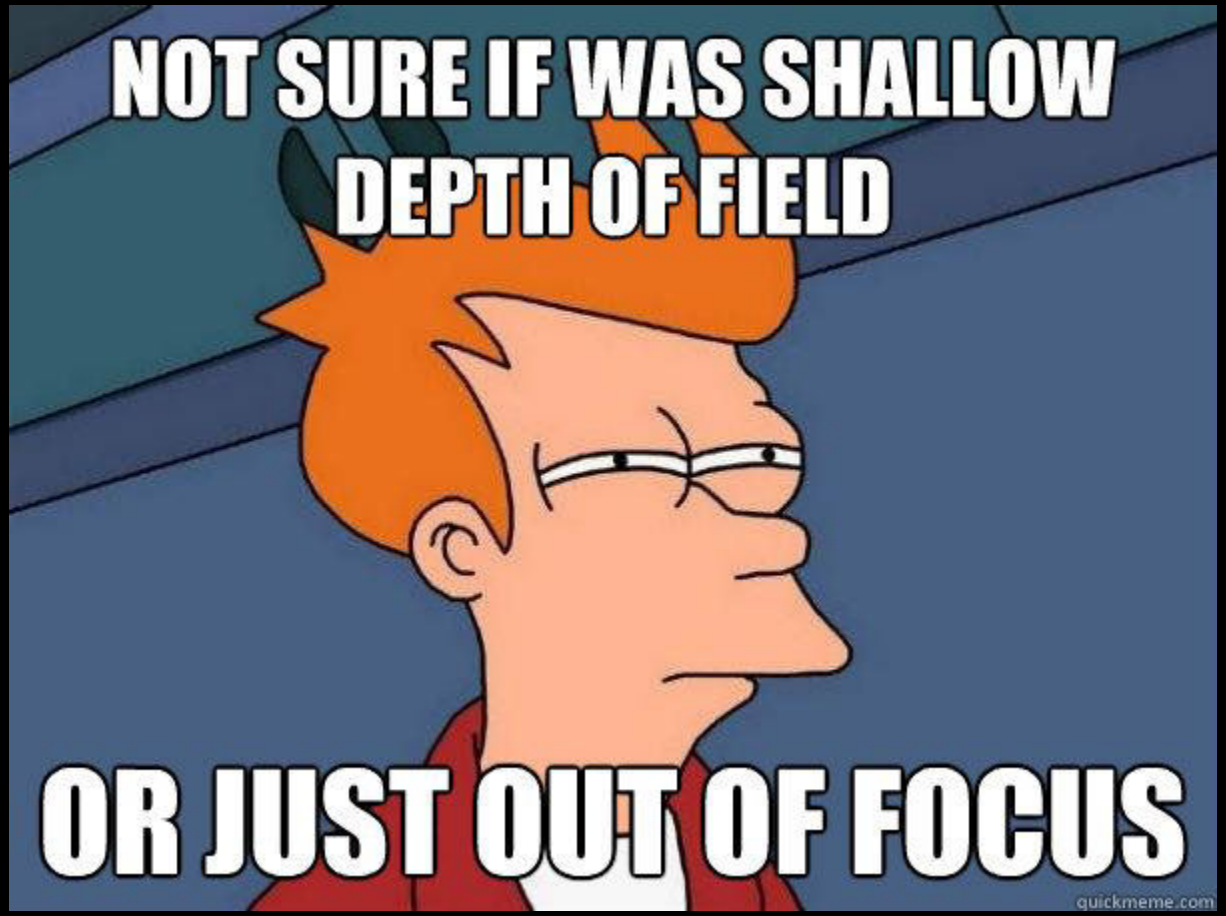
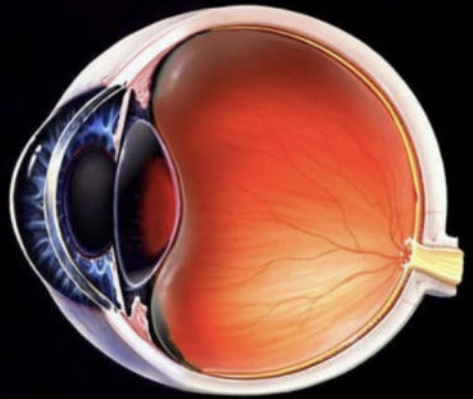
Aperture

Camera Parts and Functions


NOT SURE IF WAS SHALLOW DEPTH OF FIELD
OR JUST OUT OF FOCUS
quickmeme.com

THE HUMAN EYE



"Furnished with automatic aiming, automatic focusing, and automatic aperture adjustment, the human eye can function from almost complete darkness to bright sunlight, see an object the diameter of a fine hair, and make about 100,000 separate motions in an average day, faithfully affording us a continuous series of color stereoscopic pictures. All of this is performed usually without complaint, and then while we sleep, it carries on its own maintenance work."
Dr. Scott Huse

