three Pillars of photography

Factors that control exposure



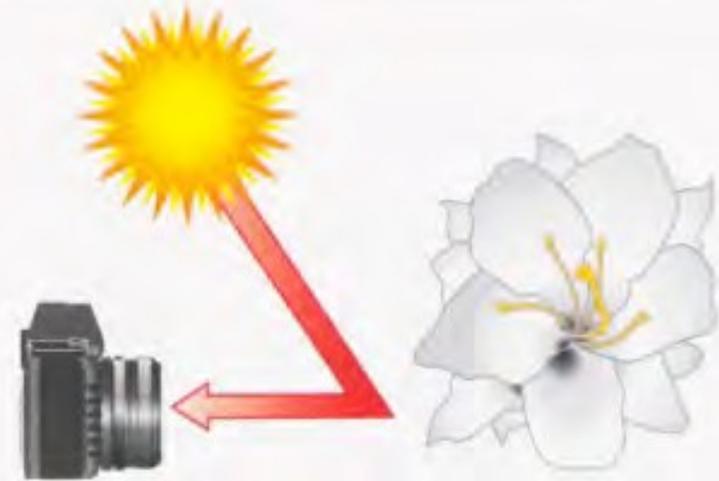
Aperture size



Shutter speed

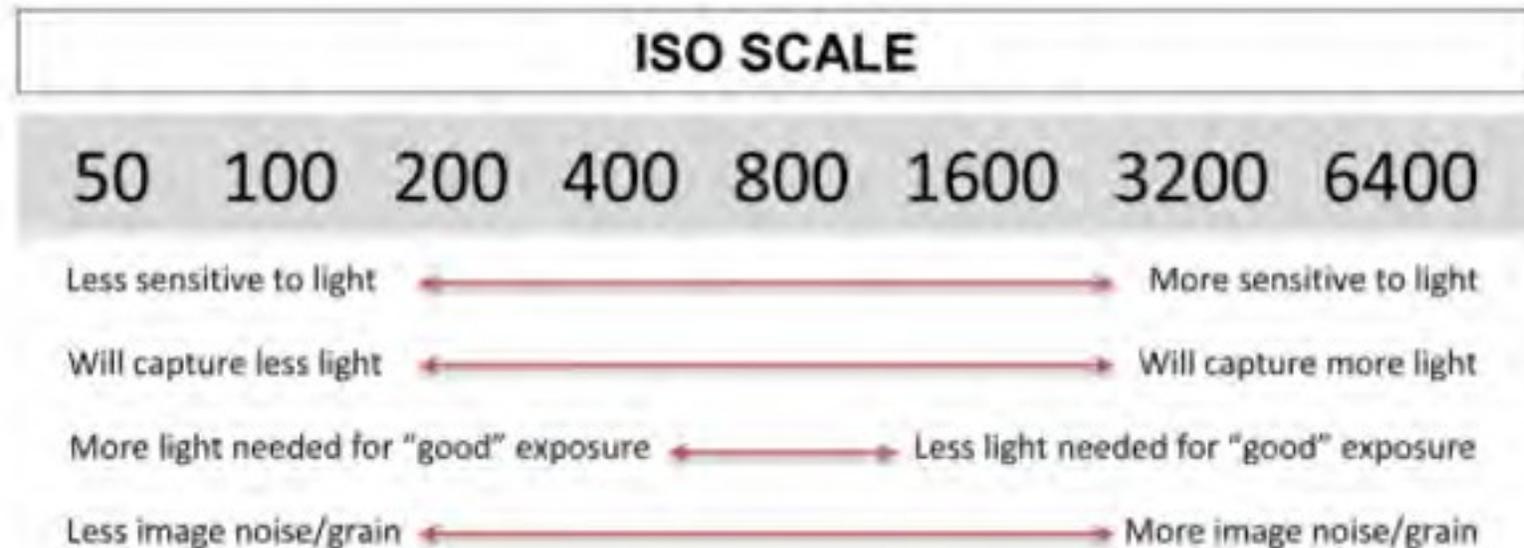


**ISO setting or
film speed**



Brightness of subject

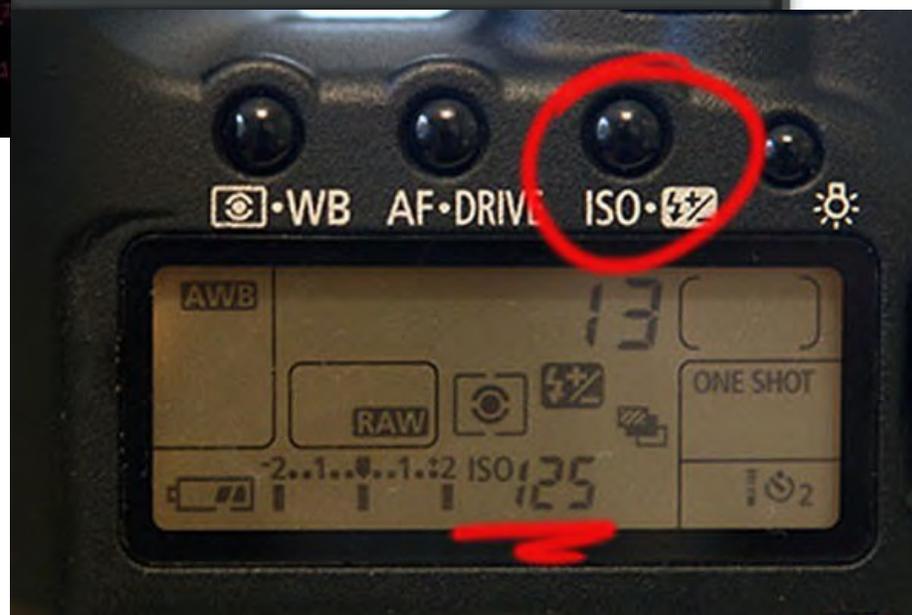
ISO is the level of sensitivity of your camera to available light.



