

Intro to Video Editing I

Queens College Art Department | Fall 2019

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Week 3: 09/21/2019

Syllabus Website: introvideo-f19.copperbluemediacom

Blog: ivefall2019.tumblr.com

ARTS 207 - 01

Saturday 1:00 pm - 4:50 pm

IB 212

The art of filmmaking

Camera angles and movements, stylistic elements such as lighting as well as editing and sound, combine to create a sequence of images that convey meaning.

Narrative film started with static camera.

Editing later adopted:

- varied camera angles
- intercutting
- juxtaposition
- time-lapse photography
- dissolves
- hand-painted color
- storyboards
- non-linear story telling

Camera Shots / Angles

Camera Shots / Angles

Close up - CU

Big Close up - BCU

Extreme Close up - ECU/XCU

Medium-Shot - MS

Medium-Long Shot - MLS

Long Shot / Wide Shot - LS/WS

Extreme Long Shot / Wide Shot - ELS/EWS

Bird's Eye view

Over the shoulder

Point of view - POV

Dutch angle/Canted angle

High Angle

Low Angle

Aerial

Camera Movements

Camera Movements

Tilt Up / Down

Pan Left / Right

Zoom

Pedestal

Tracking shot

Dolly

Rackfocus

Hand-Held

Steadicam

Crane

Aerial

<https://www.videomaker.com/article/c10/10775-the-9-classic-camera-moves>

The Camera

The Camera

- Camera Frame – Shot Composition
- Camera Angles
- Camera Movements
- Camera Exposure: Aperture, Shutter Speed, ISO
- Depth of Field and Light
- Camera Lenses and Depth of Field

Exposure

Exposure:

Exposure refers to the amount of light that enters the camera and hits the digital sensor.

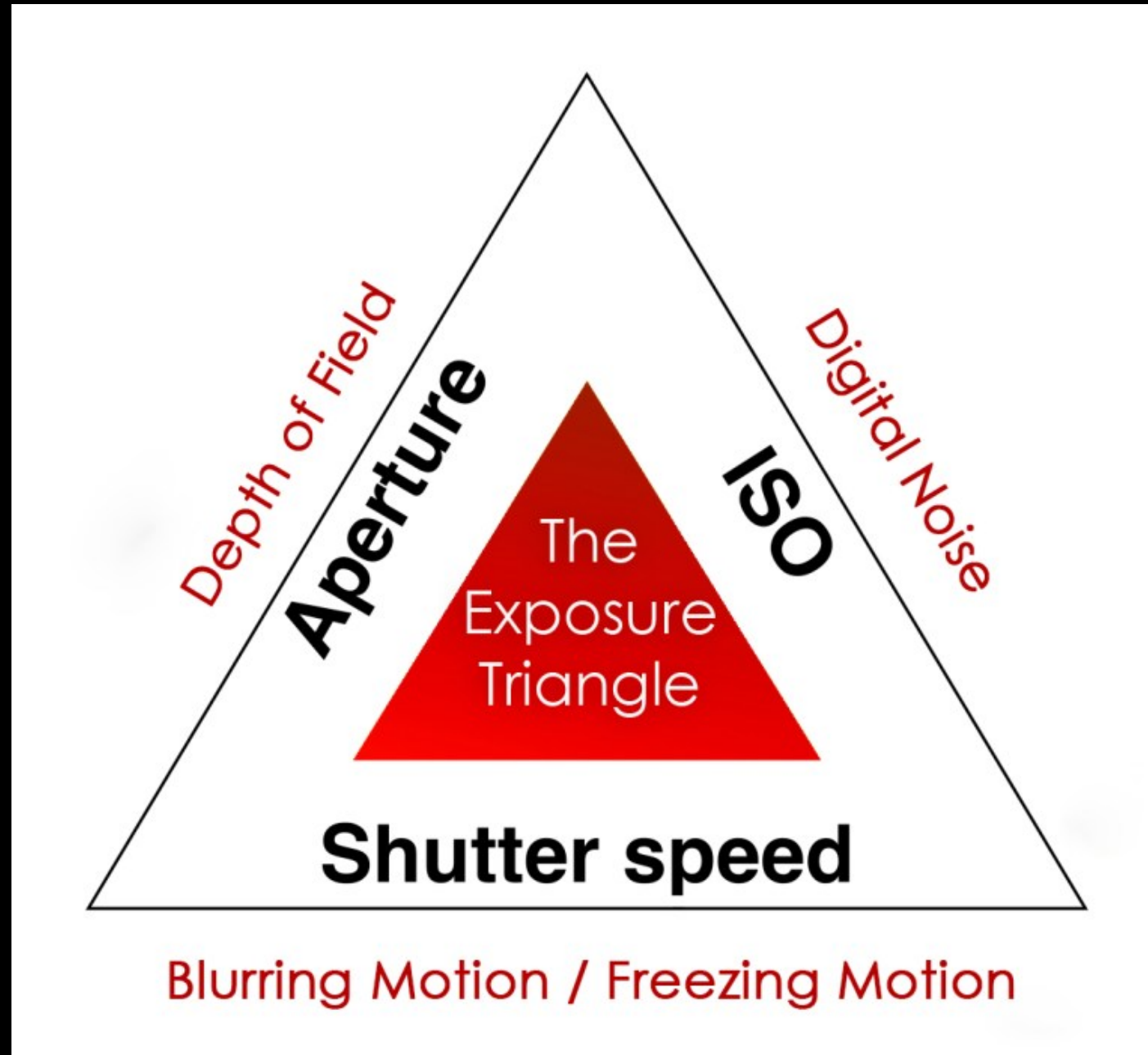
Camera Exposure:

- Aperture
- Shutter Speed
- ISO

Exposure is determined by:

- **Aperture (fstop)** - controls how much light enters through the lens
- **Shutter Speed** - controls how fast the shutter opens and closes to expose the camera sensor to light
- **ISO** - the speed of the film or sensitivity of the CCD sensor

Exposure



Aperture

Aperture:

a hole through the lens which determines the amount of light that enters a camera.

Aperture is measured in Fstops.

Aperture | Fstops

A large Aperture has a "small" *Fstop* # e.g. f/2.8

A small Aperture has a "large" *Fstop* # e.g. f/22



f/1.8

f/2.8

f/4.0

f/5.6



f/8

f/11

f/16

f/22

Aperture | Light Conditions

Lighting conditions	Aperture setting
	f/16
	f/11
	f/8
	f/5.6
	f/4

Aperture Fstops Vs. Shutter Speed

The smaller the Aperture (large FStop # e.g. f/16) - the less light going through the lens.

To compensate we adjust the Shutter Speed in order to have a good exposure.

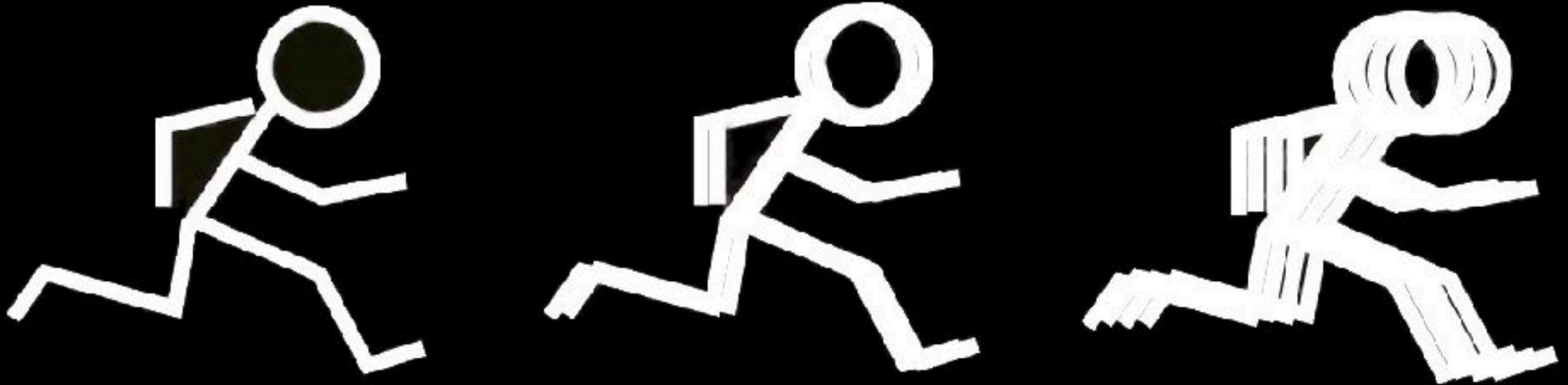
Shutter Speed

Shutter Speed:

Shutter speed determines the amount of time the camera sensor is exposed to light.