Objectives

Students will be able to:

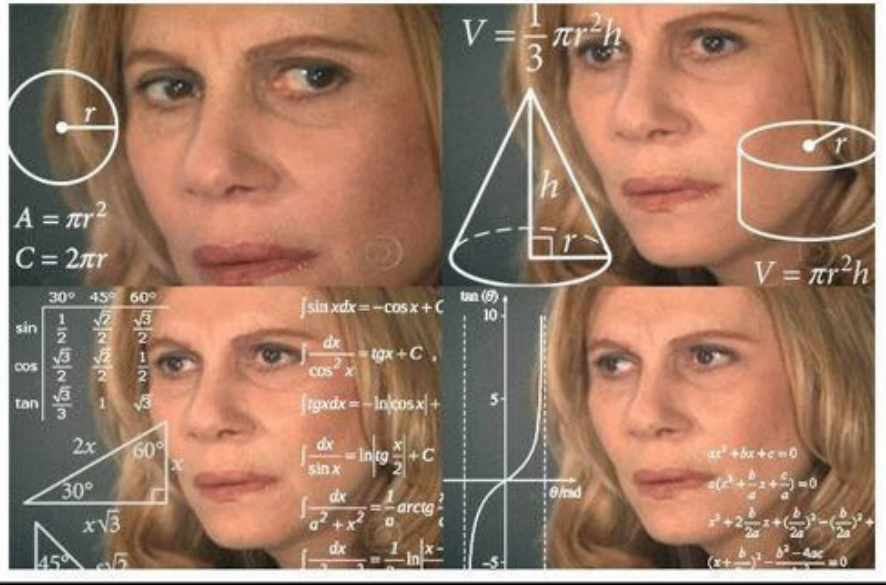
- Understand the aperture component of the Exposure Triangle
- Know the differences when it comes to depth of field
- Determine what makes a successful aperture
- Know which spectrum of the aperture is needed for the film shots they’re wanting to create

Bellwork

Think about the different things in film shots that really highlights the subject. We've spoken about a couple of the composition elements used, so list three things that might help focus a viewer on the main subject.

Discuss with your neighbors and be prepared to share with the class.

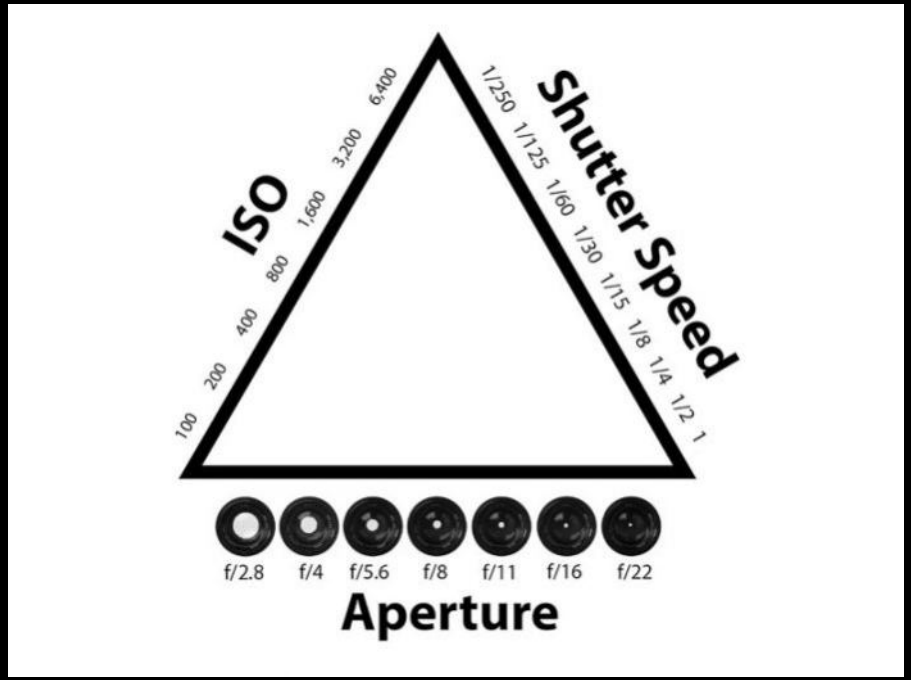
when you explain the exposure triangle to amateurs



The Exposure Triangle

In this lesson, we will be talking about Aperture, one of the three sides of the Exposure Triangle.

Remember that with all three sides, when you adjust one, you typically have to adjust the other two.