How does ISO work?

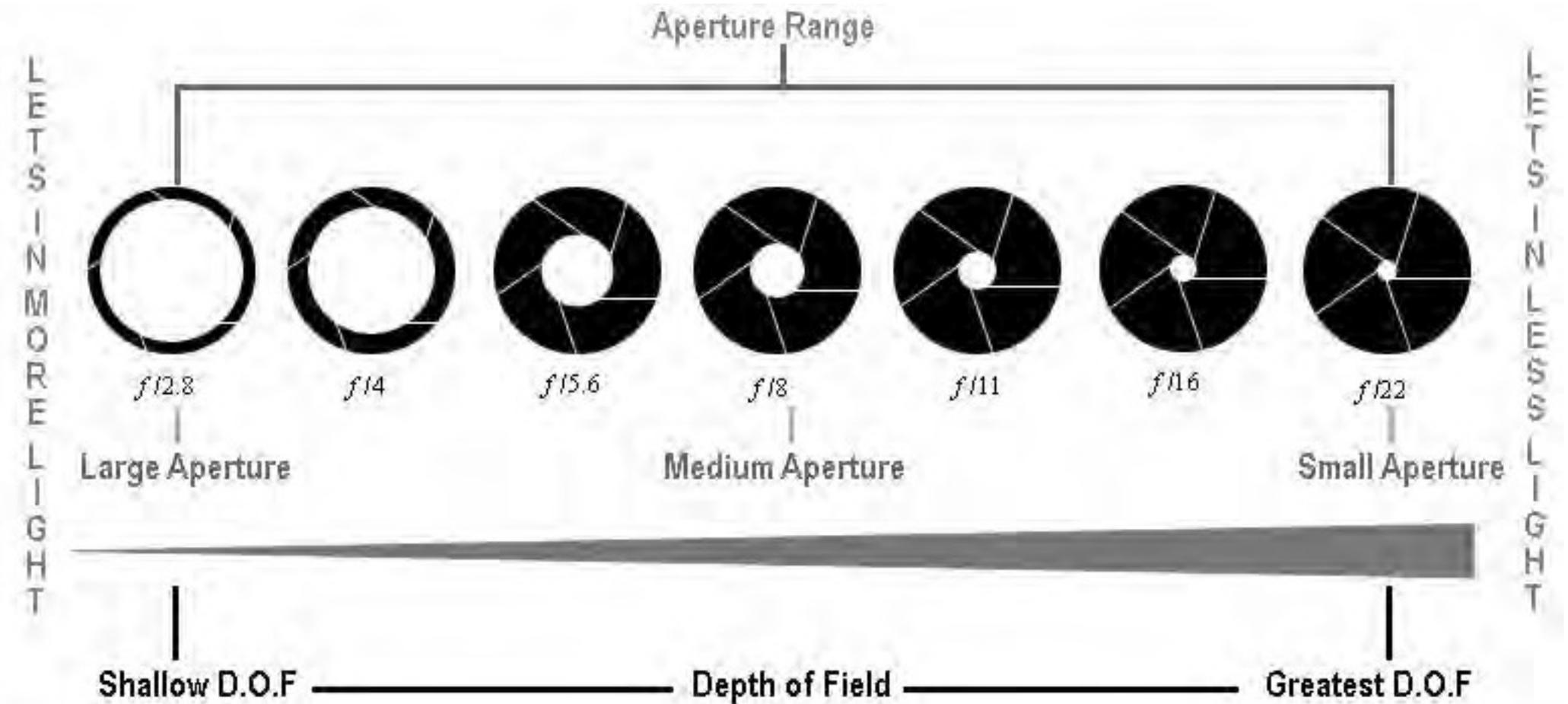
- To put it simple, ISO refers to how sensitive your digital camera or film is to light. So anytime we talk about **ISO photography**, we refer to the ideal amount of light we need for well-exposed images.
- Both in film and digital photography, ISO indicates the sensitivity to light and is measured in numbers - 100, 200, 400, 800 etc. These numbers are established by the International Organization for Standardization.
- Just as in using the Shutter and Aperture to add or subtract light the ISO rating works the same way.





There are some drawbacks to high ISO ratings in digital photography. We call this digital noise, where we see pixilation within the image.



