BASIC PHOTOGRAPHY

DCC AND PPC COMBINED TRAINING

2025


TAKING PICTURES IS TOO EASY!

ALL YOU HAVE TO DO IS

- SEE SOMETHING
- POINT A DEVICE AT IT
- PUSH OR TAP SOMETHING
- SUCCESS!!!

HOWEVER, MAKING THE PHOTOGRAPH YOU *WANT* *TAKES PRACTICE*

THE PRIMARY OBJECTIVE OF THIS CLASS IS TO HELP YOU LEARN TO PHOTOGRAPH WITH INTENTION

IMAGE CAPTURE

IT IS NOT ONLY IMPORTANT TO KNOW HOW TO OPERTATE YOUR CAMERA,

YOU MUST ALSO UNDERSTAND *WHY* YOU WOULD DO ONE THING OR ANOTHER!

HOW ARE YOU GOING TO BECOME A MORE INTENSIONAL PHOTOGRAPHER?

LEARN BY DOING!!!

HOMEWORK

1. Go for a walk around your neighborhood, or some nearby location, and take at least 10 pictures.
2. Download and process (or not. You may shoot this assignment as JPEGs on Auto or Program mode if you prefer).
3. Analyze each of your 10 images by asking the follow questions:
    1. What was it in this scene that compelled me to photograph it? (don't say Larry!)
    2. What story or narrative am I trying to tell with this image?
    3. Did I succeed?
    4. If not, what do I need to do next time?

CRITICAL THINKING

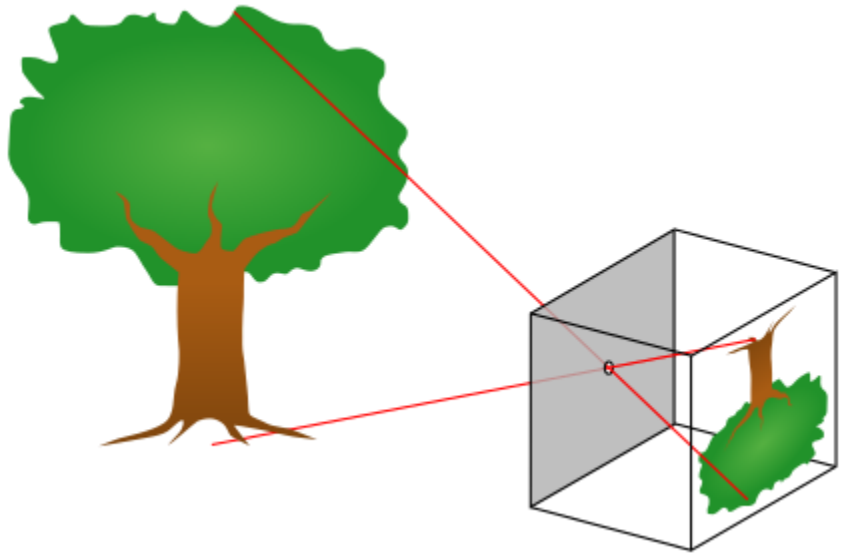
BASIC PHOTOGRAPHY: CAPTURE

Shutter Speed
Aperture
ISO
Metering
Exposure Compensation
Camera Modes
Shooting Scenarios
Jpeg or RAW
How to Take Sharp Photos
Focusing
Technique

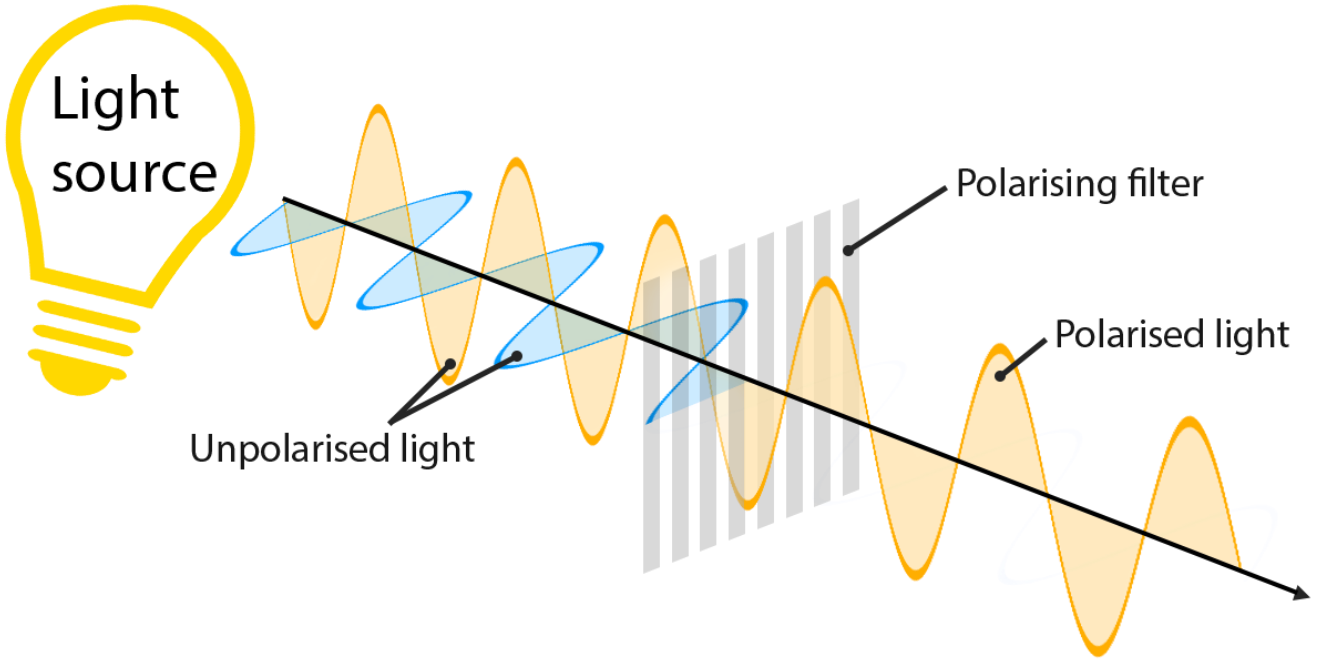
WHAT IS PHOTOGRAPHY?