Exposure

There are three factors that influence the exposure of your shot:

- *Aperture*
- *Shutter Speed*
- *ISO*

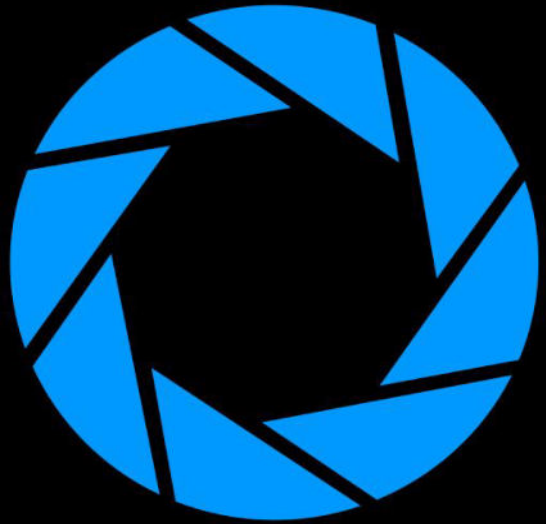
A “correct” or “good” exposure occurs when you maintain as much detail as possible in both the very bright parts (highlights) as well as the very dark parts (shadows) of the shot.

How much of a range in which you can capture detail from light to dark is referred to as the *Dynamic Range*. As you are about to see over the next few days, there can be many “correct” or “good” exposures.

What is Aperture?

The aperture is the hole in the lens that allows light to pass through the lens, into the camera body and onto the camera's sensor.

Inside the camera lens is a system of blades which open and close to increase or decrease the opening through which light passes into the camera.



aperture (or f-stop)

(lens opening)

shallow depth-of-field

deep depth-of-field

f/1.4 f/3.5 f/4 f/8 f/11 f/16

F-Stop

Often referred to as an f-stop, aperture is usually represented by numbers such as: f/1.8, or f/5.6

A smaller number means a wider opening and is referred to as a larger value (ex. A large aperture of 2.0, a small aperture of 22).

The wider the lens is open (larger aperture value), the more light gets in (you can use faster shutter speeds).

Why is it called an F-Stop?

F/stop is a focal ratio number assigned to the size of the hole in the lens.

Do not worry, we will always refer to it as the Aperture or F/STOP.

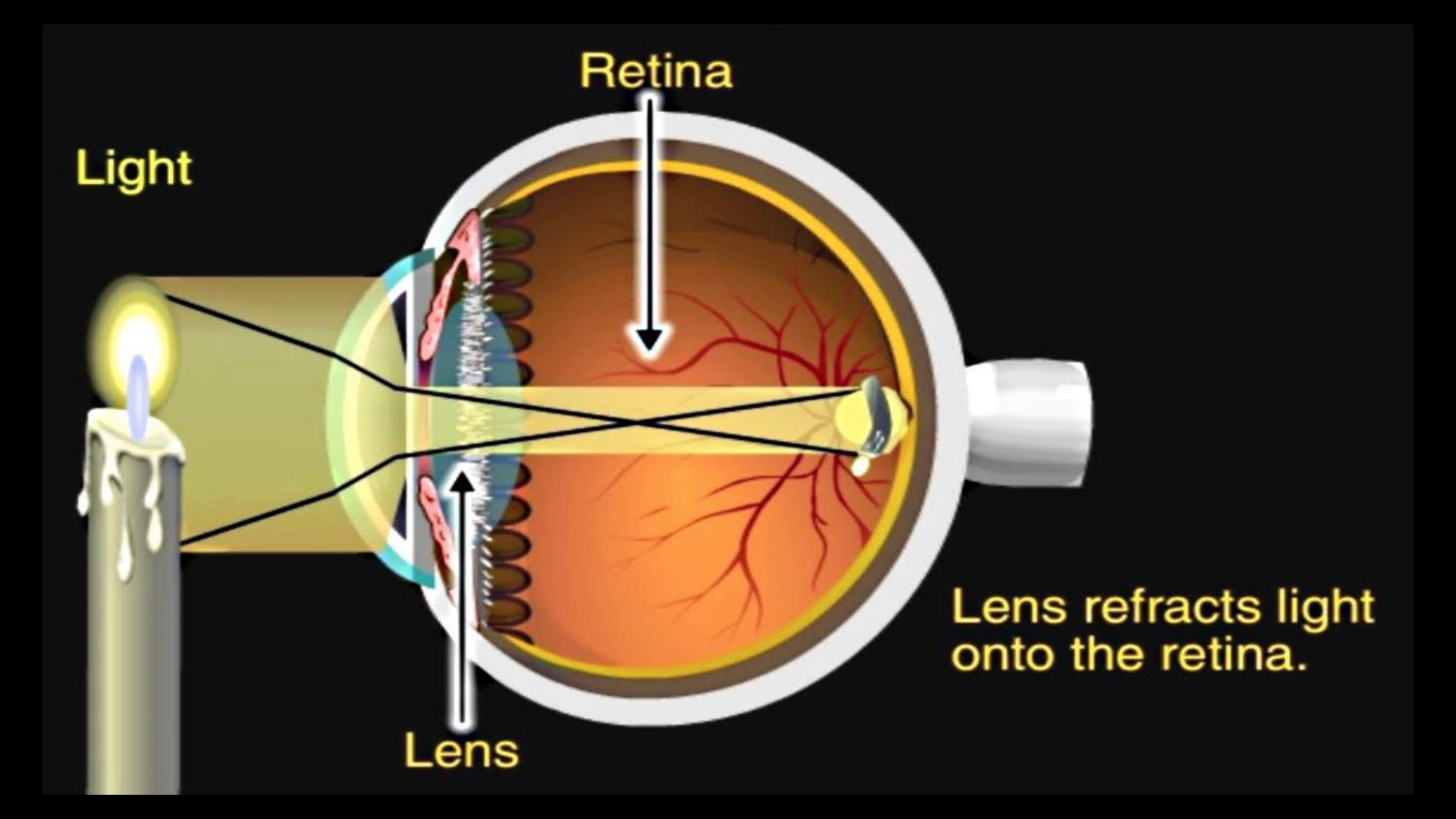
A stop is a movement from 1 shutter speed or f/stop to the next are 1-stop movements.