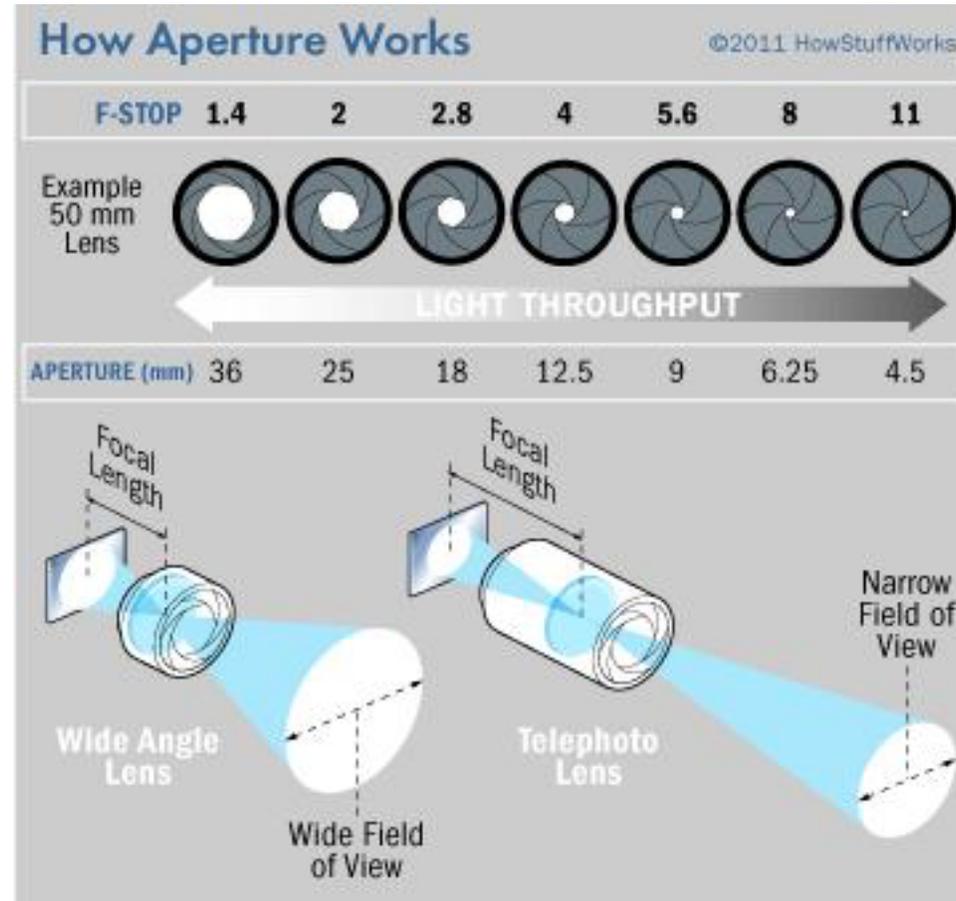


Aperture: the opening with which light is admitted.

F-Stop: refers to the aperture size.

Examples: (largest-smallest) $f/1.4$, $f/2.8$, $f/4$, $f/5.6$, $f/8$, $f/11$, $f/16$, $f/22$, $f/32$, $f/64$