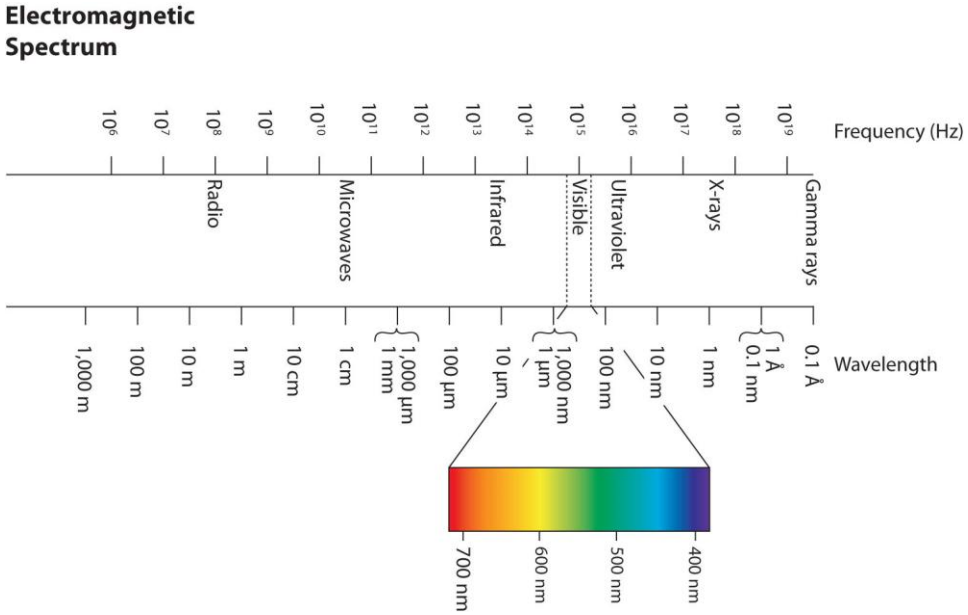
Derived from Greek, ***PHOTOGRAPHY***

literally means to "***draw***" with "***light***".



WHAT IS LIGHT?





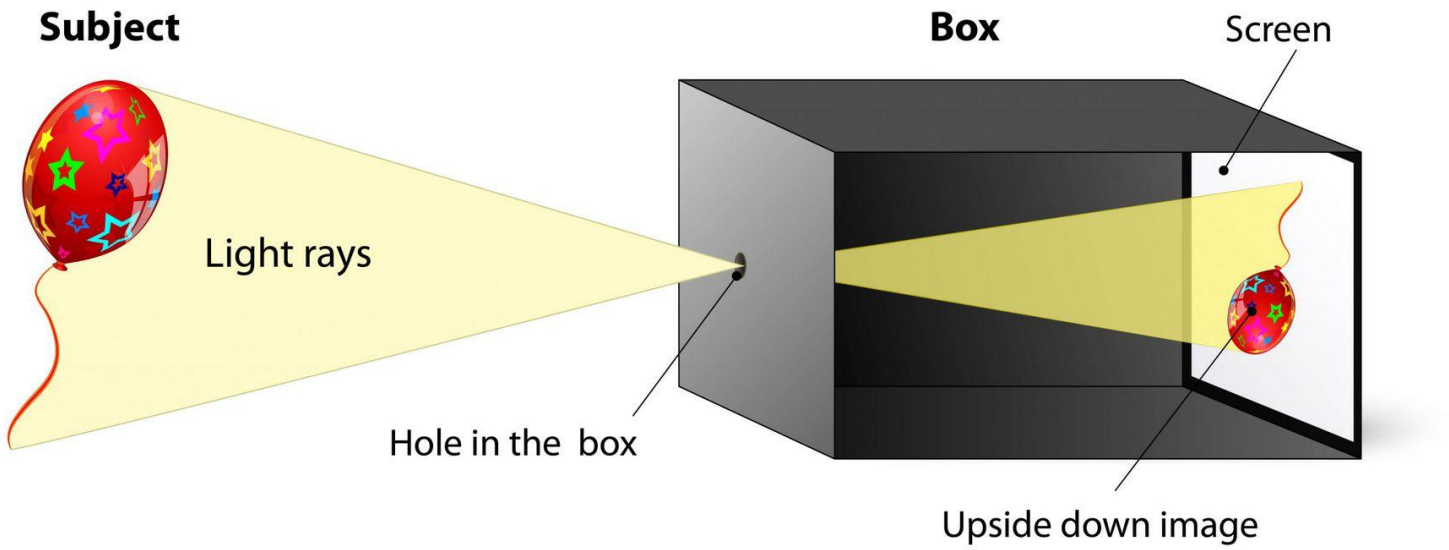
VISABLE LIGHT BEHAVES AS A WAVEFORM AND A PARTICAL (***PHOTON***) AT THE SAME TIME. LIGHT THEREFORE, HAS QUALITIES (***COLOR***) AND QUANTITY (***INTENSITY***) WE CAN USE TO MAKE PICTURES.

BASIC PHOTOGRAPHY: CAPTURE

Shutter Speed
Aperture
ISO
Metering
Exposure Compensation
Camera Modes
Shooting Scenarios
Jpeg or RAW
How to Take Sharp Photos
Focusing
Technique

HOW DO WE CAPTURE LIGHT?