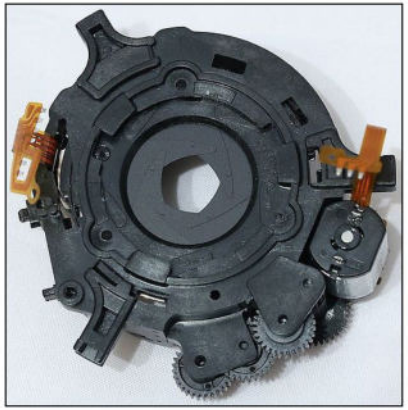
REMEMBER

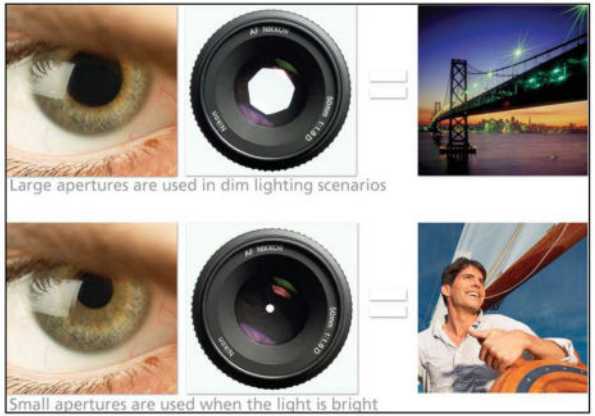
small hole, BIG NUMBER

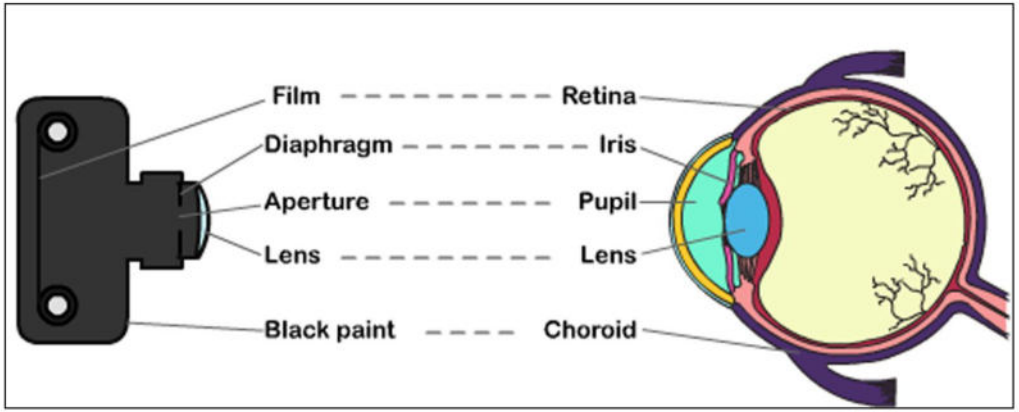
BIG HOLE, small number

Our eyes are just like lenses


Retina
Light
Lens refracts light
onto the retina.
Lens



