

Intro to Video Editing I

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Queens College Art Department | Spring 2018

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Storyboard Presentations

<https://ivespring2018.tumblr.com/>

#name #storyboard

The Shoot: Cinematography, Lighting and Sound

Depth of Field

DOF refers to the distance from the camera to the object/character which is in focus in the frame. DOF is determined by the type of lens and aperture of the camera.

Camera Lens:

- A wide angle lens exaggerates perspective and has more of the image in focus. Using a wide angle lens to shoot for example a fight scene will be effective in exaggerating movement. (Don't confuse the wide angle shot with the wide angle lens).
- A narrow angle (telephoto) will have a smaller DOF keeping less of the foreground and background of the image in focus. A narrow angle flattens perspective and is suitable for portraits.

Camera Aperture:

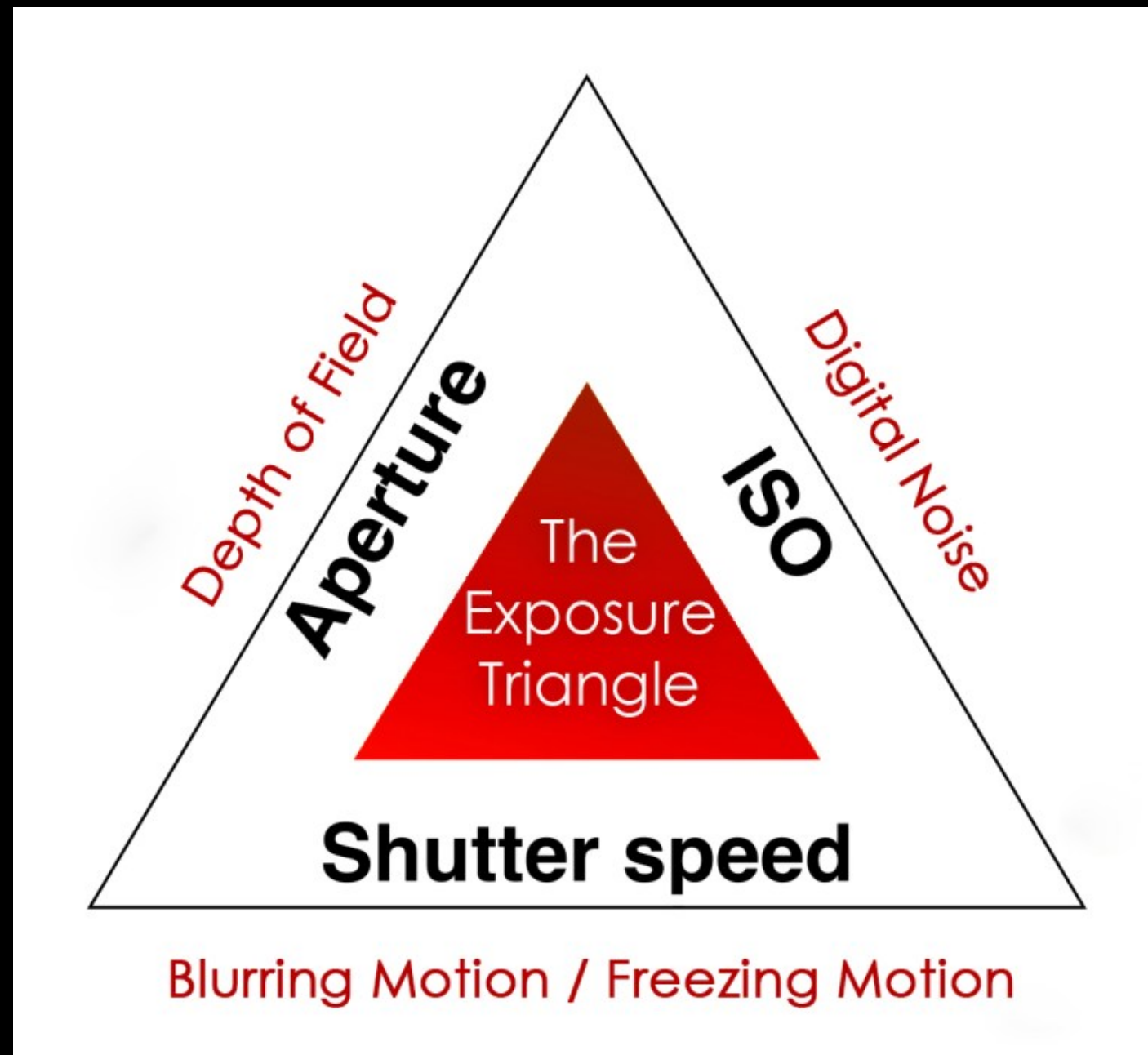
- A small aperture such as f16 will increase the DOF and more of the foreground and background will be in focus.
- A large aperture such as f2.8 will decrease DOF and have a blurry background and/or foreground.