Motion | Shutter Speed

Shutter speed



1/1000 1/500 1/250

1/125 1/60

1/30 1/15 1/8 1/4 1/2 1 2 4 8

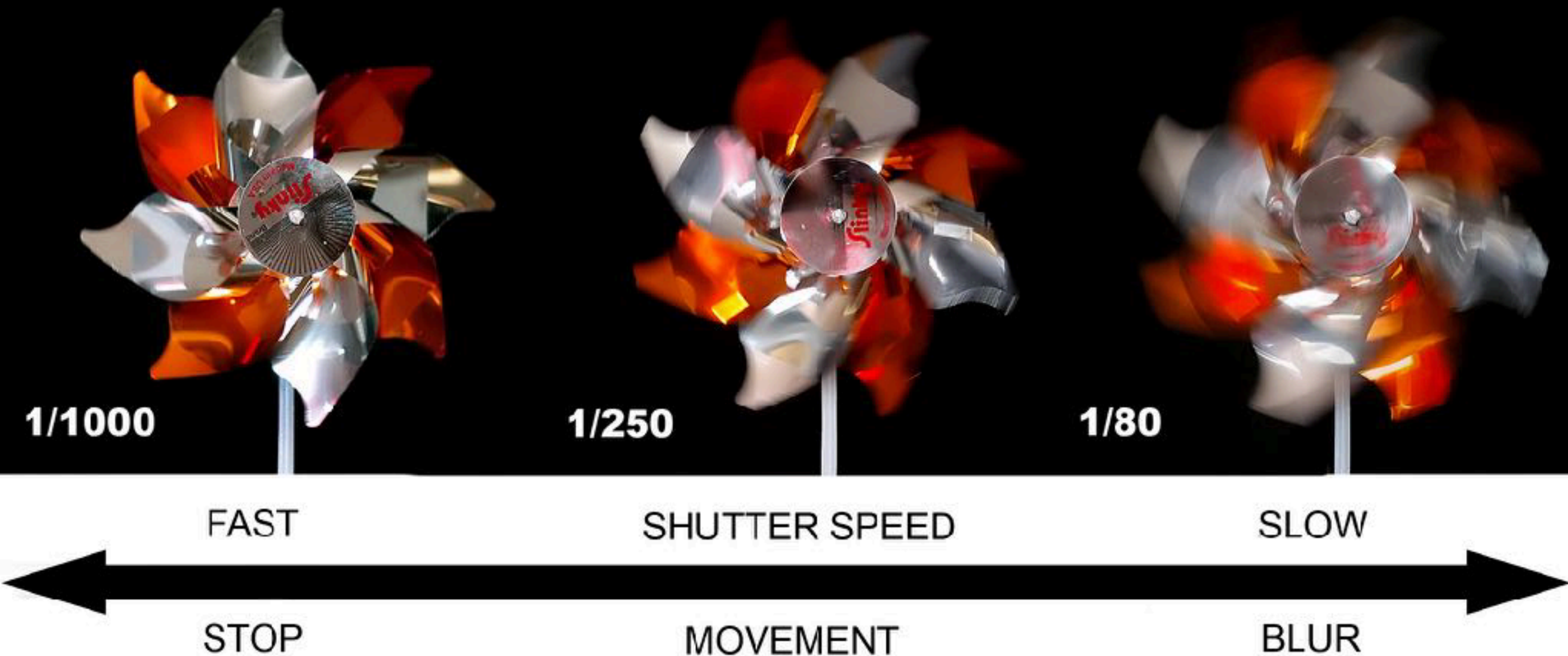
Freeze action

Hand hold

Movement blurr - tripod needed

the higher the shutter speed #
the faster the exposure & less blurriness

Motion | Shutter Speed



higher (fast) shutter speed captures crisp movement
low (slow) shutter speed captures blurry movement

Motion | Shutter Speed

to hold a camera still for longer than 1/60th second
Use a Tripod

Motion
+
Shutter Speed

Motion | Shutter Speed



1/250
f/8 ISO 200



1/125
f/8 ISO 200



1/60
f/8 ISO 200



1/30
f/8 ISO 200



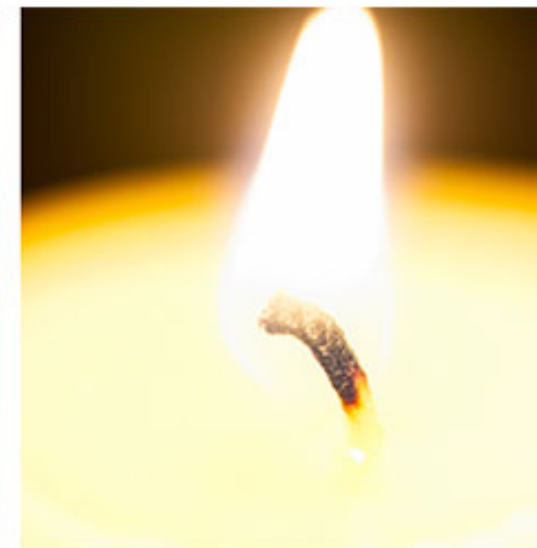
1/15
f/8 ISO 200



1/8
f/8 ISO 200



1/4
f/8 ISO 200



1/2
f/8 ISO 200

Motion | Shutter Speed



Deep DOF

Small Aperture (Large F/stop)

Slow Shutter speed (Long Exposure / Timelapse)

Motion | Shutter Speed



Slow Shutter speed

Motion | Shutter Speed



Slow Shutter speed

Motion | Shutter Speed



JENS LYGSTAD
photography

Slow Shutter speed

Motion | Shutter Speed



Slow Shutter speed

Motion | Shutter Speed



Slow Shutter speed (Long Exposure / Timelapse)