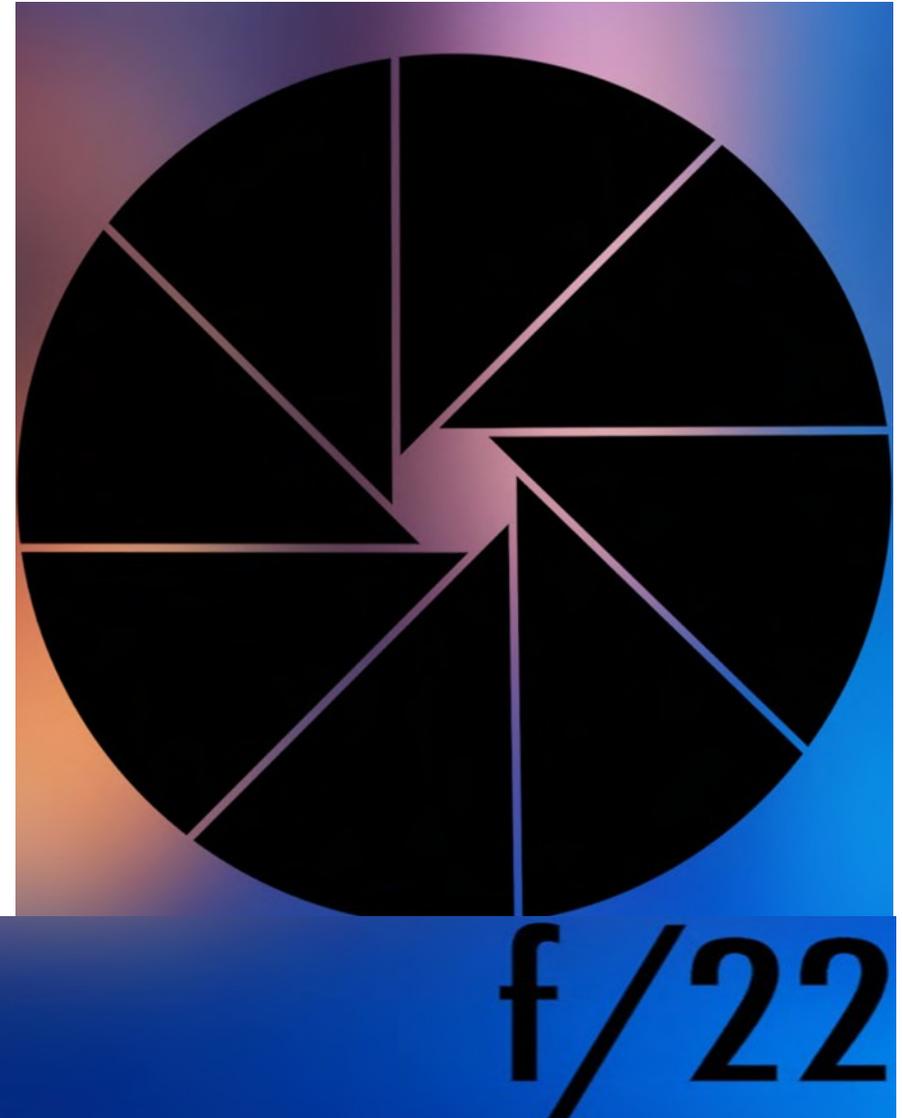
APERTURE



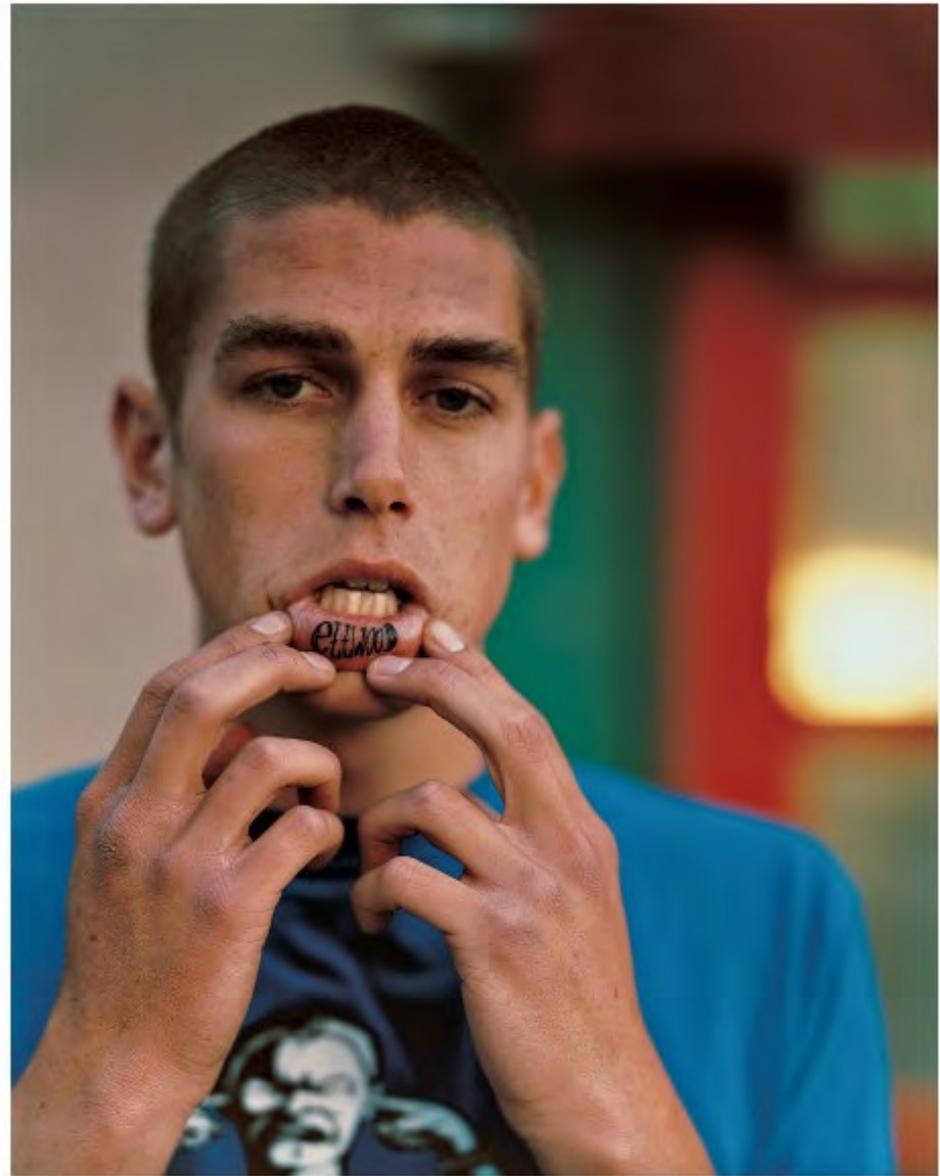
Large Aperture



Small Aperture



Why would you start
with your aperture?



Richard Renaldi

Figure and Ground Cole; Venice, CA 2005

Depth of Field

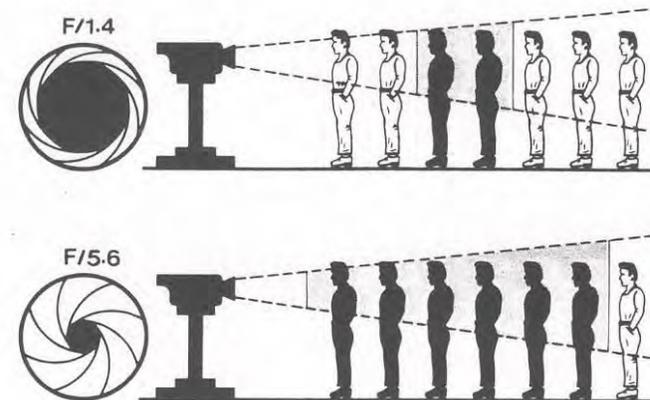
Depth of field refers to the range of distance that appears acceptably sharp.