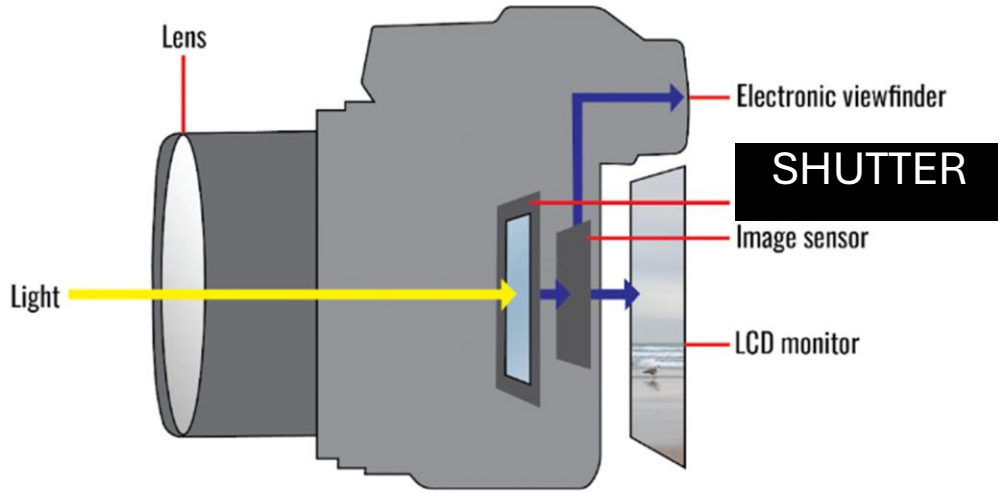
Camera obscura



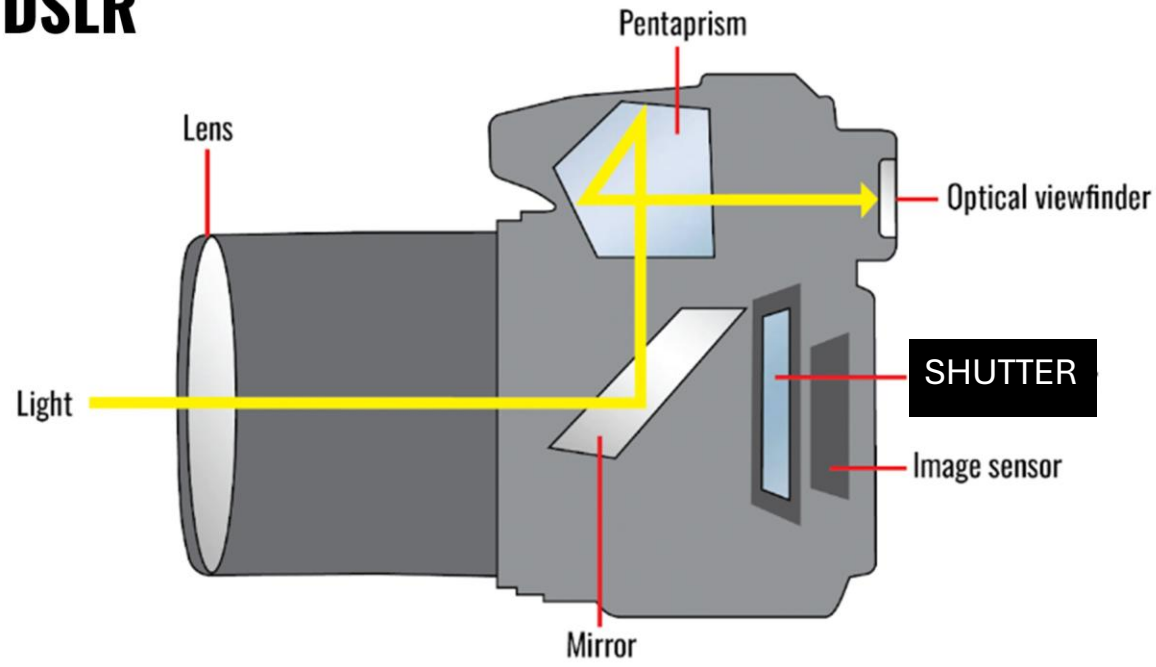
HOW DO WE CAPTURE LIGHT?

Light Digital data

Mirrorless



DSLR



WHAT IS EXPOSURE?

Very simply, exposure is the **number of photons** recorded by the camera's sensor.

YOUR SENSOR

WHAT IS A FRACTION?

If we begin with one (1) thing and divide it into two (2) we get 2 things which are1/2 of the original thing. Then, if we divide each of those in half again, we end up with the original “1” divided into “4” or 1/4. Notice that with each division, the denominator (bottom number) becomes larger than the previous denominator(s). The bigger the denominator number, the smaller the thing.

Thus: 1, 1/2, 1/4, 1/8, 1/16, 1/32….

It is essential to understand fractions to appreciate shutter speeds and apertures.

HOW IS EXPOSURE CONTROLLED?

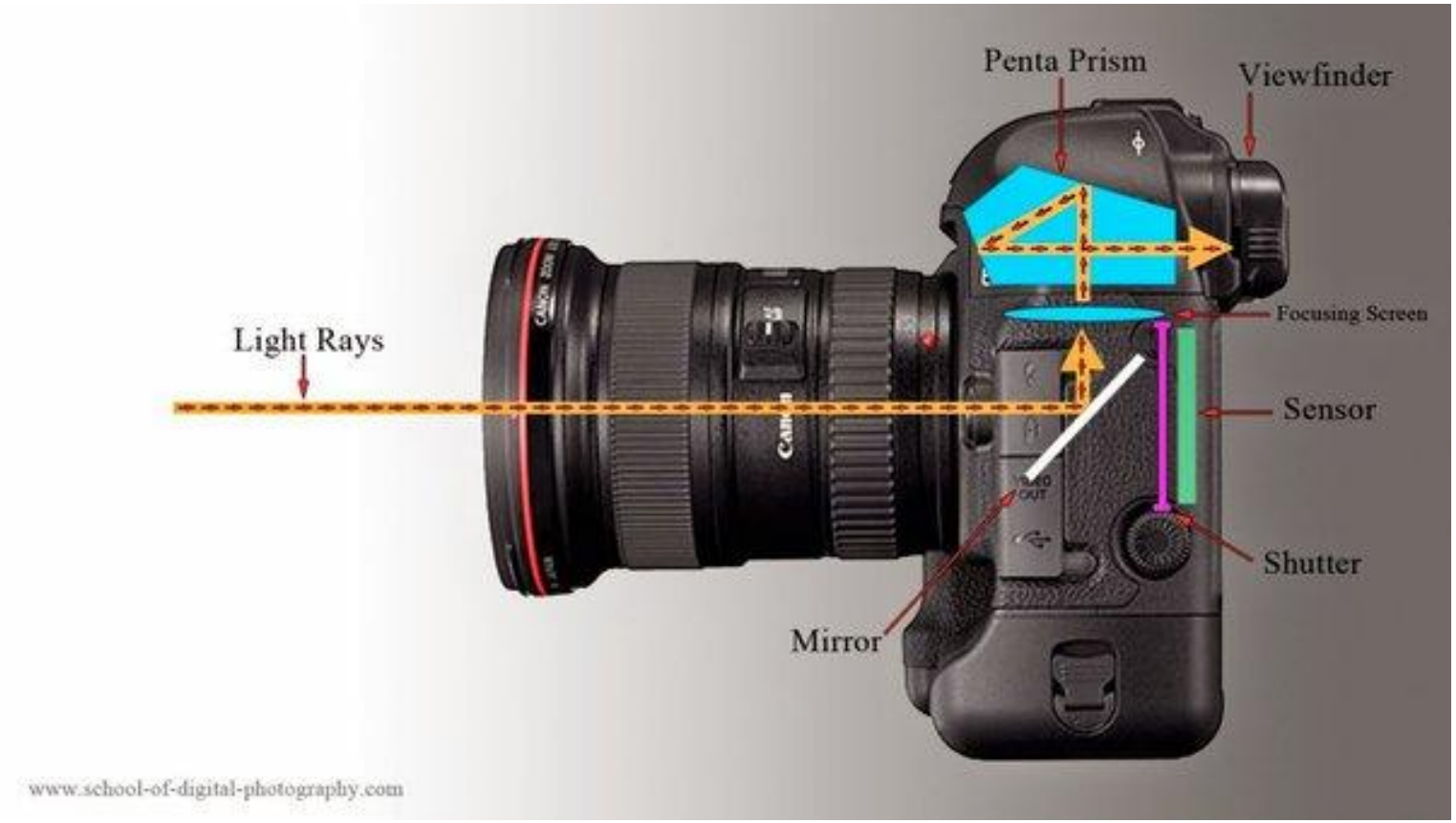
There are **two camera settings** that determine the number of photons reaching the camera sensor:

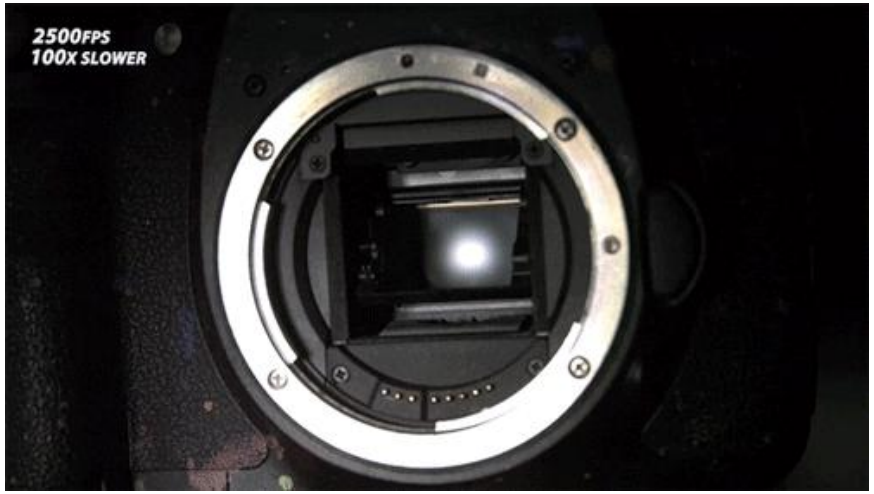
1. **SHUTTER SPEED**
2. **LENS APERTURE**

YOUR SENSOR

BASIC PHOTOGRAPHY: CAPTURE SHUTTER SPEED

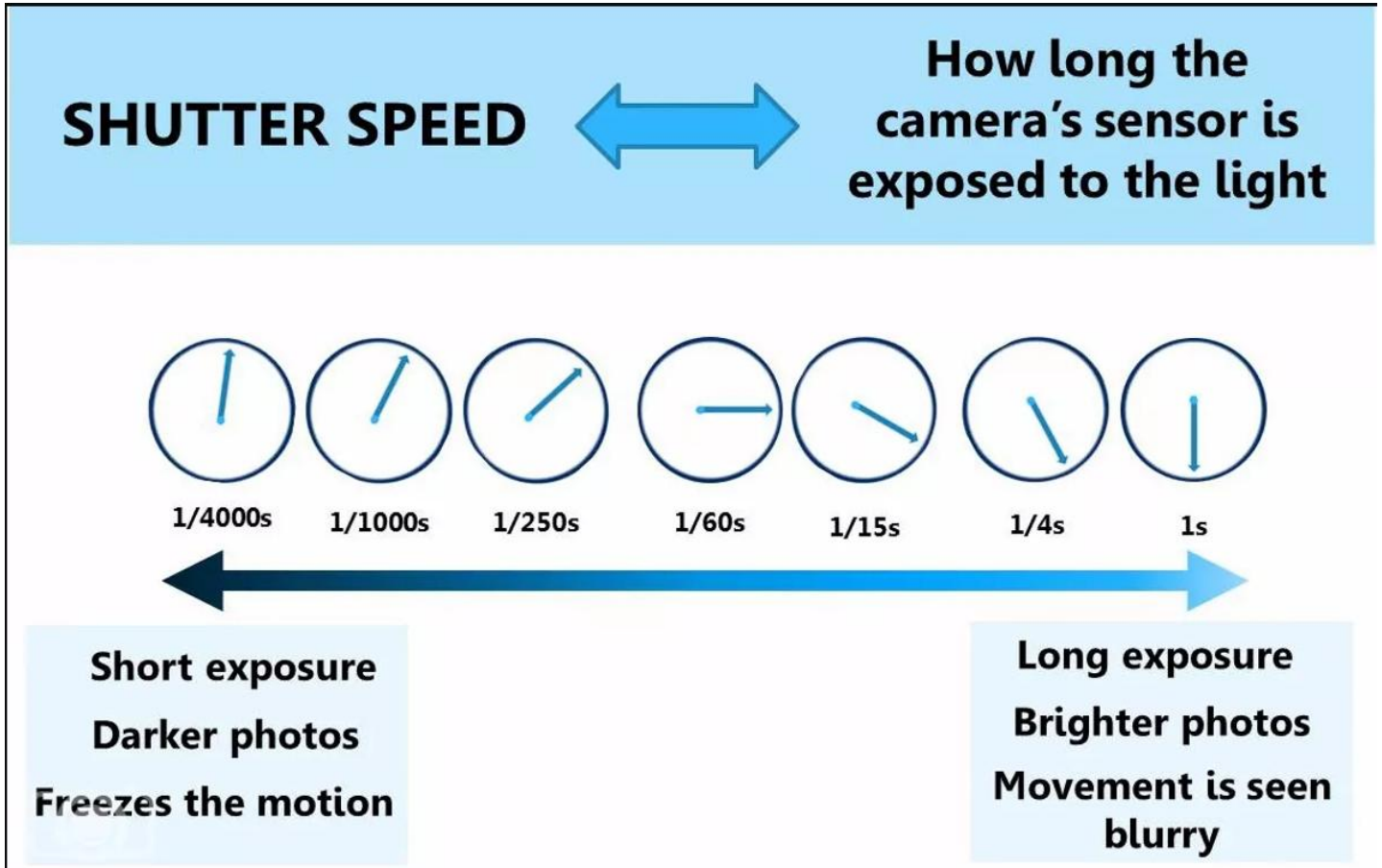
WHAT IS SHUTTER SPEED?