Motion | Shutter Speed



Medium Shutter speed

Motion | Shutter Speed



Fast Shutter speed

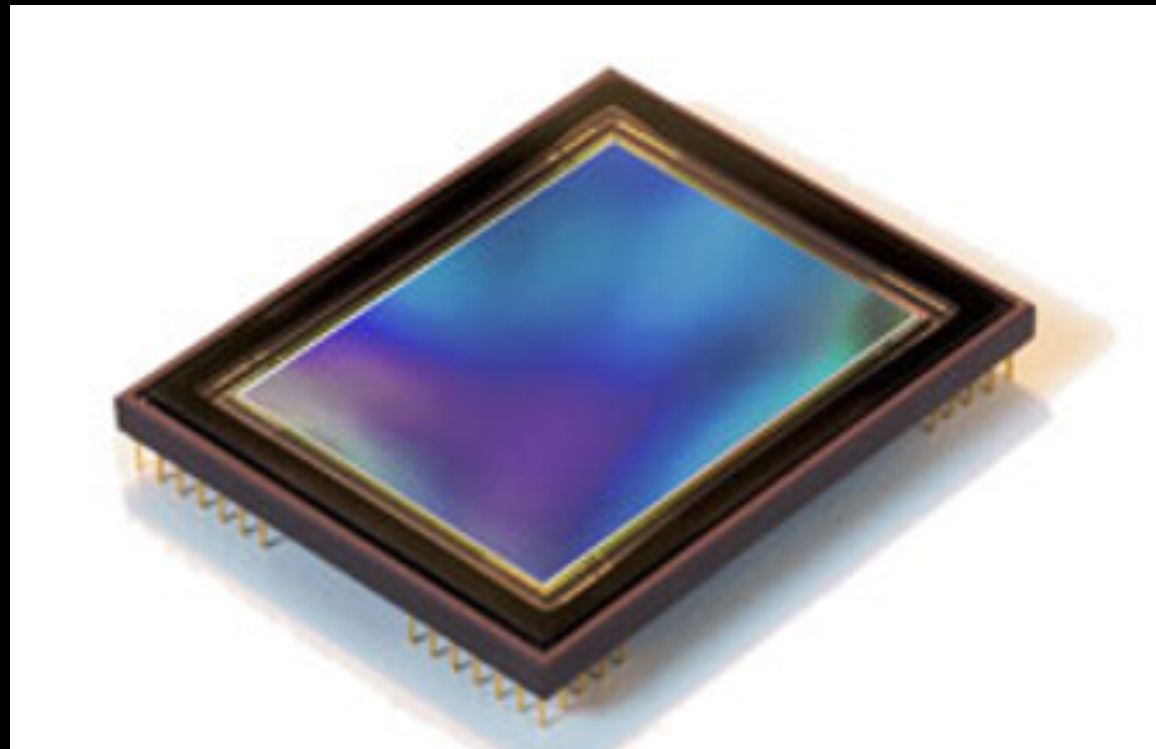
Motion | Shutter Speed



Fast Shutter speed

ISO/ASA

ISO / ASA = the speed of the film or sensitivity of
the CCD sensor



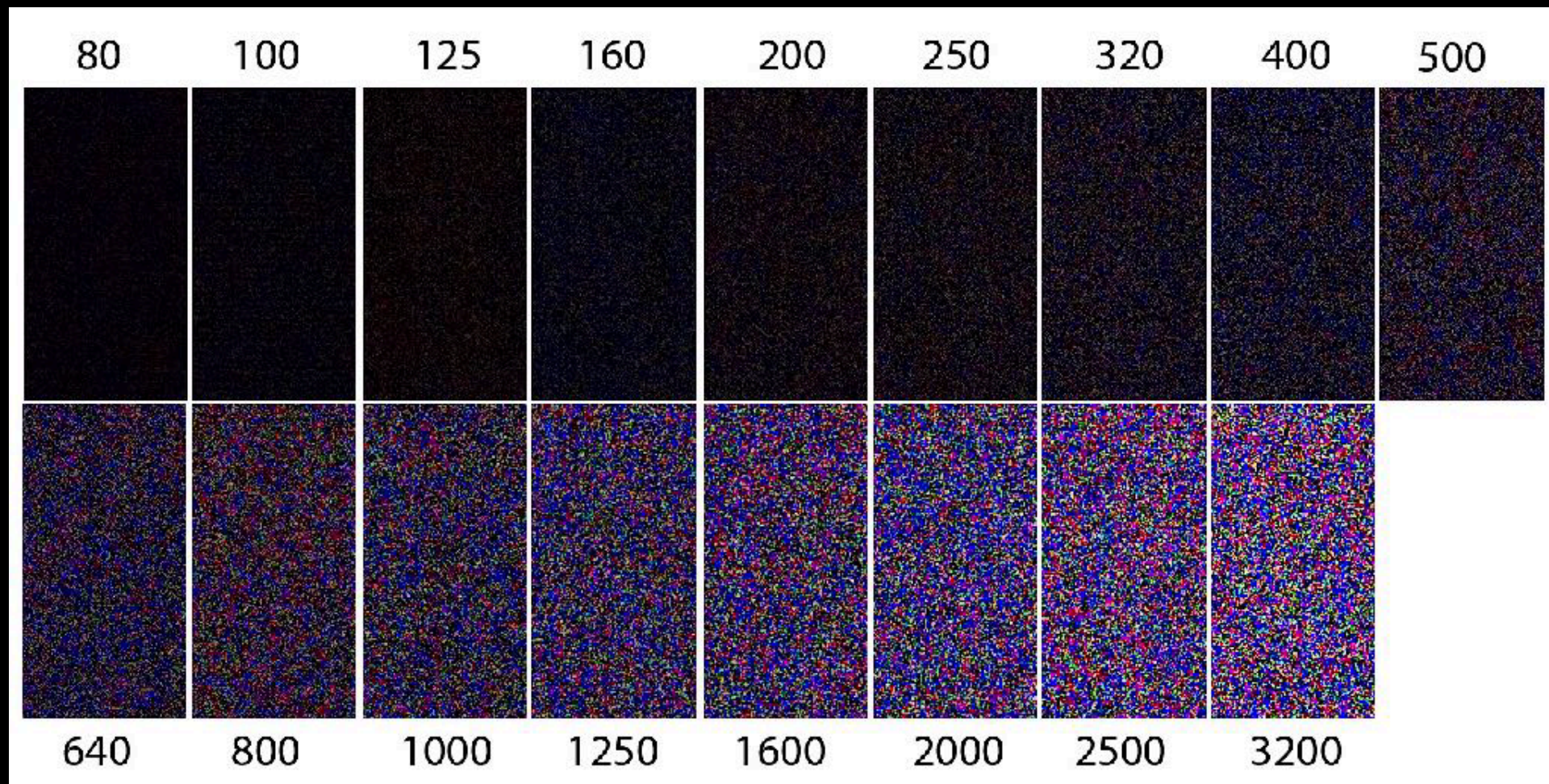
CCD Sensor

Φ = the sensor plane

where light becomes an image, data

ISO / ASA

ISO controls the amount of amount of noise.



keep your ISO set to 400 & below to avoid grain

ISO / ASA

Your camera's Light Meter

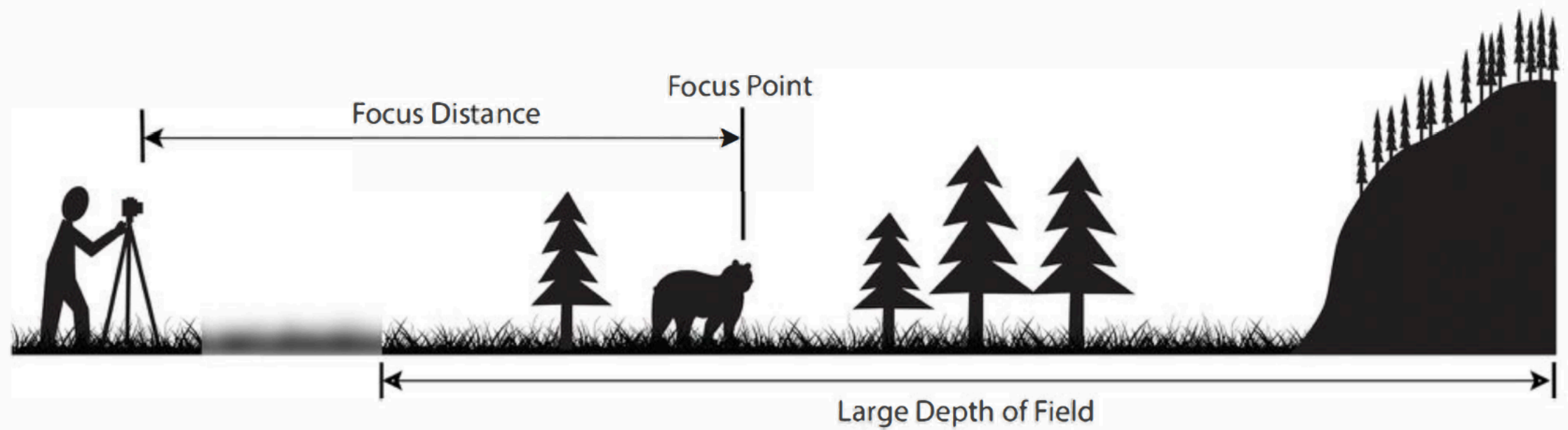
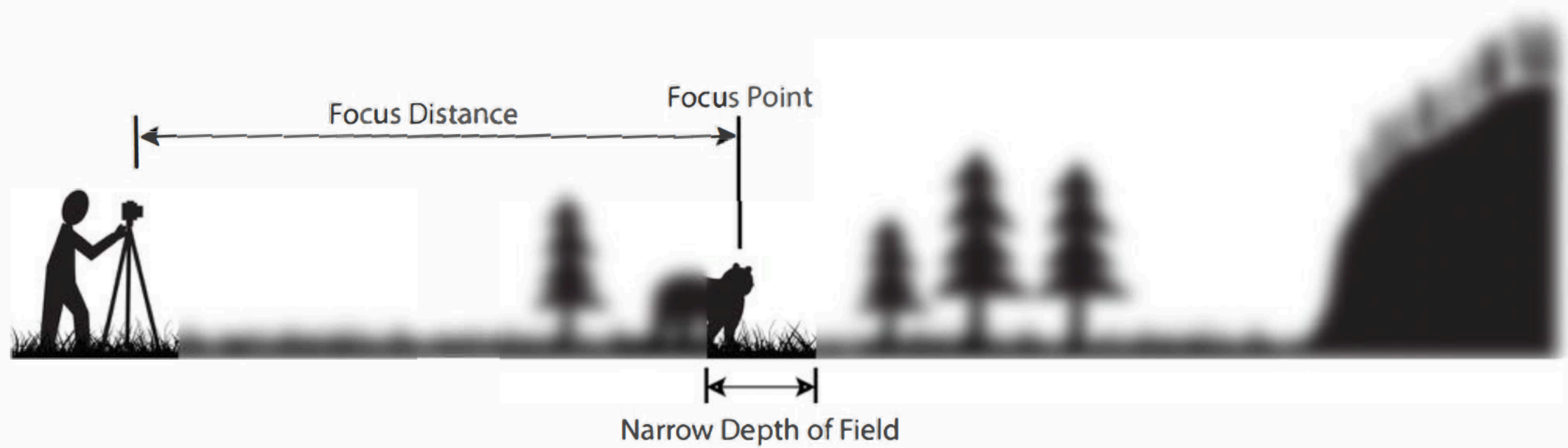


Depth of Field

Depth of field:

the distance between the nearest and furthest object in frame giving a focused image.

Depth of Field



Depth of Field

Depth of Field is determined by Aperture

Aperture (F/stop) | Depth of Field

A large Aperture (small Fstop #) = Small DoF

A small Aperture (large Fstop #) = large DoF

Aperture (F/stop) | Depth of Field

Large Aperture
(Small F/stop)

Low Light Conditions

More Light In

Small Aperture
(Large F/stop)