Camera Exposure

Exposure refers to the amount of light that enters the camera and hits the digital sensor. It is determined by:

- **ISO**
the speed of the film or sensitivity of the CCD sensor
- **Shutter Speed**
How fast the shutter is opening and closing to expose light to the camera sensor
- **Aperture**
Controls how much light enters through the lens

Camera Exposure



Exposure: Shutter Speed Aperture ISO

APERTURE



SHALLOW
good for isolating subjects

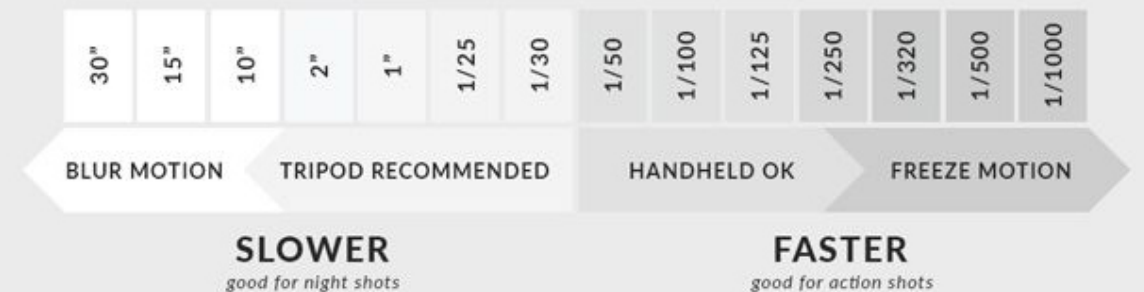


DEPTH OF FIELD
WHAT IS IN OR OUT OF FOCUS



DEEP
good for landscapes

SHUTTER SPEED



ISO

100 ... 200 ... 400 ... 640 ... 800 ... 1600 ... 3200

LOWER
good for bright or outdoor shots
LESS GRAIN

LIGHT SENSITIVITY