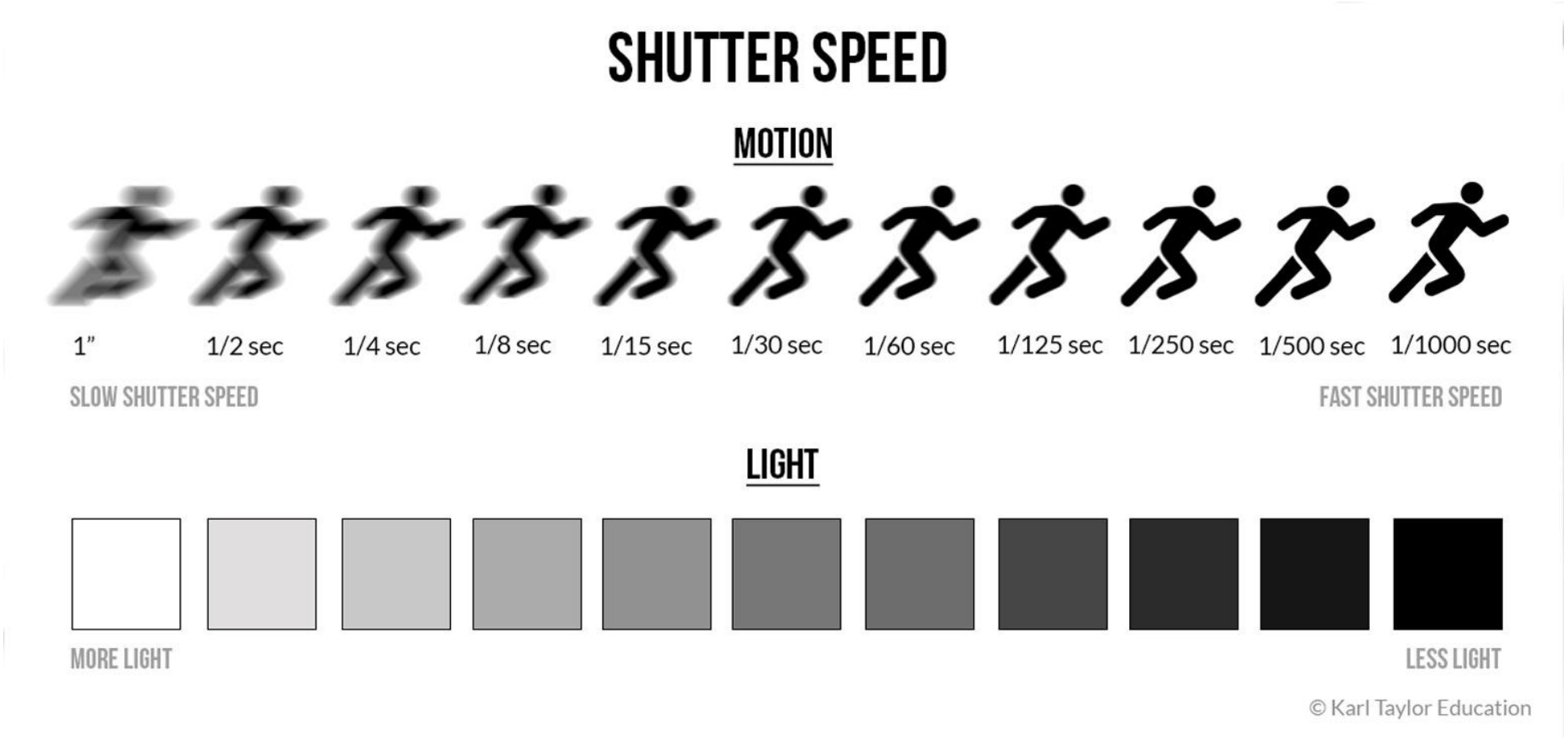


SHUTTER SPEEDS

HOMEWORK: READ YOUR CAMERA'S INSTRUCTION MANUAL TO LEARN HOW TO CHANGE SHUTTER SPEED WITHOUT LOOKING AWAY FROM THE VIEWFINDER. REPEAT FOR F STOPS.

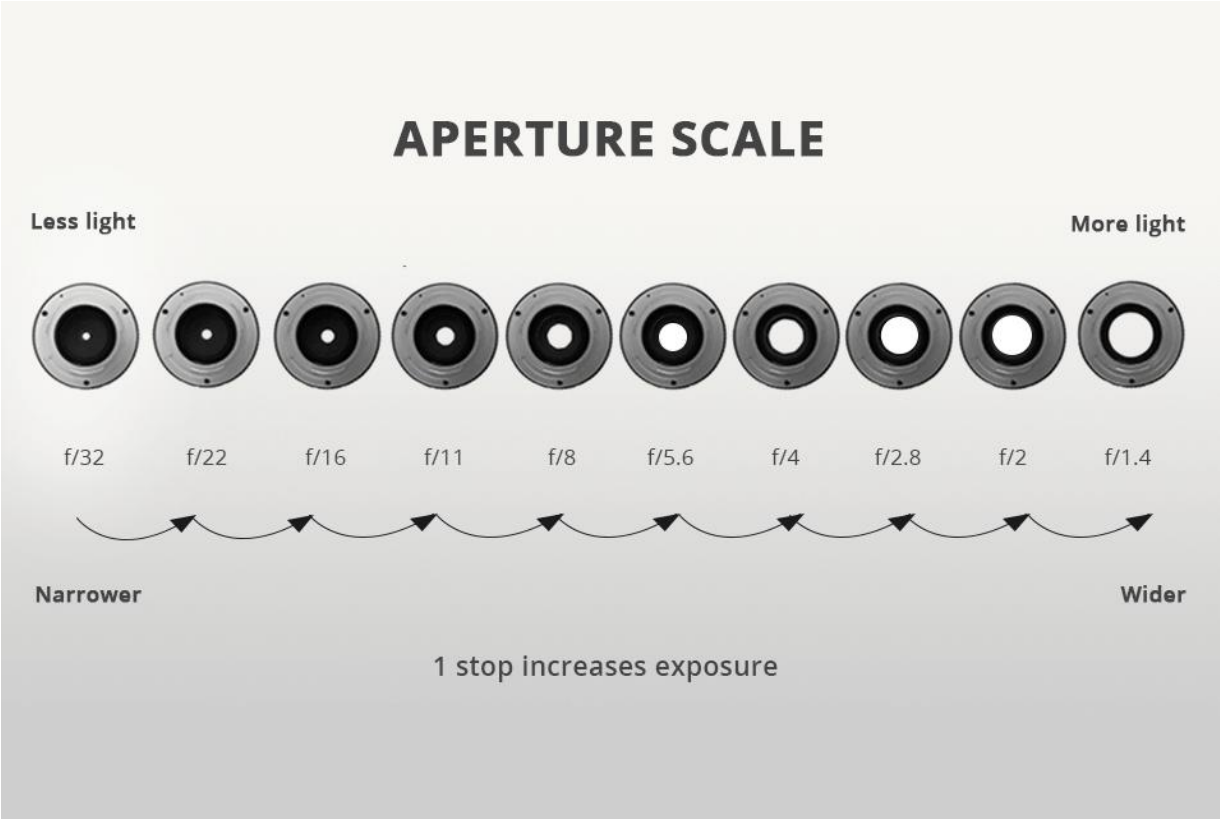


WHY CONTROL SHUTTER SPEED?