Sunny Day

Less Light In



f/1.4



f/2



f/2.8



f/4



f/5.6



f/8



f/11



f/16



Shallow Depth of Field

Less in Focus



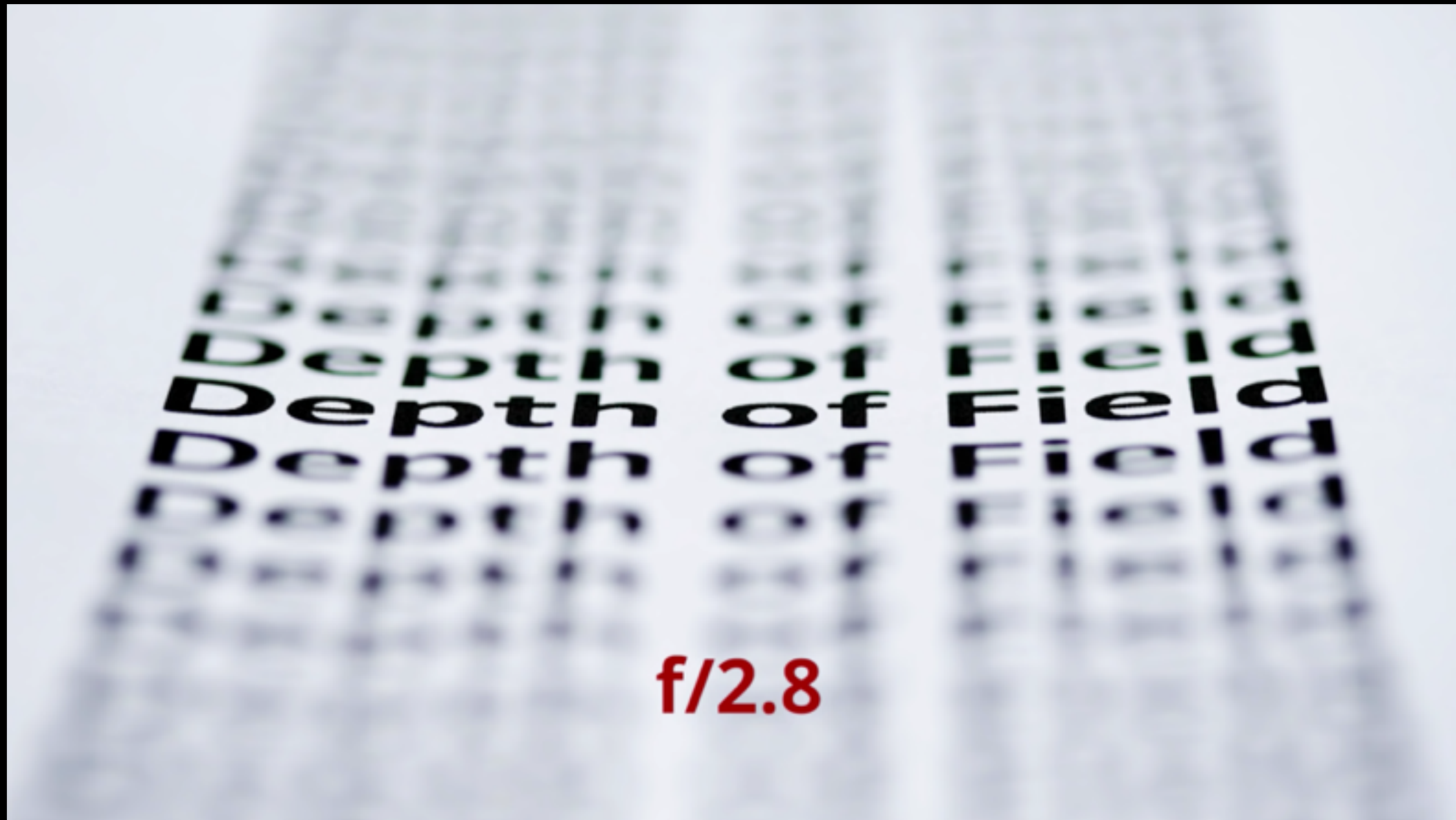
Deep Depth of Field

More in Focus



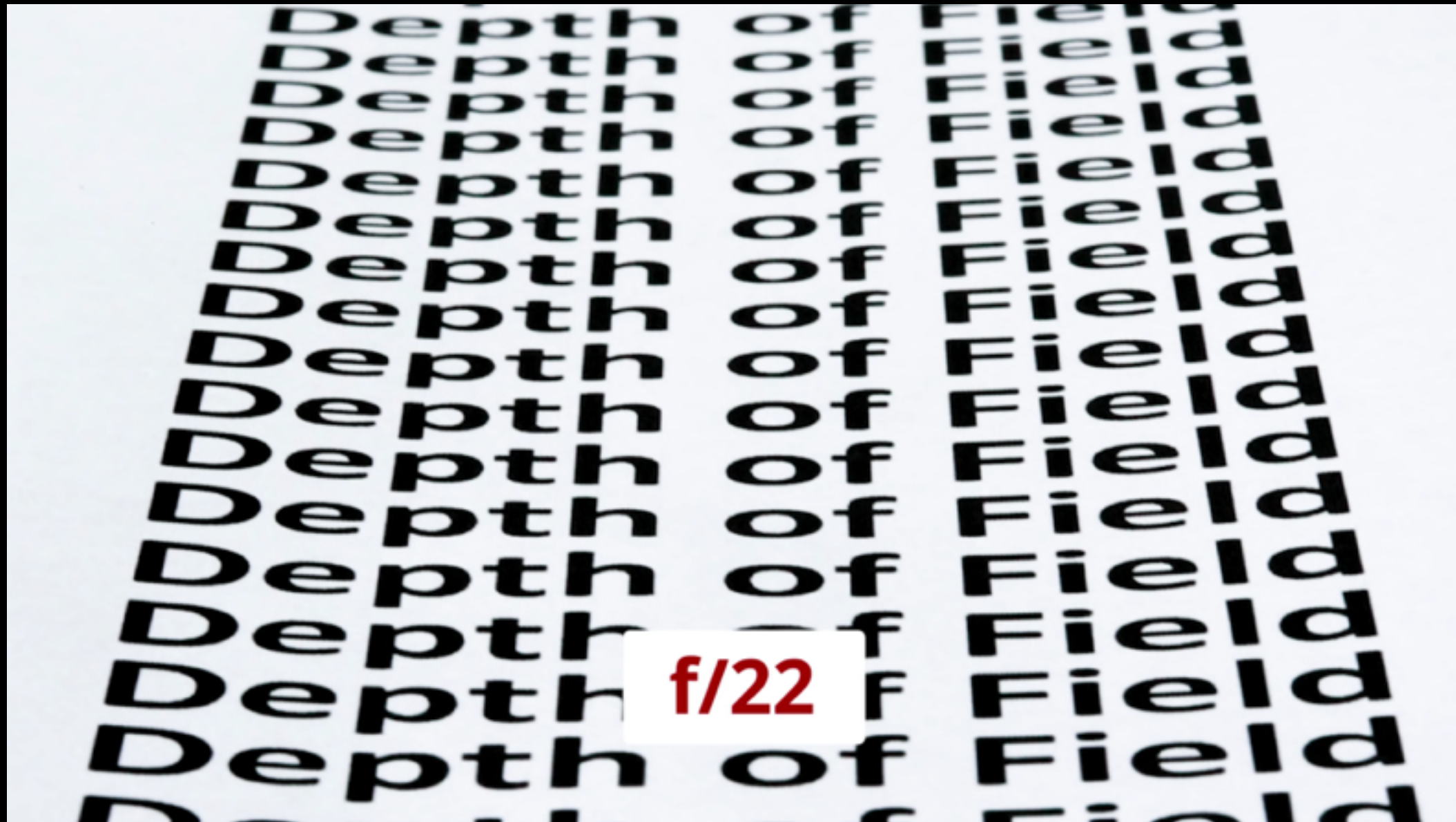
Aperture (F/stop) | Depth of Field

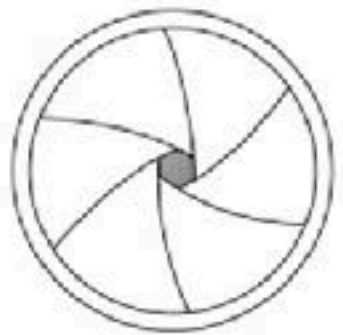
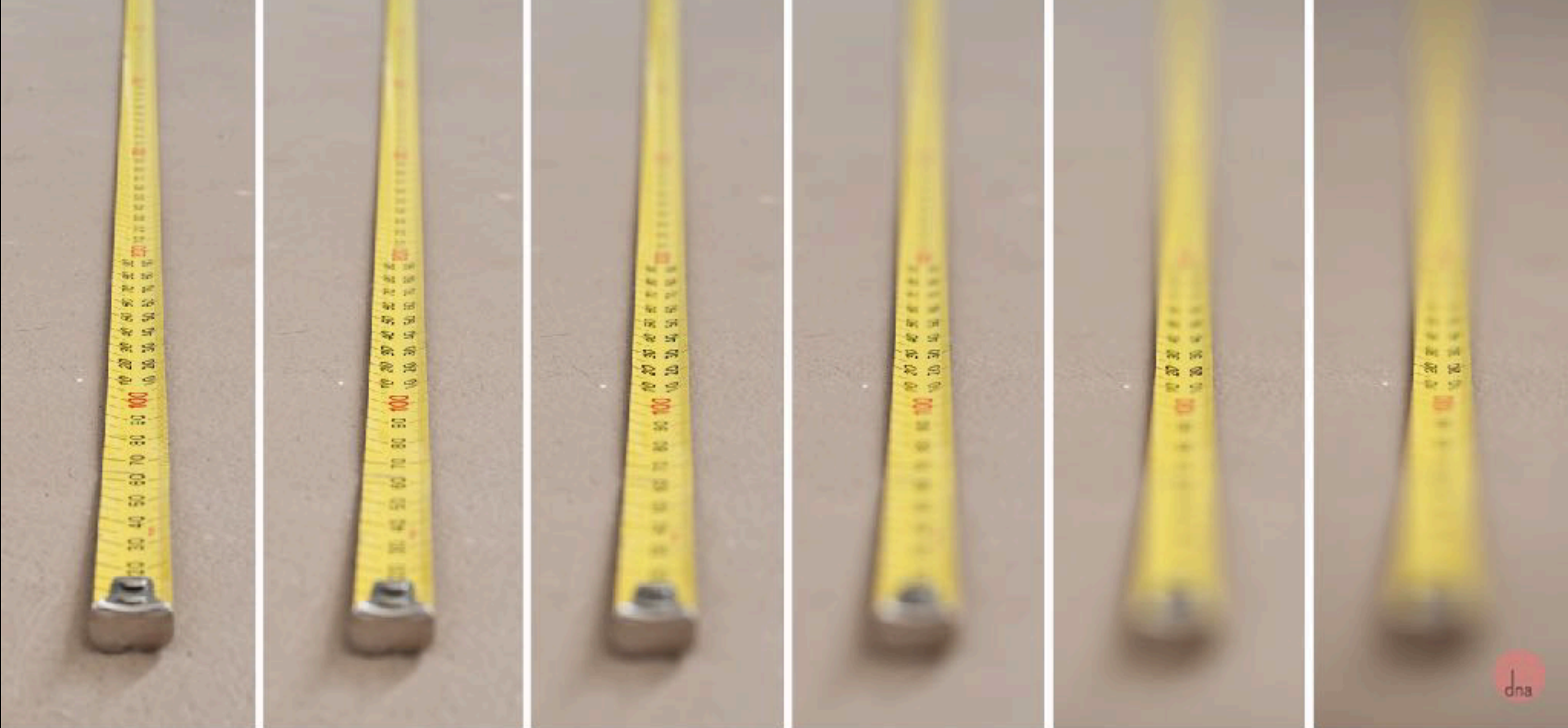
A small Fstop # = Small DoF