Shorter/shallower



Longer/greater



Shallow Depth of Field

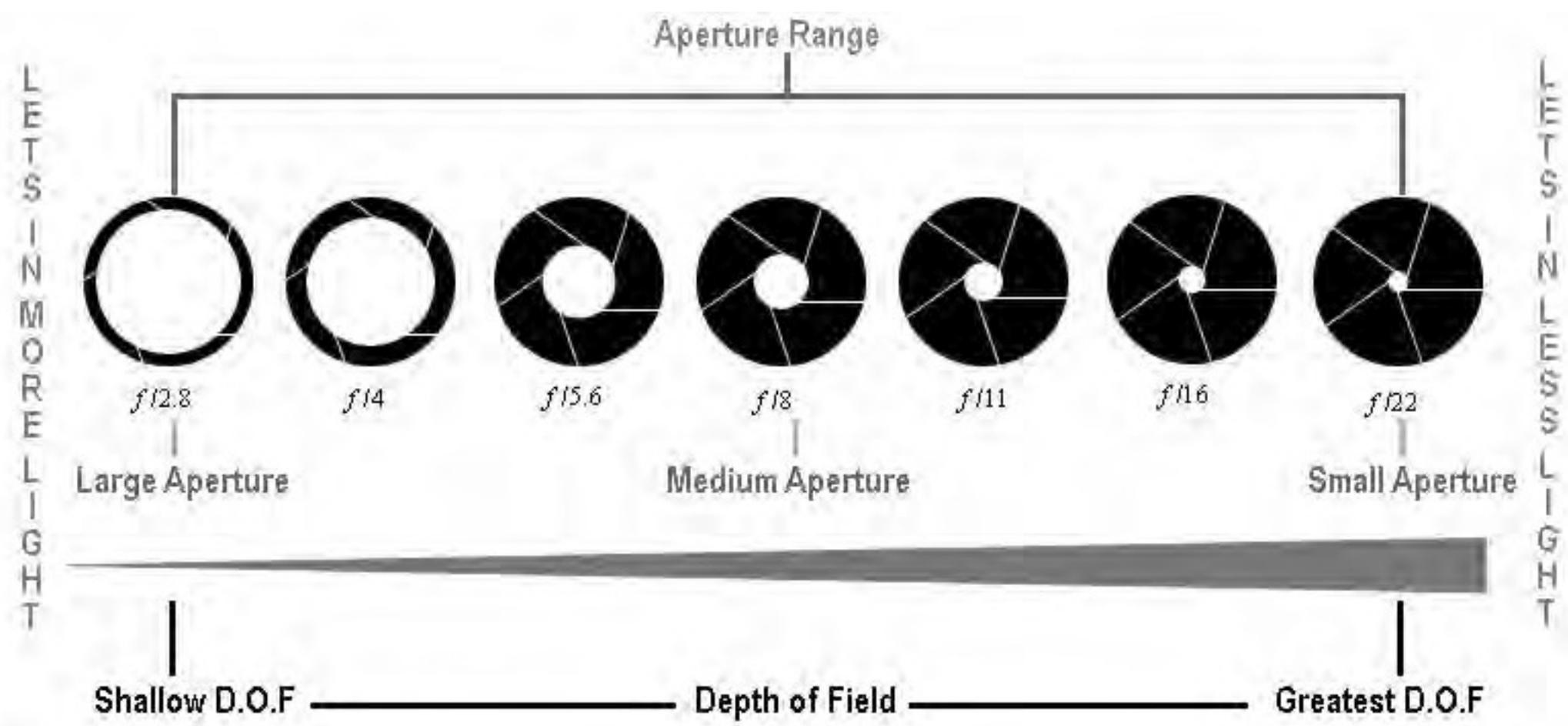


Larger the aperture (smaller the f-stop) = Shallower depth of field

Long Depth of Field



Smaller the aperture (larger the f-stop) = Greater depth of field



Let's practice in Aperture Priority

SHUTTER SPEED



Shutter Speed: the length of time the shutter stays open.

Speed / time: refers shutter speed in fractions of seconds - seconds - minutes

Examples: 1" 1/2 1/4 1/8 1/15 1/30 1/60 1/125 1/250 1/500 1/1000 1/2000 ...

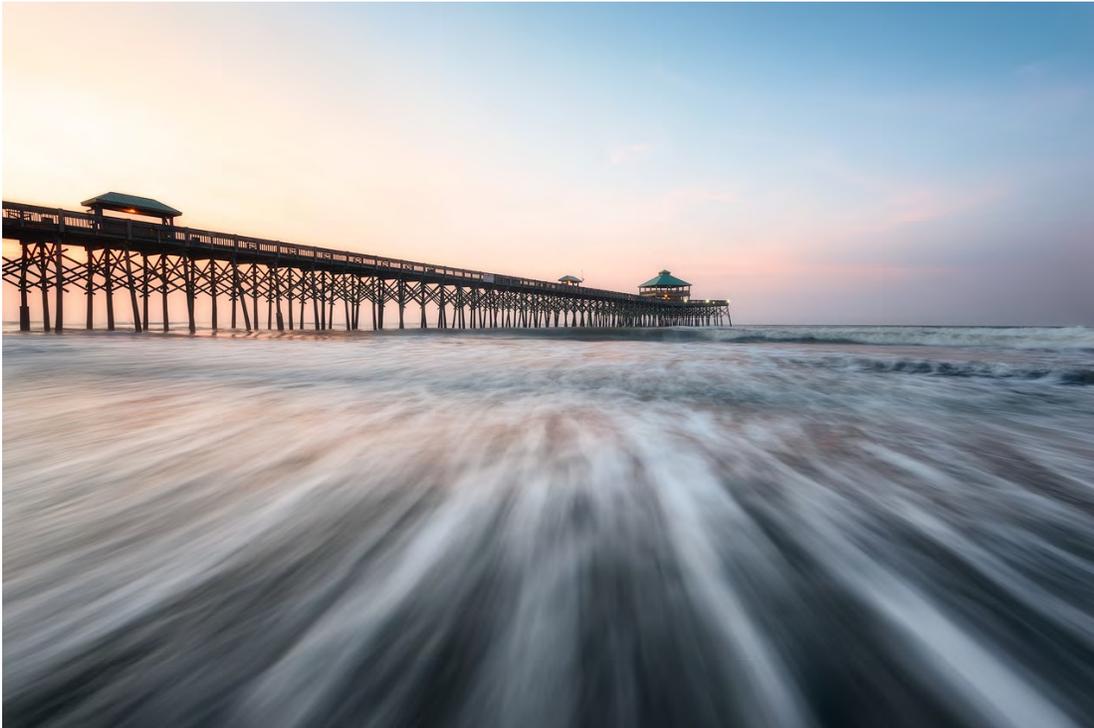
Why would you start with
your shutter speed?