BASIC PHOTOGRAPHY: CAPTURE APERTURE

WHAT IS AN APERTURE?



BASIC PHOTOGRAPHY: CAPTURE APERTURE

WHAT IS AN F STOP?

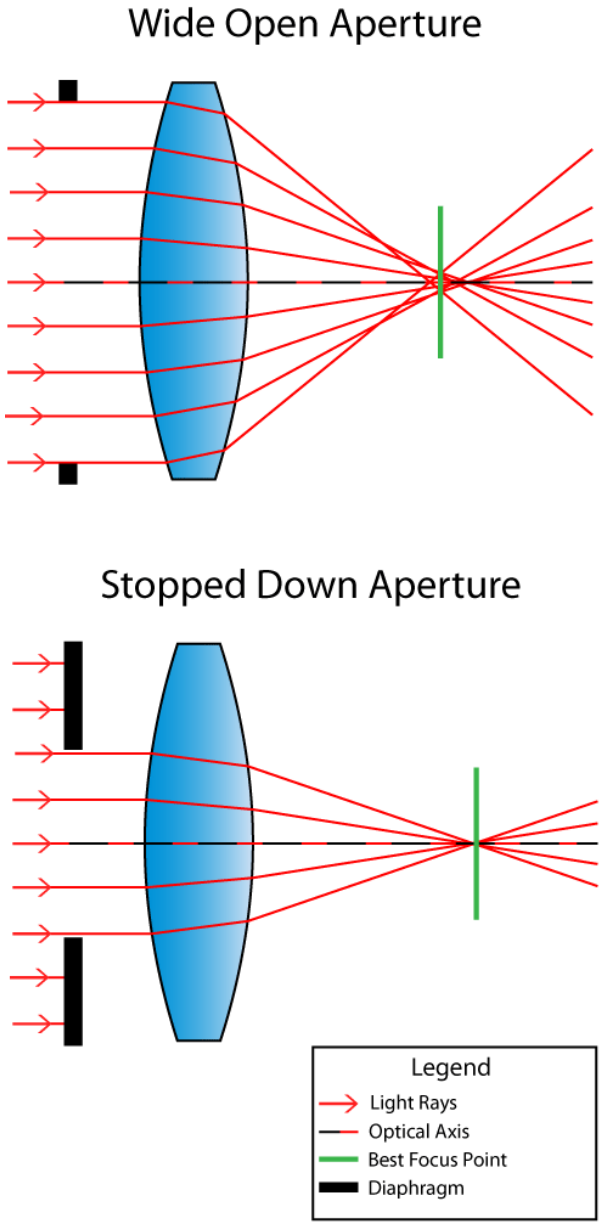
The f-stop number is calculated by dividing the focal length of the lens by the diameter of the aperture. For example, if a lens has a focal length of 50mm and an aperture diameter of 25mm, the f-stop would be 2 (50/25).

BASIC PHOTOGRAPHY: CAPTURE APERTURE

The aperture helps determine the:

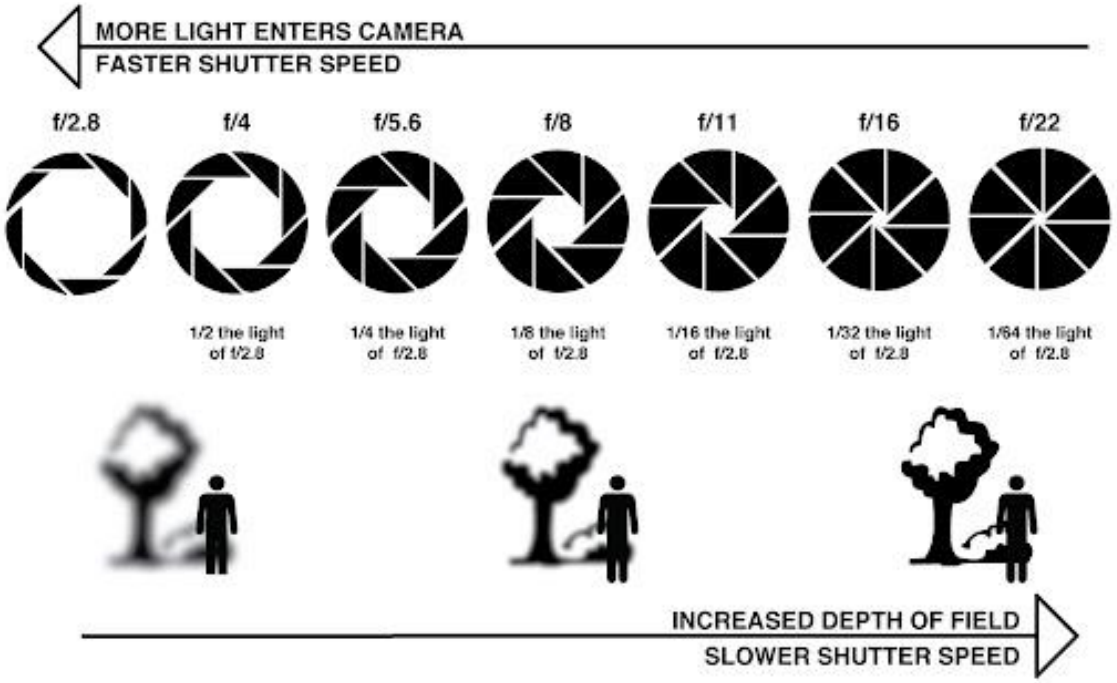
Amount of light reaching the sensor

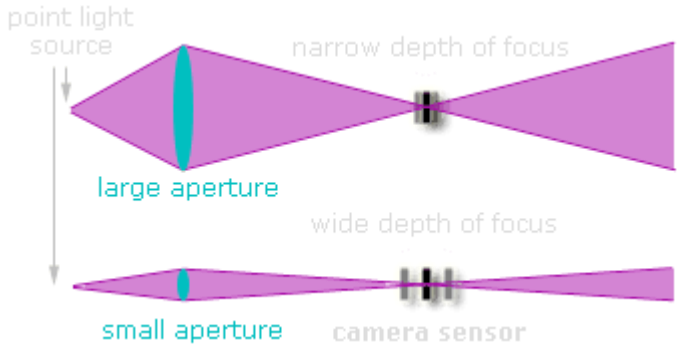
And the DEPTH OF FIELD



WHAT IS DEPTH OF FIELD?

The depth of field is the zone within a photo that ***appears <u>acceptably</u> sharp*** and in focus.





WHAT DETERMINES DoF?