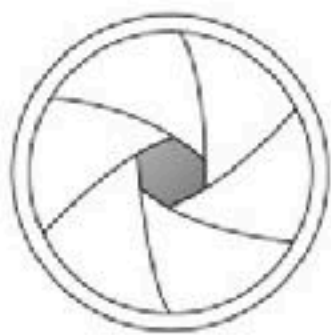
Aperture (F/stop) | Depth of Field

A large Fstop # = large DoF

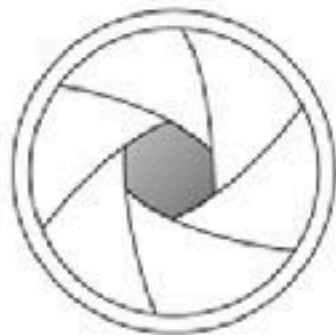




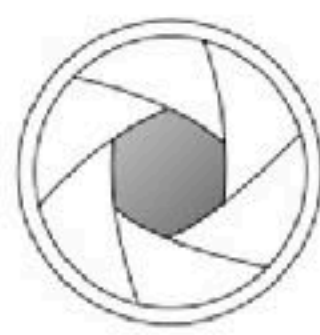
F16



F10



F6.3



F3.5



F2



F1.4

the smaller the FStop # - the smaller the Depth of Field

Aperture (F/stop) | Depth of Field

Depth of Field: F/stop examples

https://www.youtube.com/watch?v=cnHiN_VtWhI

Tutorial:

<https://www.youtube.com/watch?v=EdxKI5np9KE>

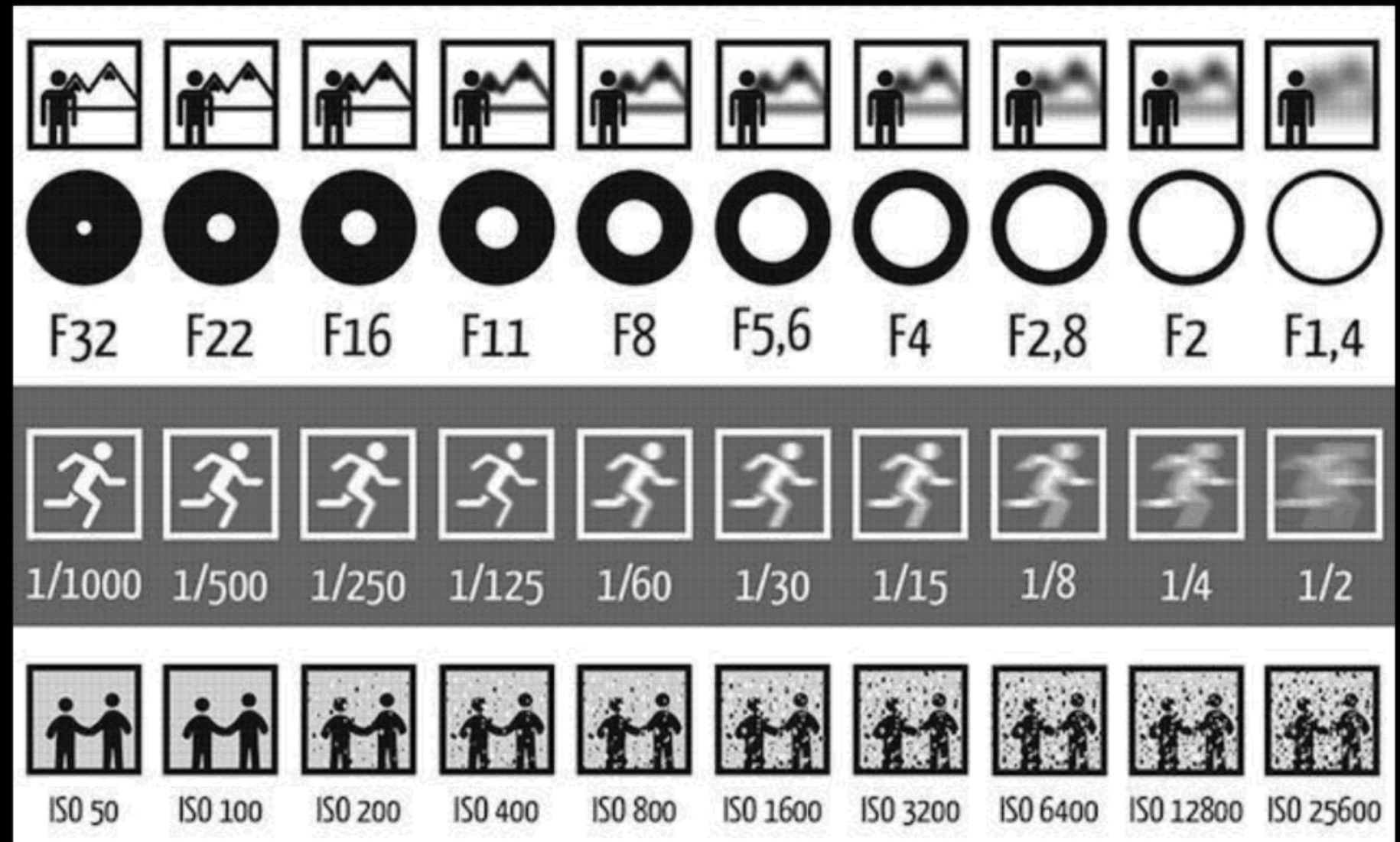
Depth of Field | Aperture | Shutter Speed | ISO

Depth of Field

Aperture
(Fstop)

Shutter speed

ISO



Depth of Field

Depth of Field is determined by:

- Aperture (F/stop)
- The type of lens

Camera Lenses

Camera Lenses

Types of Lenses

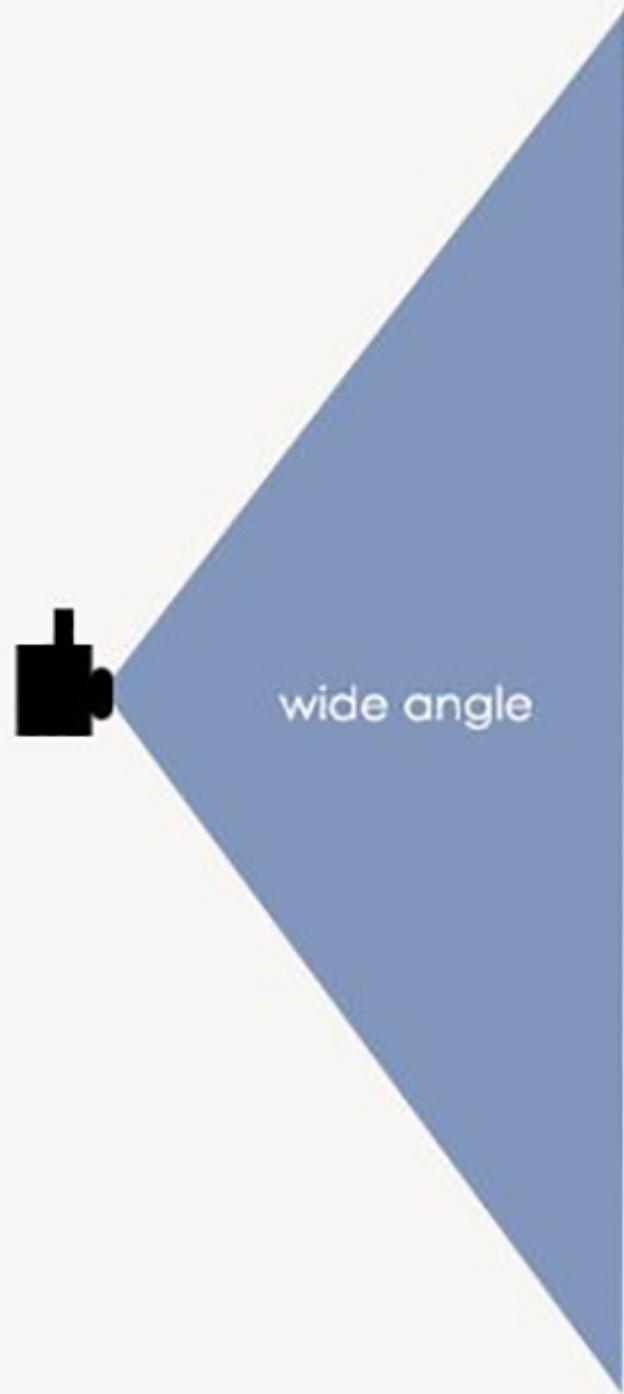


Wide angle lenses
20-35mm

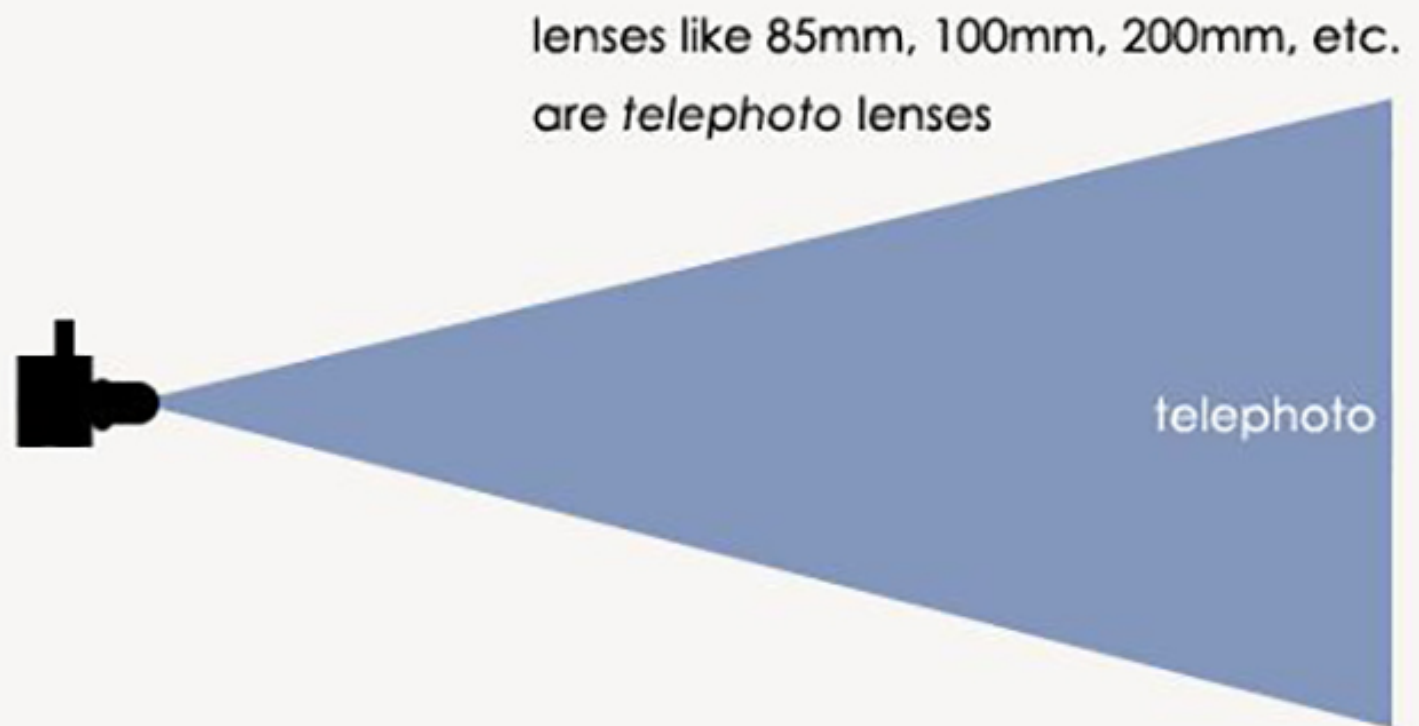
Normal lens
35-50mm

Telephoto > 50mm

Cameral Lenses



lenses like 10mm, 20mm, 24mm, 35mm, etc. are *wide angle* lenses



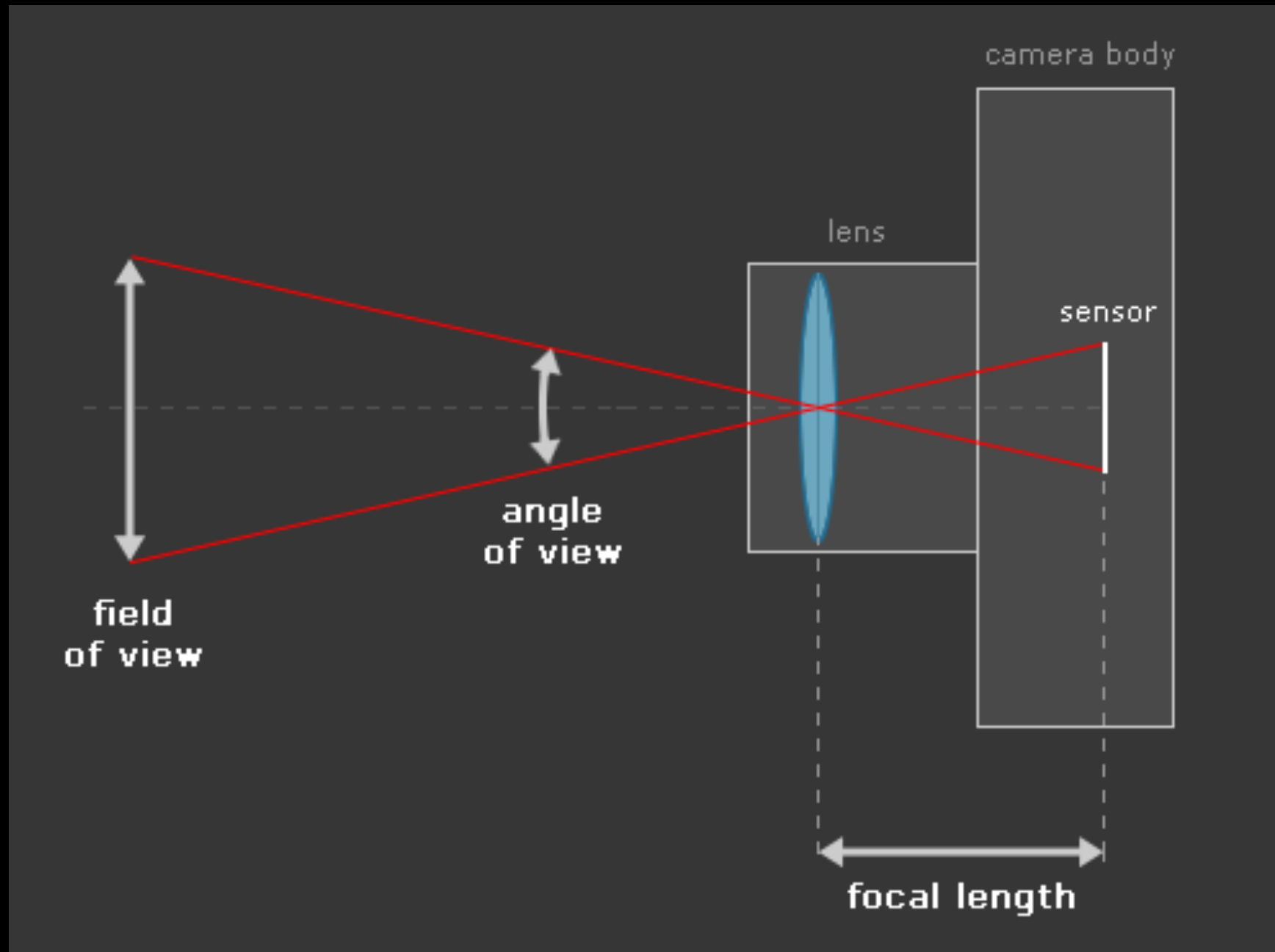
Camera Lenses | Focal Length

Focal length:

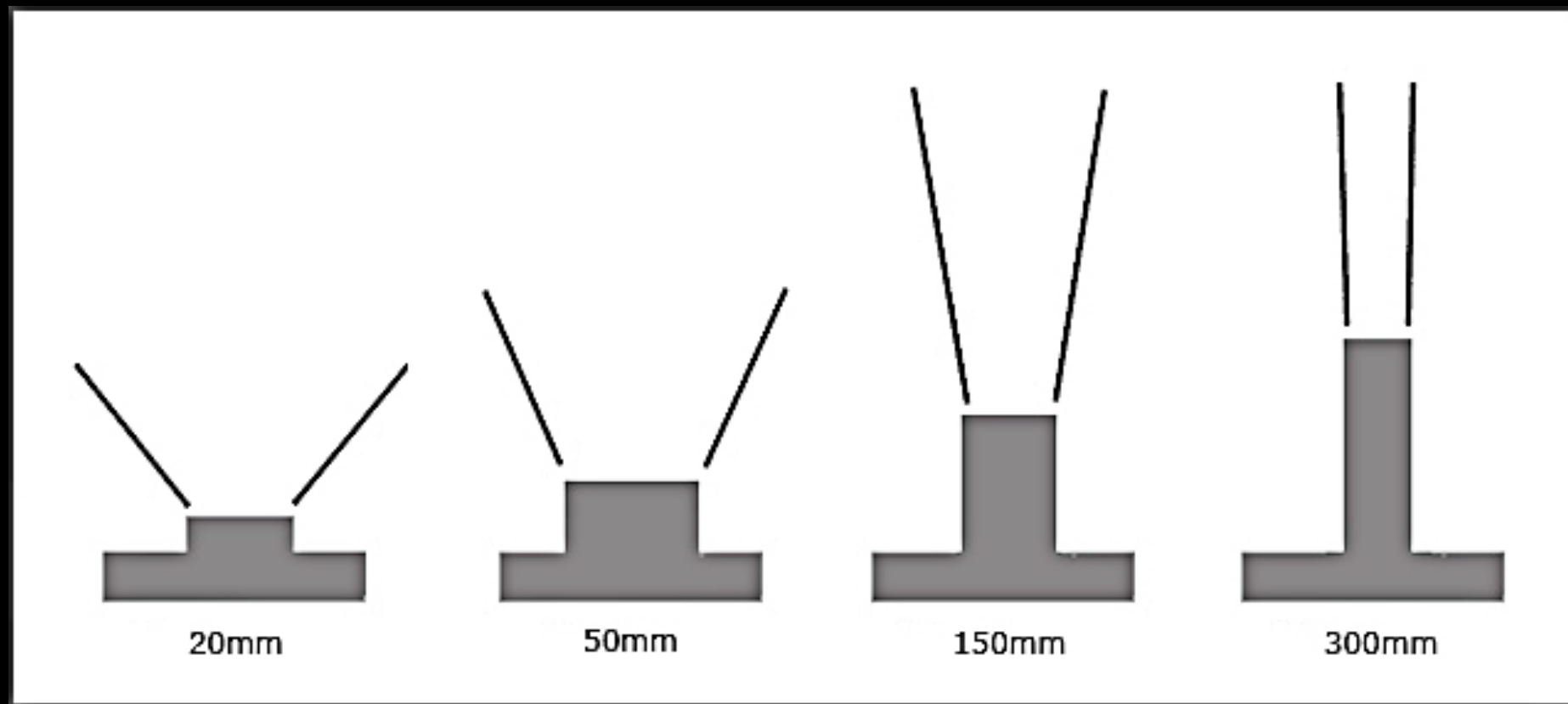
the distance from the lens to the sensor inside the camera, when the lens is focused on infinity (a calculation of an optical distance) and is typically represented in millimeters (mm).