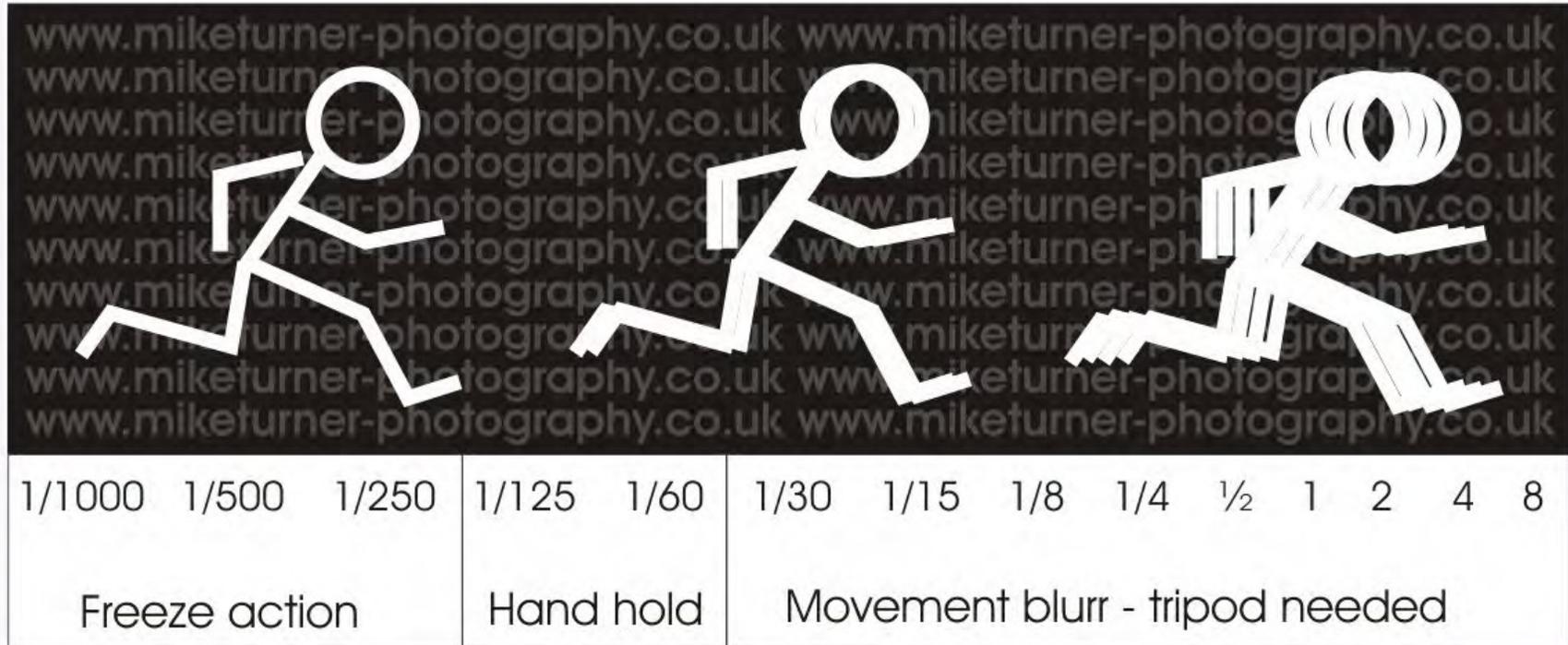
Fast Shu@er Speed

Capturing Motion
Shutter Speed can either freeze motion or blur motion.



Slow Shu@er Speed

Shutter speed

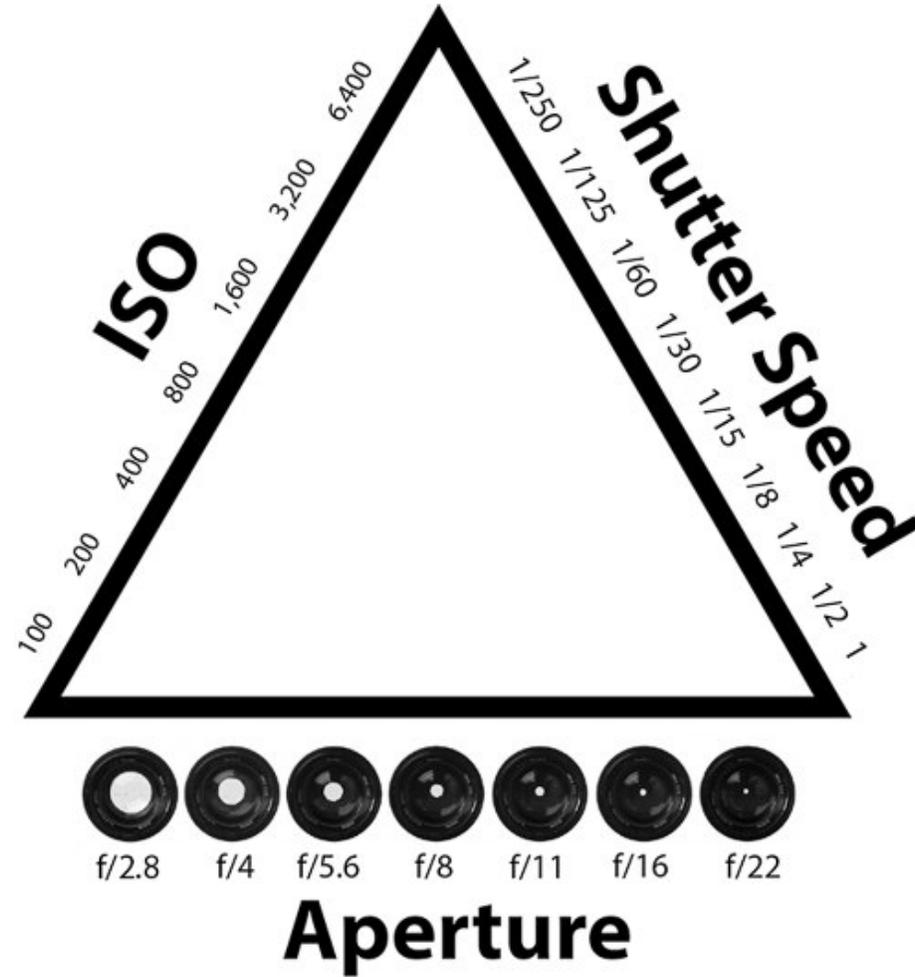


Camera shake: shoot 60 or 125 handheld camera.

If you're using a slow shutter speed (anything slower than 1/60) you will need to either use a tripod or some some type of image stabilization (more and more cameras are coming with this built in).