BASED ON FILM SPEED

HIGHER
good for lower light night shots
MORE GRAIN

EXPOSURE



Exposure

Overview

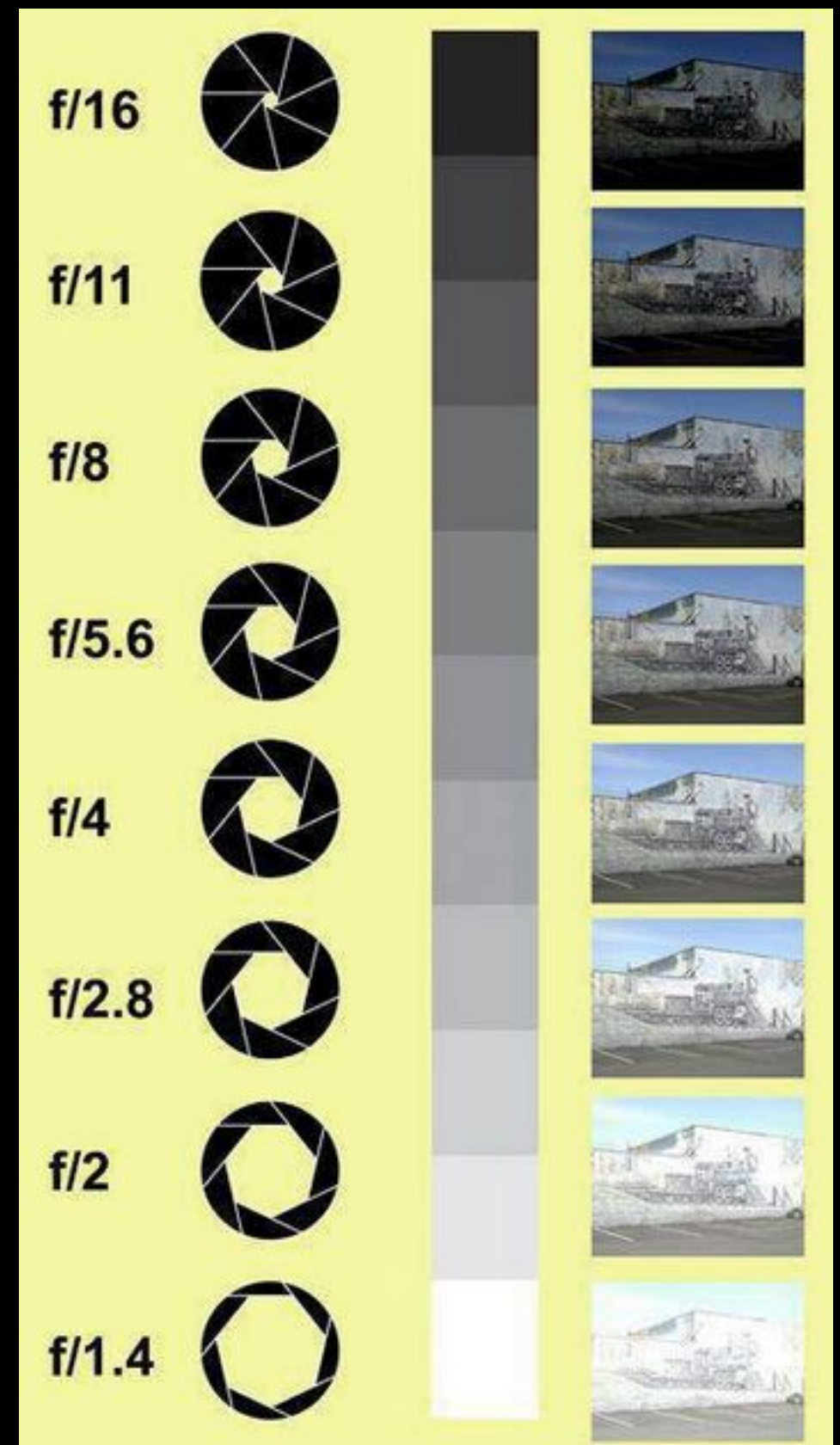
DARKER		
SHUTTER	APERTURE	ISO
LESS MOTION BLUR	BACKGROUND SHARP	LESS GRAINY
1/4000	f22	100
1/2000	f16	200
1/1000	f11	400
1/500	f8	500
1/250	f5.6	640
1/125	f4	800
1/60	f2.8	1000
1/30	f2	1250
1/15	f1.4	1600
1/8	f1	h1
1/4		
1/2		
1		
2		
MORE MOTION BLUR	BACKGROUND BLURRY	MORE GRAINY
LIGHTER		

Camera Aperture

Aperture is measured in f-stops
f/1.8, f/2, f/2.8, f/4, f/5.6, f/8,
f/11, f/16, f/22

The **lower** the **aperture** number
the **more light** is coming
through the lens

The **higher** the **aperture** number
the **less light** is coming through
the lens