It determines the **field of view** and how big objects will be within a scene (magnification). Lenses come in a variety of focal lengths. Zoom lenses have variable focal lengths.

Camera Lenses | Focal Length



Camera Lenses | Focal Length



A 20mm **wide angle** lens has a short focal length, wide angle of view and lower magnification, (which requires the camera to be closer to the subject), and has a high DOF.

A 300mm **telephoto** lens has a long focal length, narrow angle of view and higher magnification, (which requires the camera to be further away from the subject), and has low DOF.

Camera Lenses | Focal Length

28 mm lens



50 mm lens



70 mm lens



210 mm lens



The photos above were taken by a 35 mm camera at a fixed distance from the subject.

Camera Lenses | Distortion | Depth of Field

Do You Know How Lenses Affect *Portraits*?



Telephoto (zoomed in)
image with blurry
background (low DOF)

Wide angle (zoomed out)
image with background in
focus (high DOF) and
exaggerated perspective
distorting face features.

Telephoto

Wide Angle Lens

Zoomed IN



Zoomed OUT



135mm

70mm

50mm

24mm

12mm

A telephoto (narrow angle) lens:

- has a smaller DOF keeping less of the foreground and background of the image in focus
- flattens perspective and is suitable for portraits

A wide angle lens:

- has a higher DOF with more of the image in focus
- exaggerates perspective, distorting features like the nose in a portrait but can be effective in exaggerating movement in a fight scene

Camera Lenses | Depth of Field

Telephoto Low DOF



Aperture: **f/7.1**
Shutter Speed: **1/320 sec**
ISO **640**
Lens: 150-600mm @ **532mm**

Wide Angle Lens Large DOF

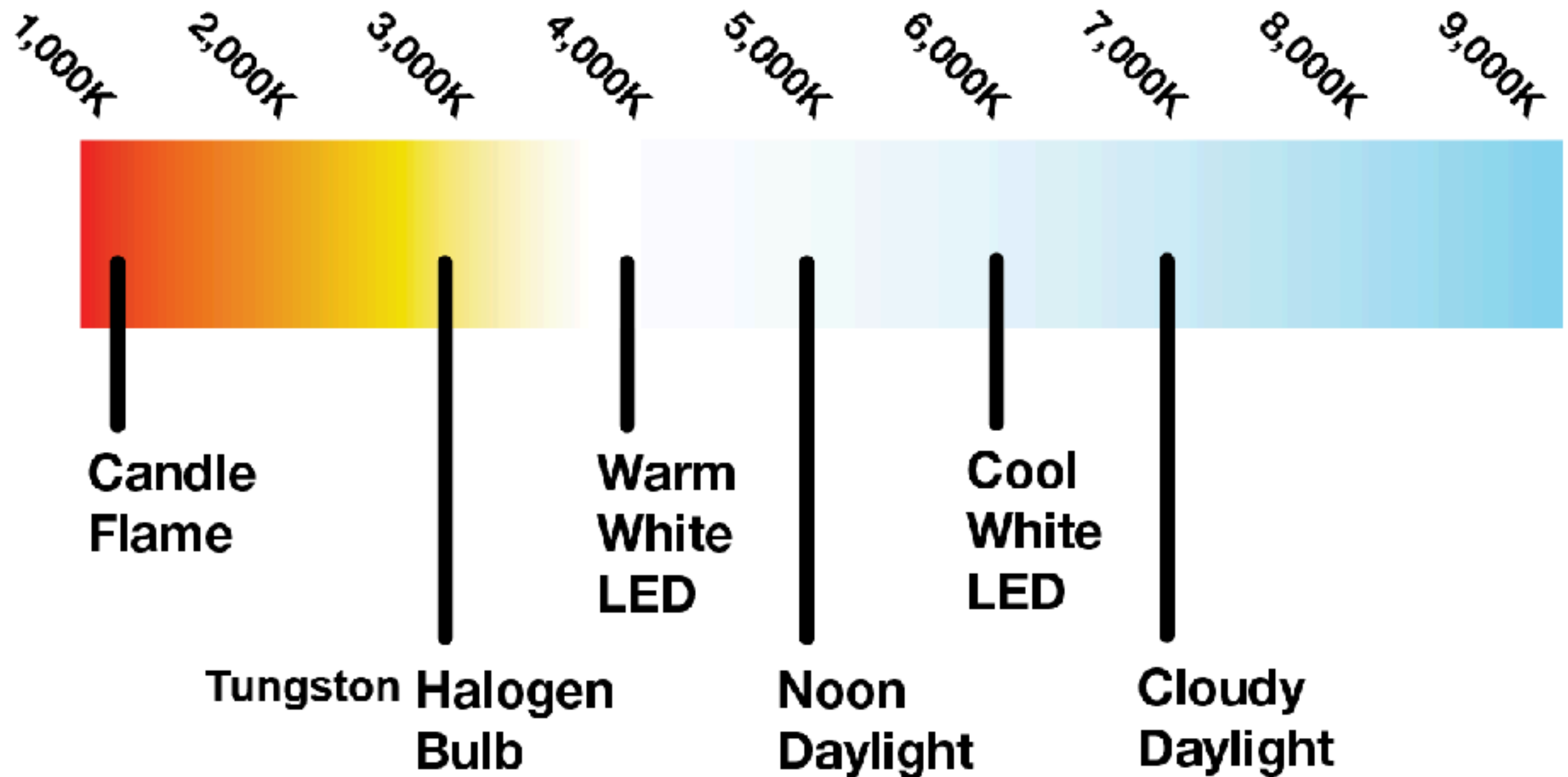


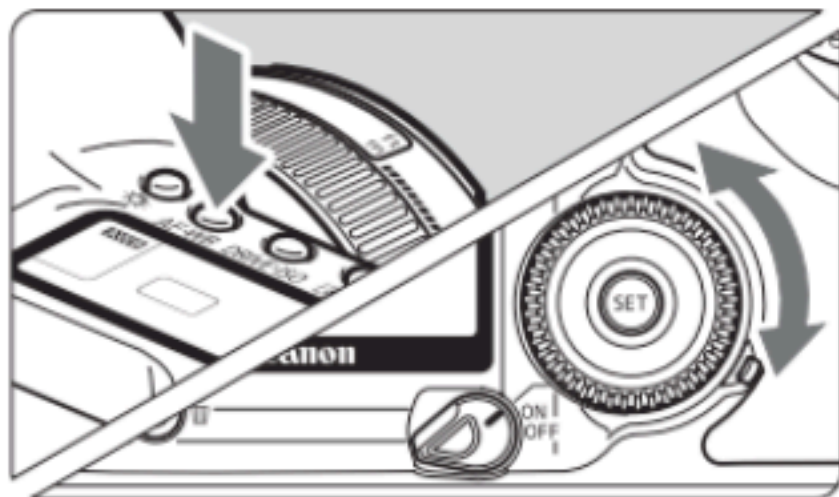
Aperture: **f/4.0**
Shutter Speed: **1/250 sec**
ISO **500**
Lens: 17-40mm @ **17mm**

White Balance

Whitebalance

Color Temperature Scale (°K)





1 Press the <AF-WB> button. (ⓘ6)

2 Select the white balance setting.

- While looking at the top LCD panel, turn the <ⓘ> dial.



Display	Mode	Color temperature (Approx. K)
AWB	Auto	3000 - 7000
☀	Daylight	5200
🏠	Shade	7000
☁	Cloudy, twilight, sunset	6000
💡	Tungsten	3200
💡	White fluorescent light	4000
⚡	Flash	6000
📷	Custom*	2000 - 10000
K	Color temperature	2800 - 10000

* Set the optimum white balance manually to suit the lighting. (p.62)

Color Temperature (K)	Light Source
1500	Candle
3200	Sunrise and sunset
3400	Tungsten lamp
5500	Natural daylight
6000	Overcast sky
8000	Shade on a sunny day
12,000	Blue sky

Timecode

Timecode

Timecode is a signal recorded with video that uniquely identifies every frame using a time stamp in hours, minutes, seconds, and frames.

Timecode uses the format:

Hours : Minutes : Seconds : Frames

SMPTE timecode

01:32:15:28

Hours

Minutes

Seconds

Frames

Frame Rate

Frame Rate

Frame rate is expressed in frames per second (fps):

- 24 frames/sec (film, ATSC, 2k, 4k, 6k)
- 25 frames/sec (PAL (Europe, Uruguay, Argentina, Australia), SECAM, DVB, ATSC)
- 29.97 ($30 \div 1.001$) frames/sec - NTSC American System (US, Canada, Mexico, Colombia, etc.), ATSC, PAL-M (Brazil)
- 30 frames/sec (ATSC)

Aspect Ratio

Aspect Ratio

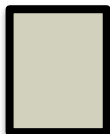
Aspect ratio is the ratio of the width of an image to the height

Main Formats:

NTSC/PAL	1.33:1 (4:3)
HDTV	1.78:1 (16:9)
Widescreen	1.85:1
Cinemascope	2.35:1
Academy *	1.37:1
4K Stereoscopic 360	2:1

* (Academy of Motion Picture Arts and Sciences)

Aspect Ratio

	7:9	2.3:3	0.77:1	Paper (8.5 x11in)
	12:9	4:3	1.33:1	Standard Television
	15:9	5:3	1.66:1	Photographs, many European movies
	16.7:9	5.3:3	1.78:1	HDTV, most widescreen TV
	19.9:9	5.6:3	1.85:1	Most movies
	19.9:9	6.6:3	2.21:1	Wide movies (70 mm)
	21.2:9	7.1:3	2.35:1	Wide movies (Panavision, Cinemascope)
	24.3:9	8.1:3	2.7:1	Extra-wide movies (Ultra Panavision)