There are three main factors that determine the depth of field in a photo. They are:

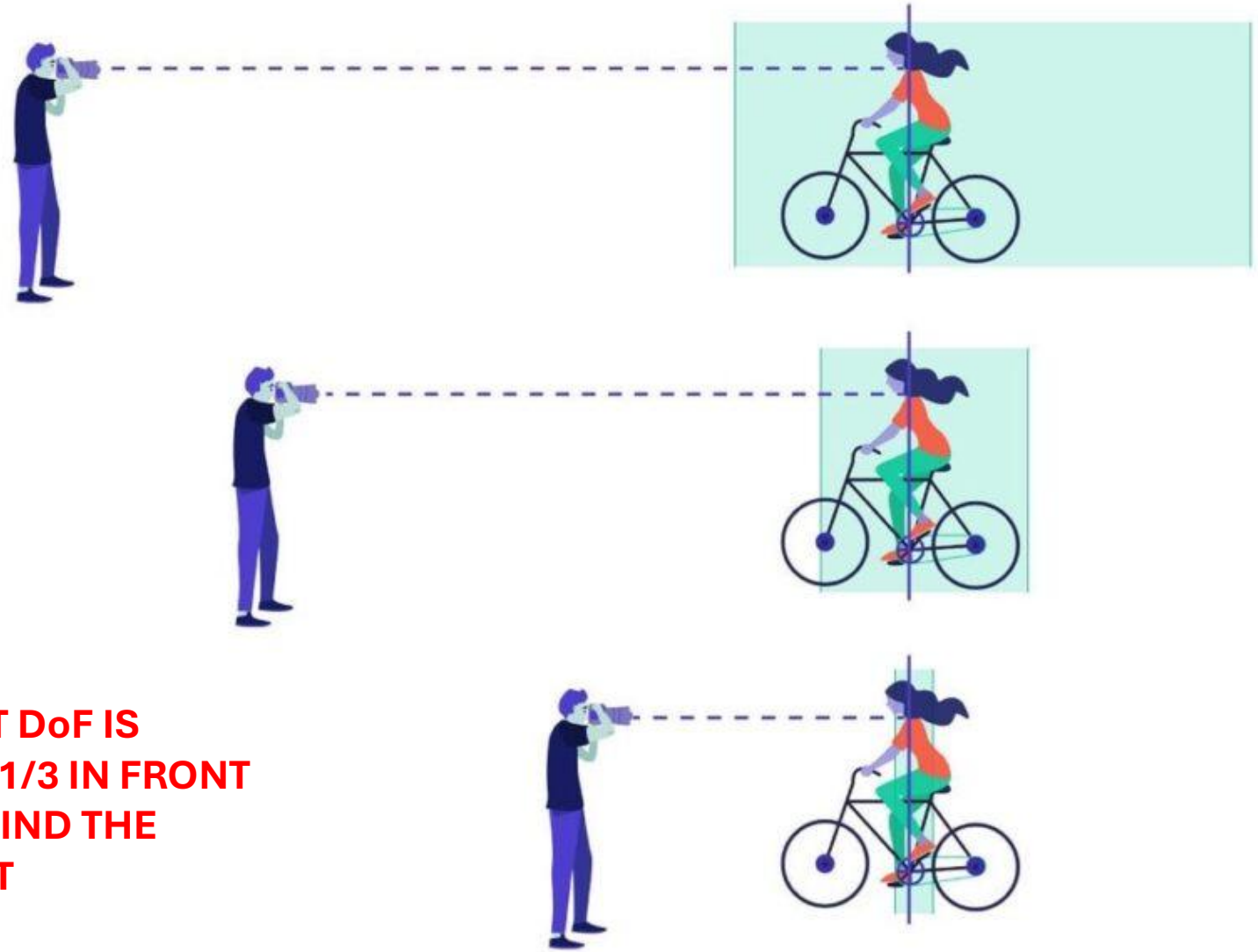
1.The aperture of the lens (f-stop)

2. The focal length of the lens

3. The distance between your lens and your subject

Focus Distance and DoF

Great Big photography world



NOTICE THAT DoF IS GENERALLY, 1/3 IN FRONT AND 2/3 BEHIND THE FOCAL POINT

Focal length 10mm
Distance 0.25m

Focal length 50mm
Distance 1.25m

Focal length 200mm
Distance 5m

MORE HOMEWORK

1. For these exercises, use a tripod, if you have one. If not, find a location where you can rest your camera of a sturdy support.
2. Set your camera on “Shutter Priority”. Make 10 photographs of a moving subject(s) (cars on the freeway, bicycles at the park, airplanes landing at Love Field..). Vary the shutter speed beginning with 1 sec and progressing to 1/500th sec. Process your images and study the effect of shutter speed on sharpness.
3. Set your camera on “Aperture Priority”. Arrange the scene such that there are three easily identifiable objects in a line. One about 2 feet from the camera, the next 4 feet away and the third one 12 feet distant. Take photographs beginning with the largest aperture (i.e. f/2.8) and continuing to the smallest (i.e. f/22) focusing on the middle object. Process your images and study the effect of aperture on depth of field (DoF). Repeat focusing on the nearest object.

BASIC PHOTOGRAPHY: CAPTURE
ISO

WHAT IS ISO?

"In ***film photography*** ISO is the indication of how sensitive the film is to light. The film is measured in numbers such as 100, 200, 400, and 800. Faster film, that is, film with a higher ISO rating (like 800), requires less exposure to make a good image. The lower the number, the lower the sensitivity of the film and also less grain in your image."

Ryan Greenleaf

WHAT IS ISO?

“Is ISO “Sensor Sensitivity”? This is the most common myth related to ISO. It is something you will see all over the web (and in print). However, although it may help you to think of ISO as “acting like” camera sensor sensitivity, that’s not what it actually does. Instead, digital sensors only have a single sensitivity, regardless of your ISO. It is more accurate to say that ISO is like a *mapping* to tell your camera how bright the output photo should be, given a particular input exposure.”