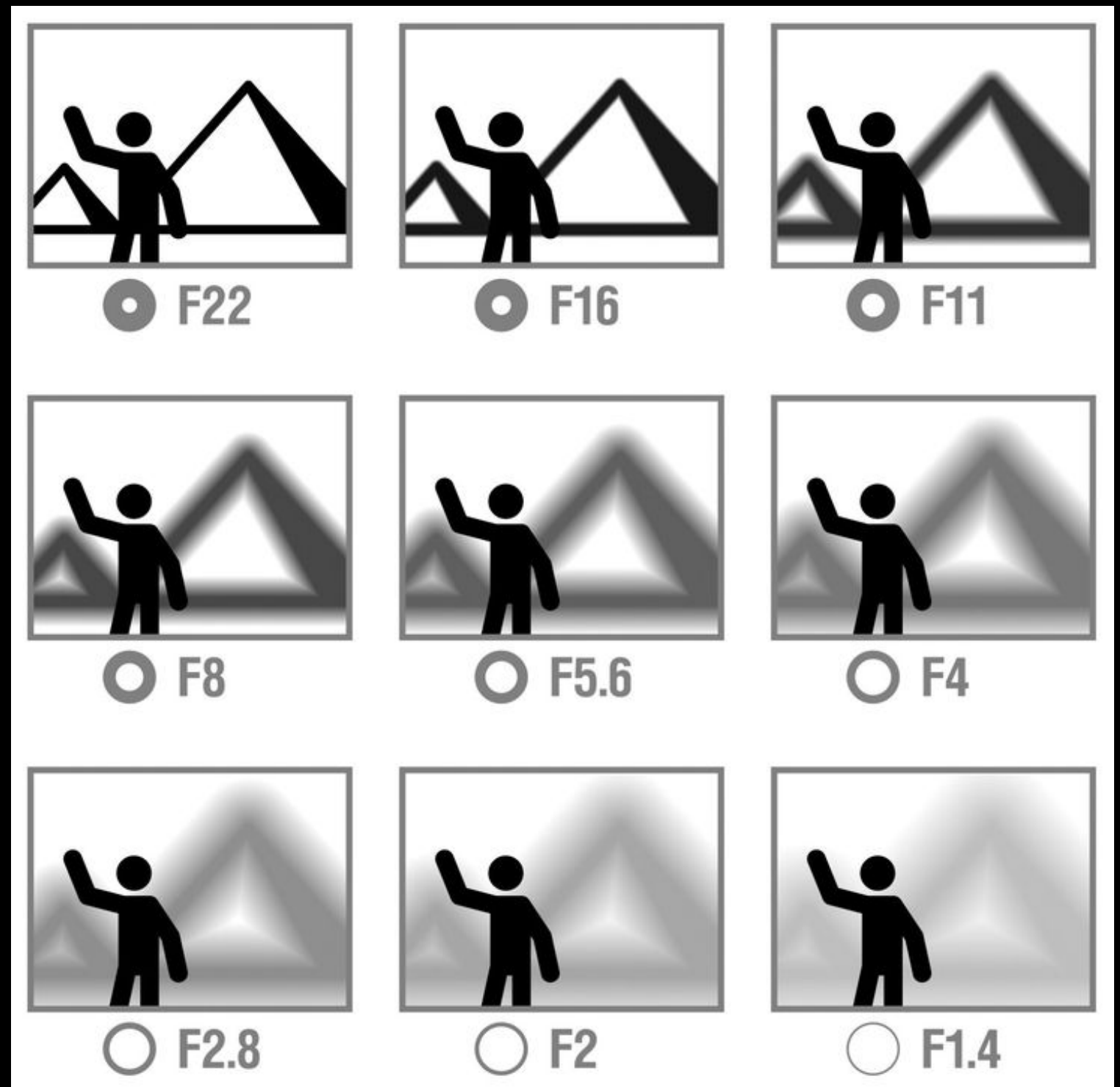


Aperture & Depth of Field

Aperture controls what is in focus (foreground to background)