Aspect Ratio

Understanding Aspect Ratio

How to crop widescreen to Cinemascope

Video Formats

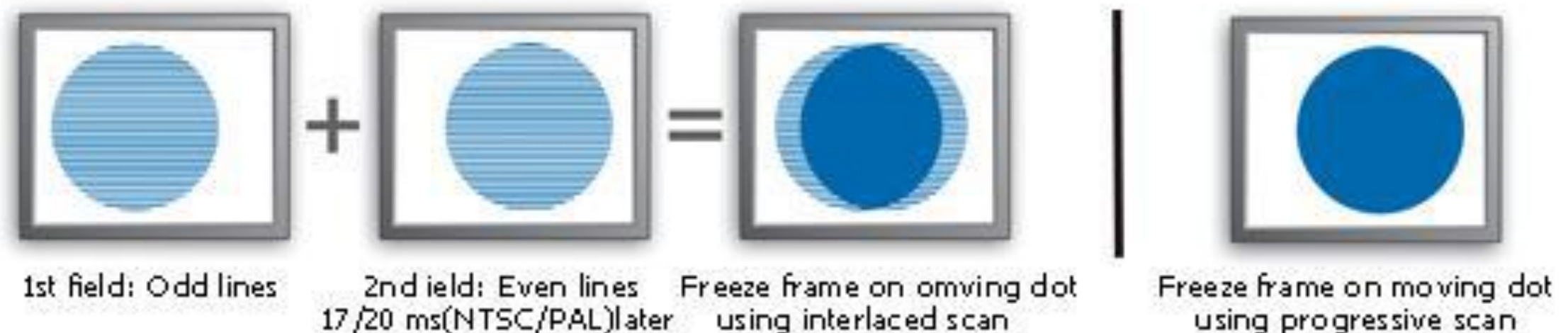
Format	Resolution	Aspect Ratio
Standard Definition (SD)	640 x 480	4:3
Standard Definition (SD)	640 x 360	16:9
720p HD	1280 x 720	16:9
1080p HD	1920 x 1080	16:9
2K	2560 x 1440	16:9
4K UHD	3840 x 2160	16:9
DCI 4K UHD	4096 x 2160	17:9
4K Monoscopic 360	4096 x 2048	2:1
4K Stereoscopic 260	4096 x 2048	2:1

Progressive Vs Interlaced Video

Interlaced video displays alternating sets of lines, called the Even field and the Odd Field for 1/60th of a second each consecutively.

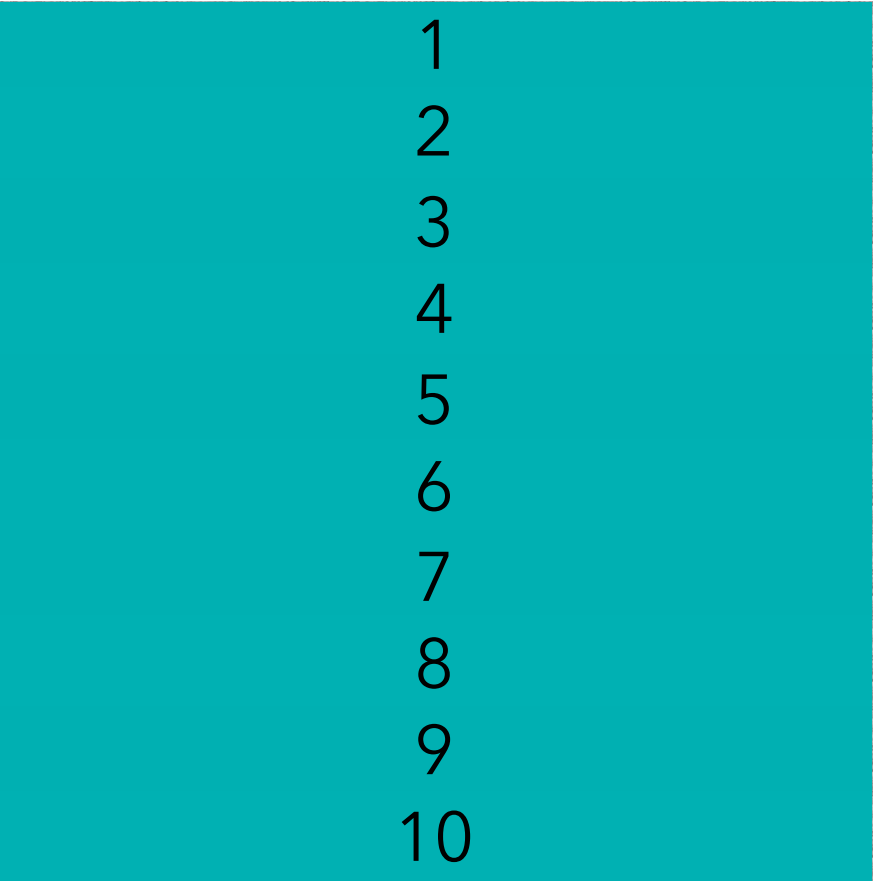
Old video formats like NTSC and Pal use this method of scanning.

Progressive video displays, stores and transmits moving with all the lines of each frame are drawn in sequence. Progressive video displays the entire image in 1/60th of a second, 1 entire image per frame. HDTV and newer formats are progressive

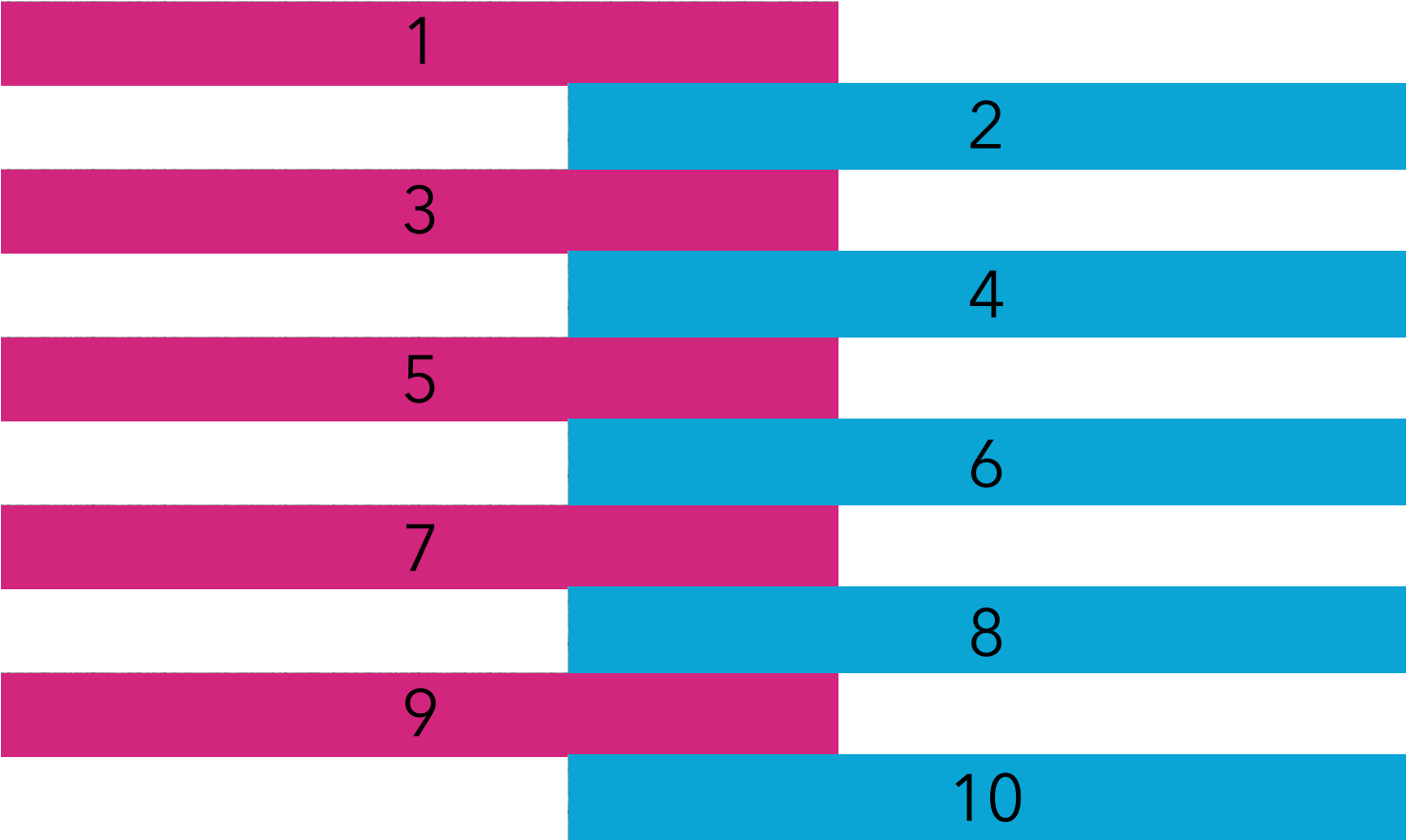


Progressive Vs Interlaced Video

Progressive



Interlaced



Progressive Vs Interlaced Video





Orson Welles,
Citizen Kane, 1941
Camera moving through objects

The Dolly - Zoom



Alfred Hitchcock,
Vertigo, 1958

The Dolly - Zoom



Martin Scorsese,
Goodfellas, 1990

The Dolly - Zoom



Steven Spielberg,
Jaws, 1975

The Dolly Zoom: More
Than A Cheap Trick



Camera Movement Examples



Orson Welles,
Citizen Kane, 1941
Mise-en-scène



Orson Welles,
Citizen Kane, 1941
Deep Focus - The Long Take



Orson Welles,
Citizen Kane, 1941
Mise-en-scène