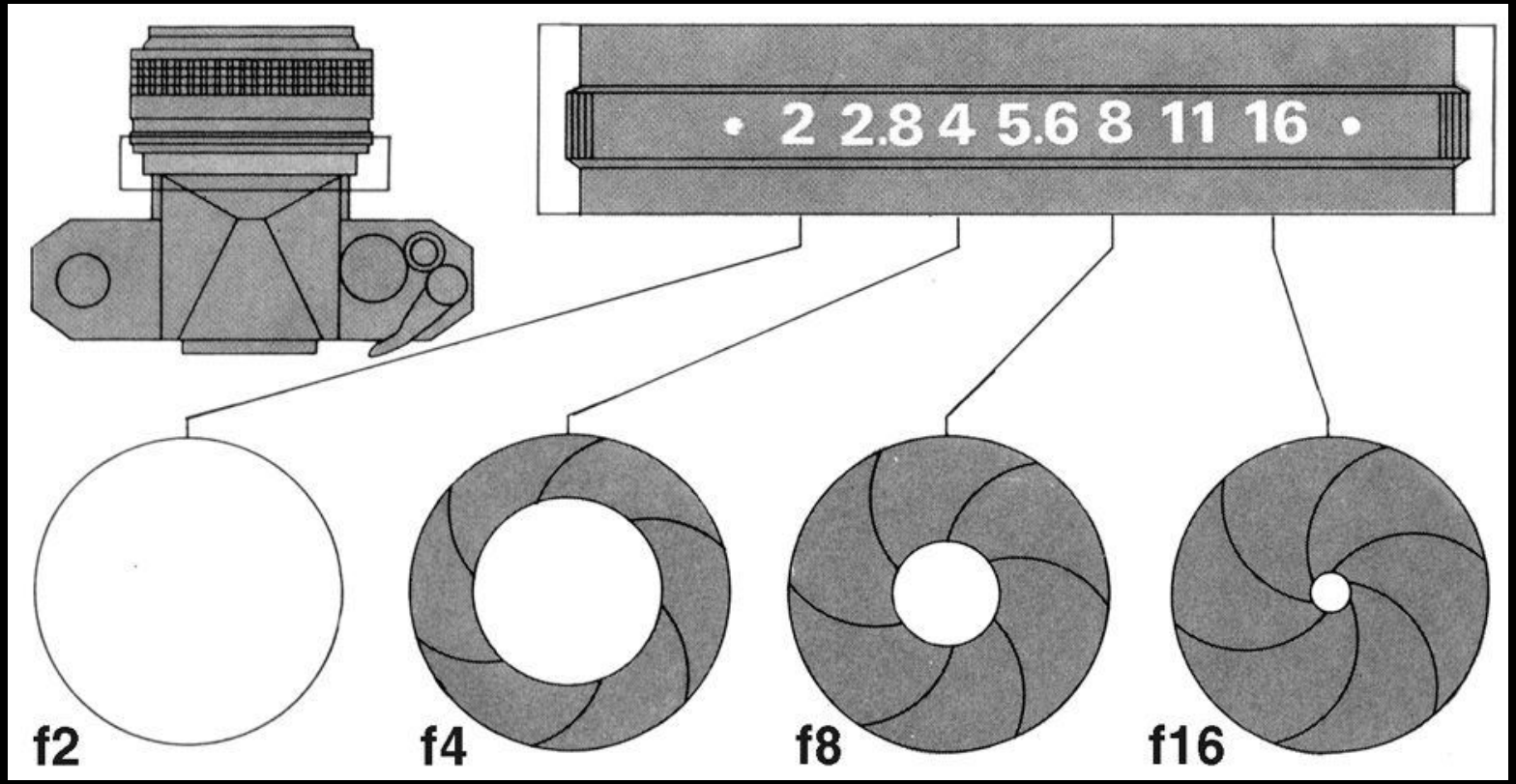




Human Eye & Camera Lens

Shanmugaraja Photography
For more tips & tricks : 98659 50020

How to see it on a camera



1.7 2.0 2.5 3.5 5 10
0.5 0.6 0.8 1 1.5 3
1.5/50mm
22 16 11 8 4 4 8 11 16 22
T 1.5
50mm
22 16 11 8 5.6 4 2.8 2 1.5 T CA