The **lower** the
aperture number
the **less** the **DOF**

The **higher** the
aperture number
the **larger** the
DOF



Aperture & DOF

Large Aperture Low DOF



f/4.0, 1/250 sec

ISO 200

28-300mm @ 280mm

Small Aperture Large DOF



f/16, 1/250 sec

ISO 200

28-200mm @ 35mm

Aperture & Light

Approximate Guide

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

Camera Lenses

Types of Lenses



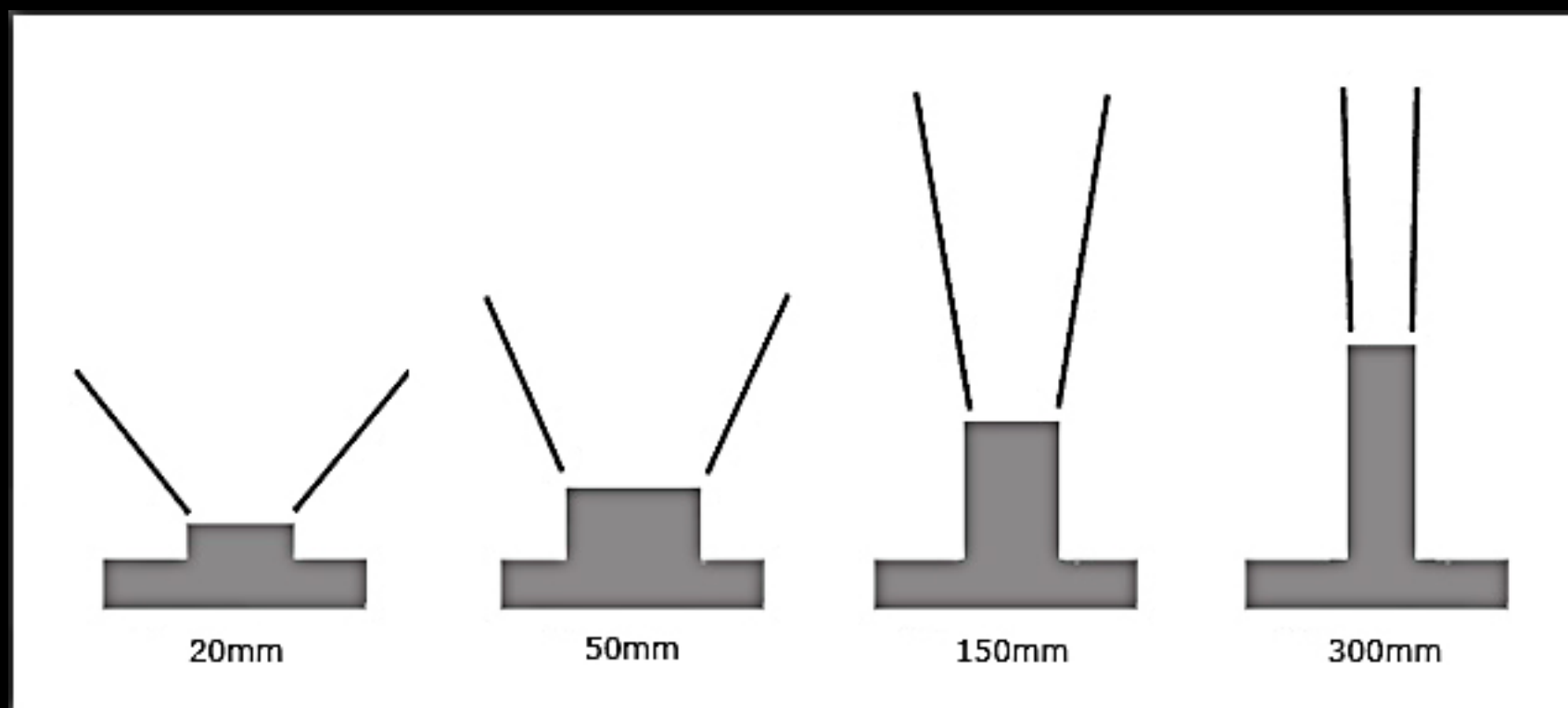
Wide angle lens 20-35mm

Normal lens 35-50mm

Telephoto $> 50\text{mm}$

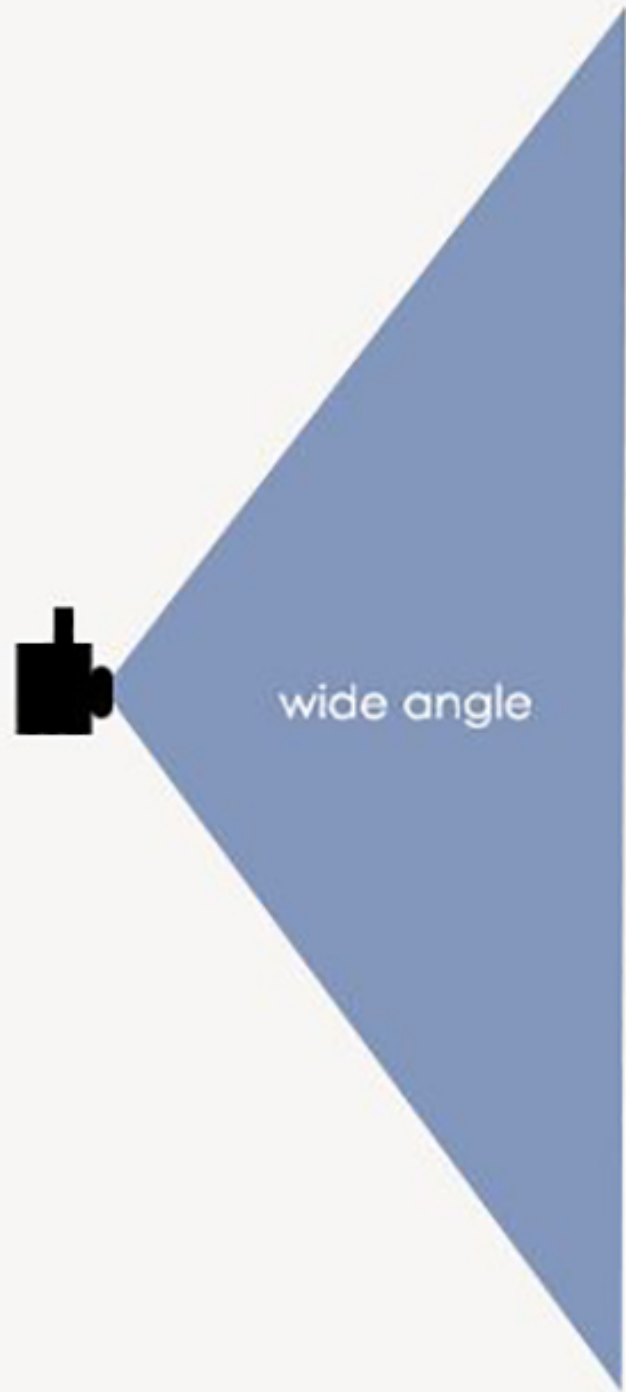
Camera Lenses