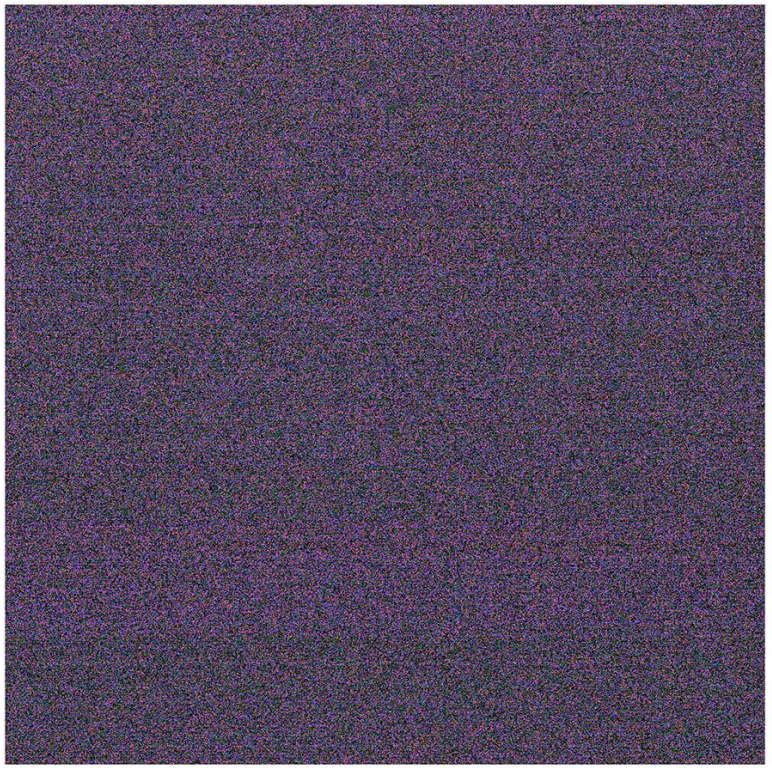
Spencer Cox

YOUR SENSOR

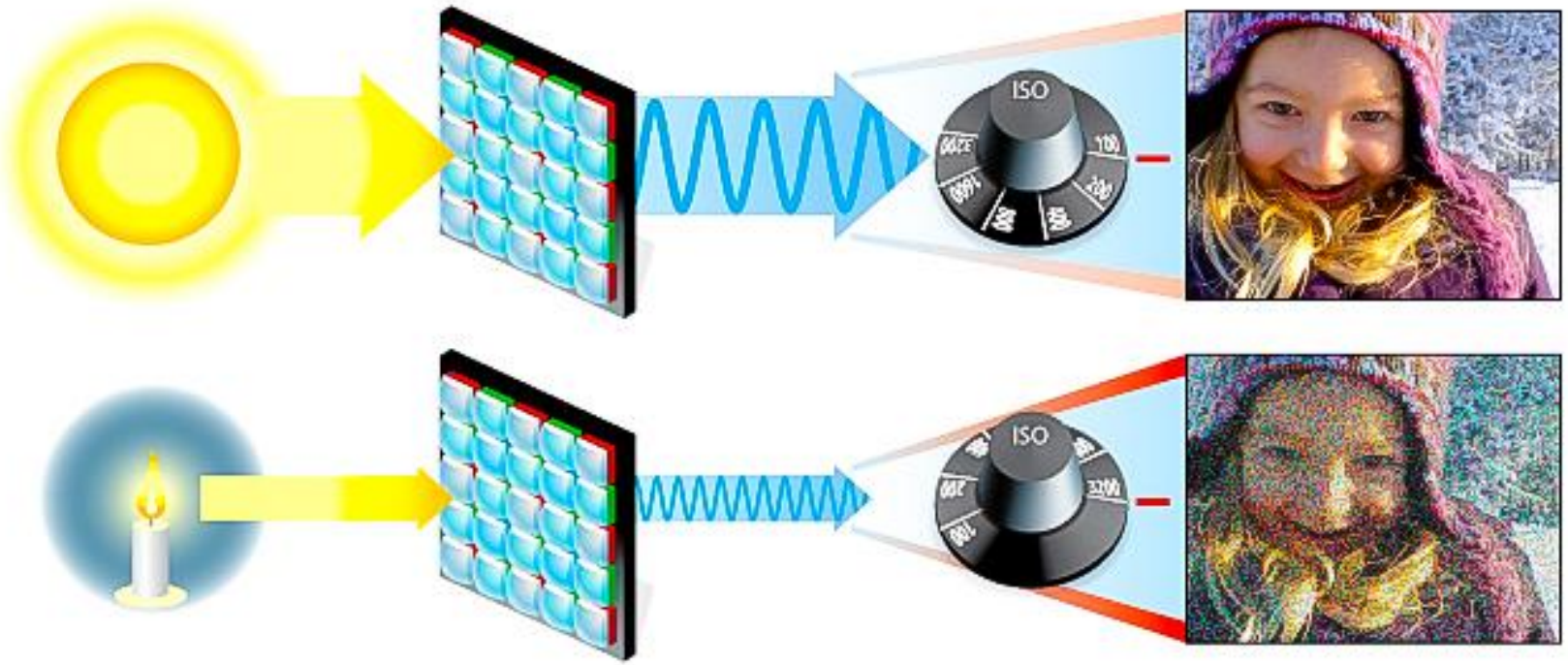
IS NOISE IS ALWAYS PRESENT?

Lens Cap Photo

Same Photo, Brightened a Lot



SIGNAL TO NOISE RATIO



WHAT IS YOUR CAMERA'S BASE ISO?

BASE ISO IS THE SETTING THAT THE ENGINEERS THAT DESIGNED THE SENSOR DETERMINED WOULD PRODUCE THE GREATEST DYNAMIC RANGE WITH THE LEAST AMOUNT OF NOISE.

"Dynamic range refers to the range of tones in a scene, from the darkest, blackest shadows to the brightest, most brilliant highlights. The more tonal range present in a scene, the greater the dynamic range." Simon Ringsmuth

"Noise in photography can be defined as a random variation in the image signal. Noise can be caused by a number of factors, including poor lighting conditions, high ISO settings, long exposure times, and heat." Adobe

WHAT ISO SHOULD YOU USE?

IT DEPENDS

FOR THE BEST IMAGE QUALITY, SELECT THE LOWEST ISO POSSIBILE GIVEN THE SHUTTER SPEED AND APERTURE YOU HAVE SET FOR THE EXPOSURE.

ADDITIONAL REFERENCES

- Photography Basics: The Complete Beginner's Guide
- How Do Cameras Work? A Guide for Beginners
- https://photofocus.com/photography/photography-101-why-do-i-want-to-control-depth-of-field/
- https://youtu.be/6DZiJrL_9tU?si=j920EhKNa4iXz_Ha Depth of Field video
- https://youtu.be/6DZiJrL_9tU?si=j920EhKNa4iXz_Ha Mastering Light video
- https://photofocus.com/photography/photographys-basics-aperture/
- https://photofocus.com/photography/photography-101-fast-times-and-slow-times-too-shutter-speeds/

QUESTIONS?

BASIC PHOTOGRAPHY: CAPTURE

NEXT TIME

Shutter Speed
Aperture
ISO
Metering
Exposure Compensation
Camera Modes
Shooting Scenarios
Jpeg or RAW
How to Take Sharp Photos
Focusing
Technique