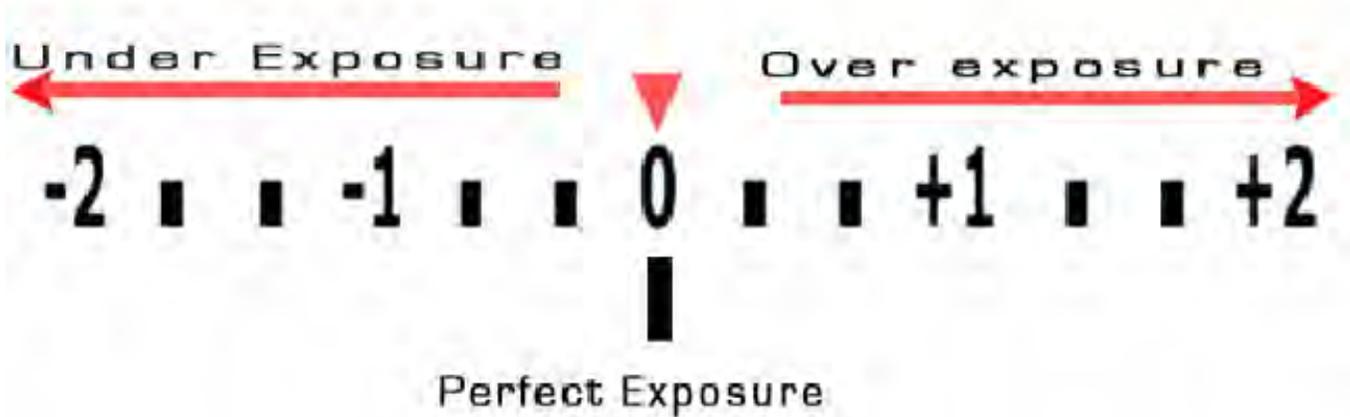


The three factors used for creating an exposure.



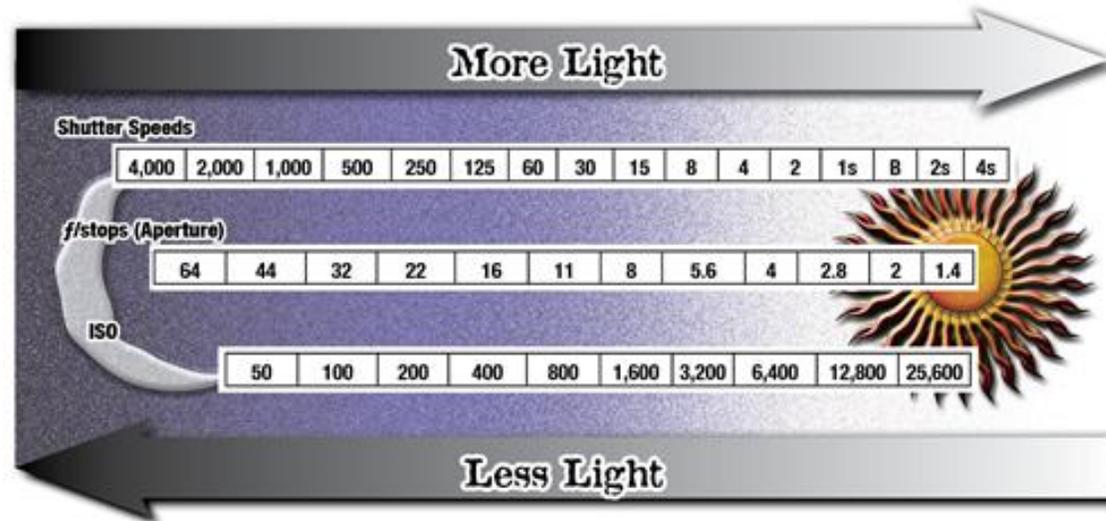
Let's try shooting in Shutter Priority

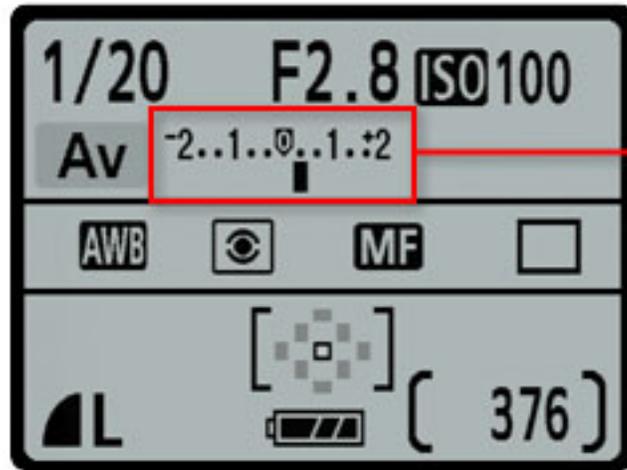
Exposure and understanding the Lightmeter