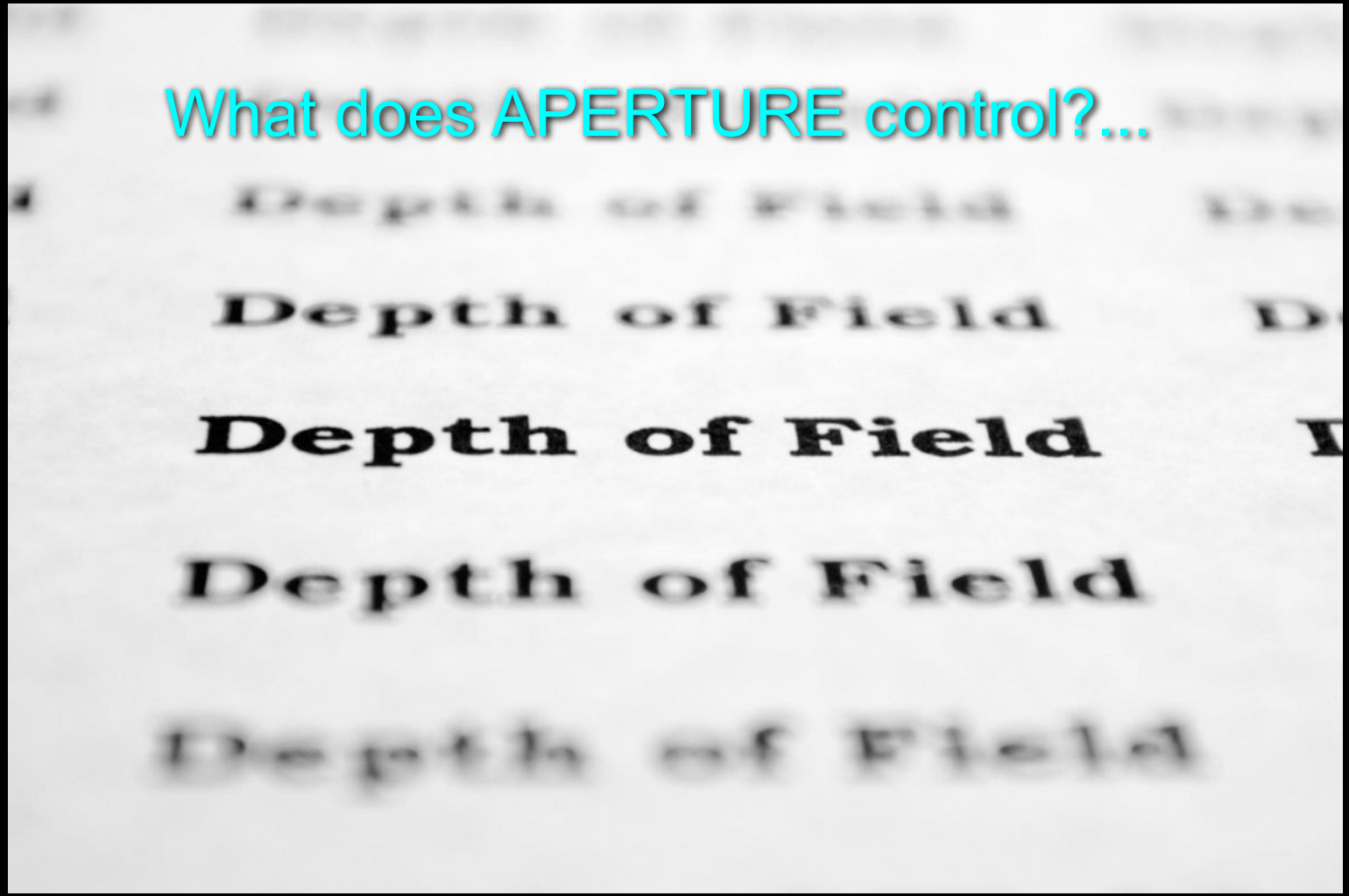
Where to Find Your Lens Ratio

The lens ratio shows how wide your aperture can go, located at the front of your lens when you look into it.

If it says 2.8-4, when your lens zooms in, the widest it can go if f/4.

Zoomed out, the widest it can go is f/2.8.

What does APERTURE control?...



Vocabulary

Depth of Field

noun

The distance between the nearest and the furthest objects that are in acceptably sharp focus in an image

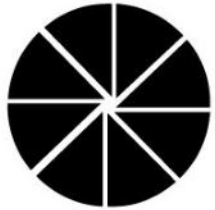
Depth of Field

Aperture also controls depth of field (DOF), which refers to how much of your image is in focus.

A wide aperture (small #) will give a shallow DOF and can be used to isolate a subject.

MORE LIGHT ENTERS CAMERA
FASTER SHUTTER SPEED

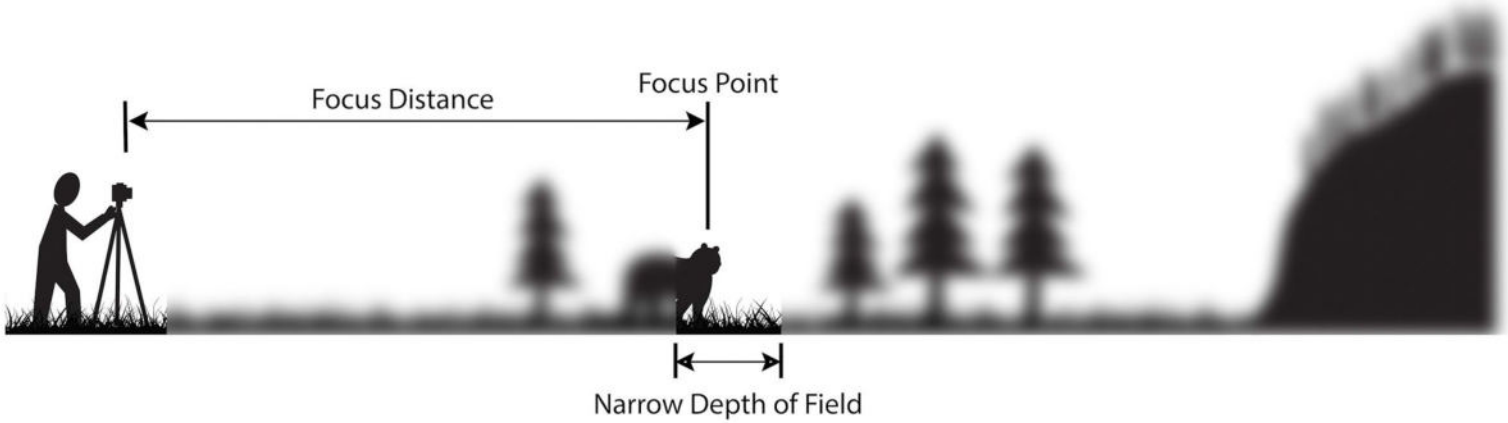
the DIGITAL process

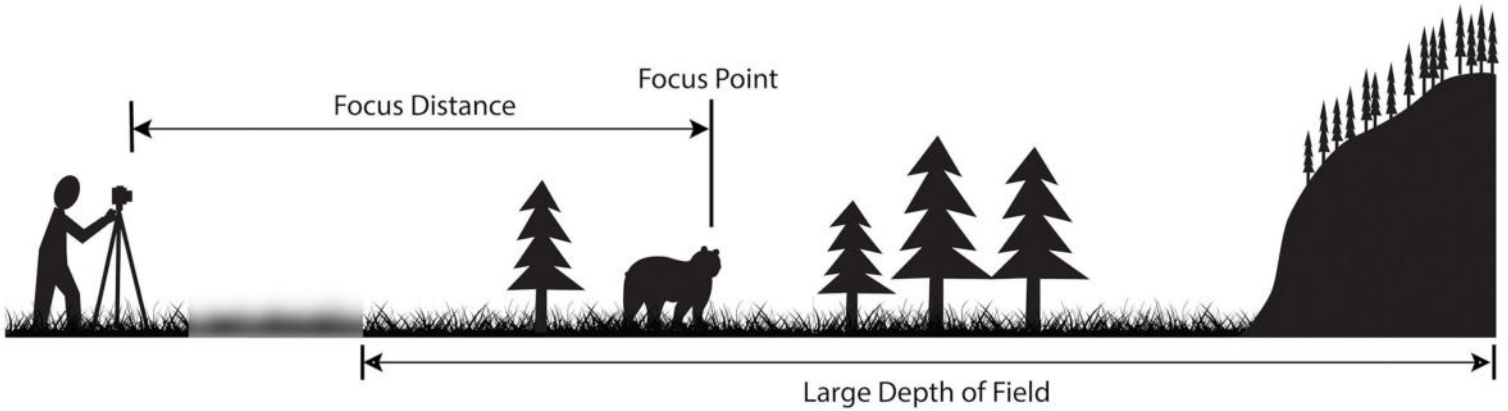
f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22
						
	1/2 the light of f/2.8	1/4 the light of f/2.8	1/8 the light of f/2.8	1/16 the light of f/2.8	1/32 the light of f/2.8	1/64 the light of f/2.8



the DIGITAL process

INCREASED DEPTH OF FIELD
SLOWER SHUTTER SPEED


Focus Distance
Focus Point
Narrow Depth of Field


Focus Distance
Focus Point
Large Depth of Field


f/4.0 - 1/160s
f/5.6 - 1/80s
f/8.0 - 1/40s
f/11.0 - 1/20s
f/16.0 - 1/10s
f/22.0 - 1/5s
Going Beyond AUTO

f/3.2, dof = 0.024m | f/5.6, dof = 0.043m | f/11, dof = 0.086m | f/22, dof = 0.172m