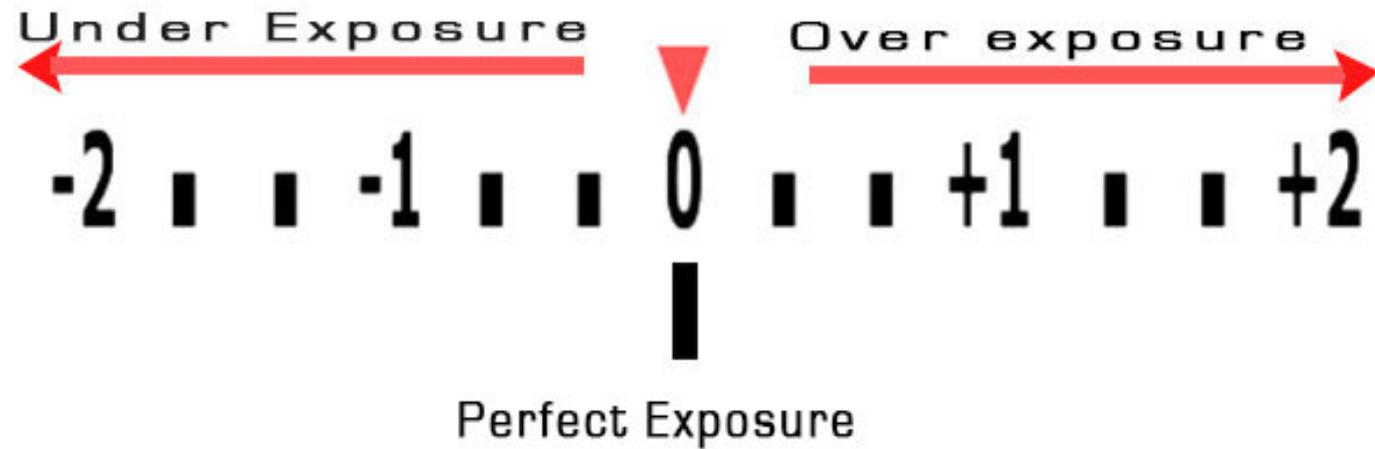
Law of reciprocity

Reciprocity is the law of the relationship between shutter and aperture. It stipulates that one stop increases in aperture is equivalent to the shutter duration doubling. Both increase light by one stop.





The light meter.
Note that it goes from
-2 stops to +2 stops



PHOTOGRAPH OF WHITE SHEET

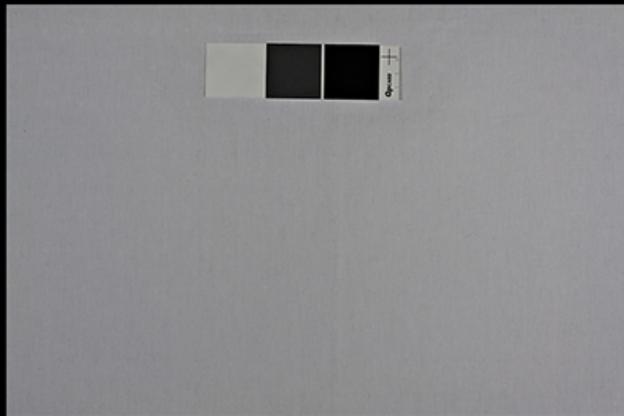


PHOTO WITH CAMERA'S METER



PHOTO USING INCIDENT METER

A CAMERA'S REFLECTIVE METER WILL UNDEREXPOSE WHITE RENDERING IT GRAY

PHOTOGRAPH OF BLACK SHEET

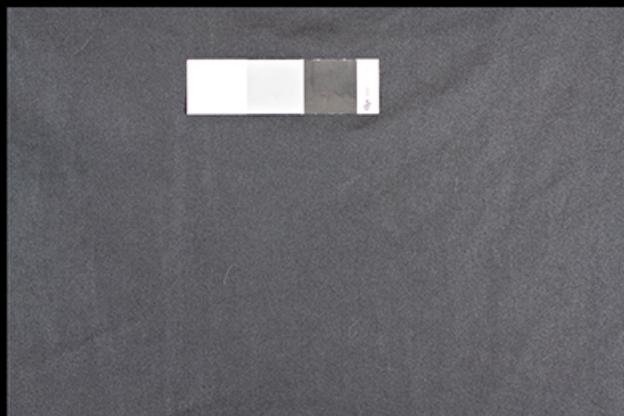


PHOTO WITH CAMERA'S METER

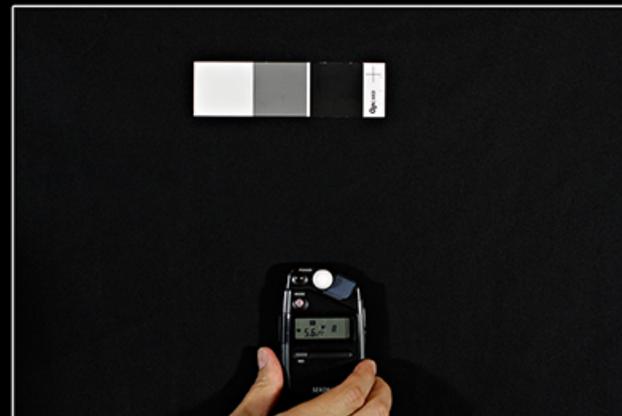


PHOTO USING INCIDENT METER

A CAMERA'S REFLECTIVE METER WILL OVEREXPOSE BLACK RENDERING IT GRAY

Adjusting Exposure in manual mode



Manual mode is the camera mode that provides you with the ultimate control over your digital camera.

To get your line at 0 you will need to look at your light meter scale and adjust both your shutter speed and aperture to find the right exposure.

Rotate your dial (under thumb or shutter release button) until the line is under the 0.

Shutter Speed

ISO

Aperture



Keep this cheat sheet
with you in your
camera bags!

It's okay to make mistakes
when you are shooting,
this is how you learn the
settings!

EXPOSURE

+ | ... | 0 | ... | - Try to keep your light meter at 0.

+ | ... | 0 | ... | - OVEREXPOSED
|||||

+ | ... | 0 | ... | - UNDEREXPOSED
|||||

APERTURE

◀ f/1.4 | f/2 | f/2.8 | f/4 | f/5.6 | f/8 | f/11 | f/16 ▶
|||||

SHALLOW DEPTH OF FIELD

DEEP DEPTH OF FIELD

BRIGHTER

DARKER

SHUTTER

10" | 2" | 1" | 1/25 | 1/30 | 1/50 | 1/100 | 1/125 | 1/250 | 1/320 | 1/500
|||||

LONGER EXPOSURE
To capture things that don't move or
leave streaks of light if they do.

SHORTER EXPOSURE
To capture movement.

BRIGHTER
PHOTOGRAPH

DARKER
PHOTOGRAPH

ISO (Film Speed)

◀ 100 200 400 800 1600 3200 HI2 ▶
|||||

LOW SENSITIVITY TO LIGHT
USE DURING DAY TIME
& SUNSHINE
HIGHER QUALITY (SMOOTH)

HIGH SENSITIVITY TO LIGHT
USE DURING NIGHT & LOW
LIGHT INDOORS
LOWER QUALITY (GRAINY)