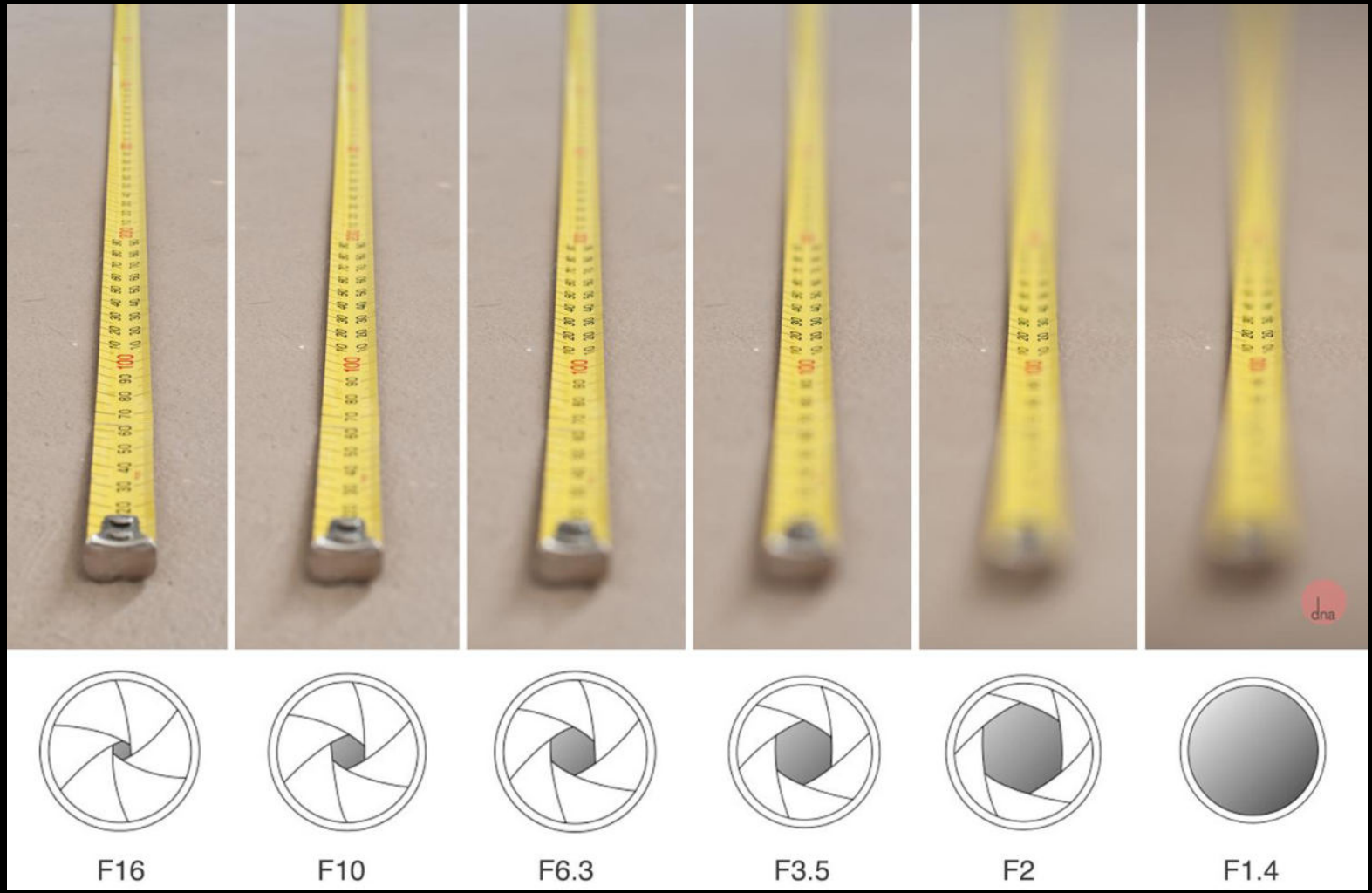
Focal length 105mm, Focus Distance 1.5m

f/3.2, dof = 0.002m | f/5.6, dof = 0.004m | f/11, dof = 0.007m | f/22. dof = 0.014m

Focal Length 105mm, Focus Distance 0.47m


F1.8
F5.0
F11
F22


f-stop examples
100mm Macro L
Aperture Priority mode
2.8
3.5
4.5
7
11
14
22
32
www.cvilleshutterbug.net


F16
F10
F6.3
F3.5
F2
F1.4

Large or Small?

Look at the image here.

Was it a large aperture or small aperture(hole)?

Large or small number?

Large or Small?

Look at the image here.

Was it a large aperture or small aperture(hole)?

Large or small number?

Large or Small?

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Large or Small?

Look at the image here.

Was it a large aperture or small aperture(hole)?

Large or small number?

Aperture Scale

f/1.4 | f/2 | f/2.8 | f/4 | f/5.6 | f/8 | f/11 | f/16 | f/22

Shallow DOF

One Thing in Focus

A Lot of Light

Bigger Hole

Great DOF

Everything in Focus

Very Little Light

Smaller Hole

Vocabulary

Bokeh

noun

the aesthetic quality of the blur produced in the out-of-focus parts of an image produced by a lens.

Most commonly associated with the way the lights blur.

Terminology

Rack Focus

A rack focus in filmmaking and television production is the practice of changing the focus of the lens during a shot. The term can refer to small or large changes of focus. If the focus is shallow, then the technique becomes more noticeable. Rack Focus is used to draw attention to different parts of the screen in one shot.

How to Set Aperture on a Camera

When using a Canon Rebel T3i, you need to hold down the AV button on the back and then use the main dial at the top to set your Aperture.

1

2

Where do we find our Aperture Value on the LCD screen?

Where do we find our Aperture Value on the LCD screen?


CINEMATIC VIDEO USING
APERTURE
ƒ2.8
ƒ3.5
ƒ5.6
ƒ8
ƒ11
ƒ14
ƒ16
ƒ22


Depth of field
In
Film

Closure

Think back to what you've learned today and how it might connect to what you've learned so far in class.

What are three things that you think are important from this lesson?

Discuss this with your neighbors and be prepared to share with the class.