Lenses come in a variety of focal lengths. Zoom lenses have variable focal lengths. **Focal length** is 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**).

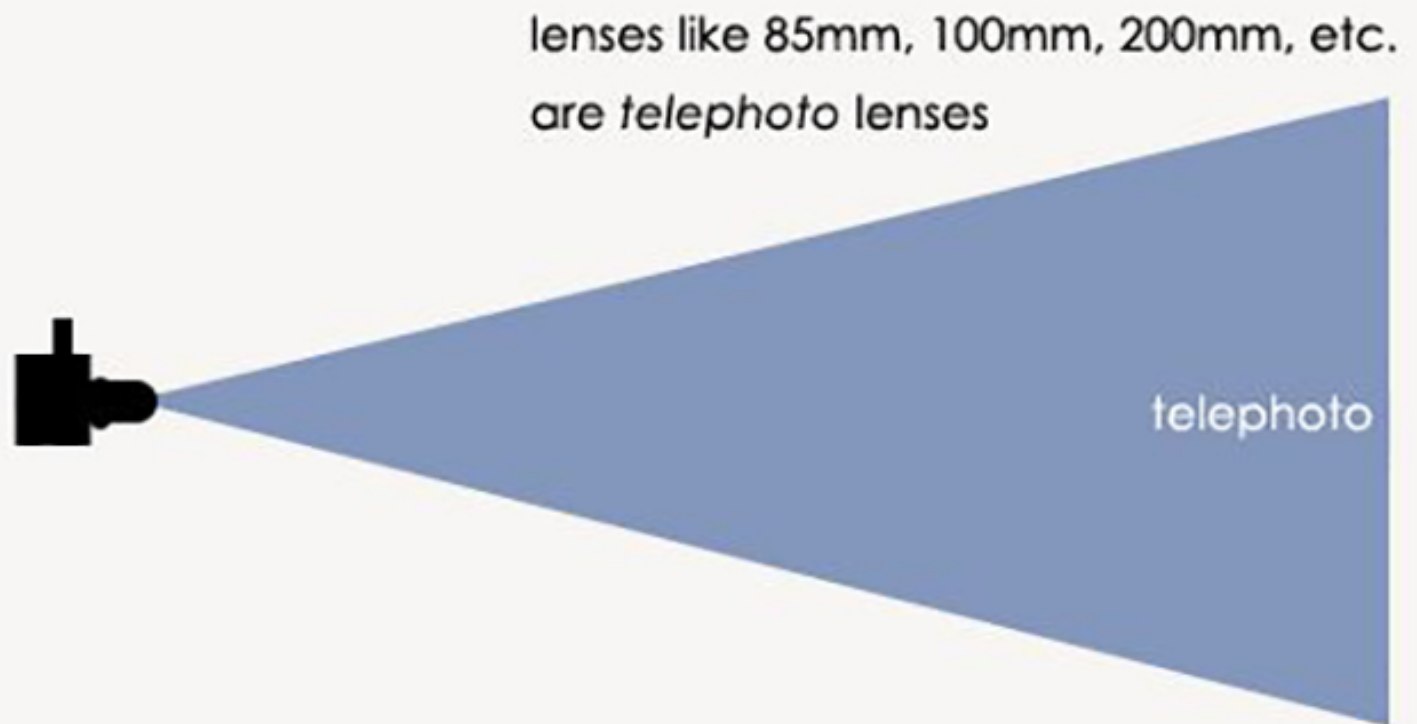


A 20mm lens has a short focal length, wide angle of view and lower magnification, while a 300mm has a long focal length, narrow angle of view and higher magnification

Camera Lenses



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



Camera Lenses

The choice of lens affects **Field of View** and **Depth of Field**

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 Lens & DOF

Telephoto Low DOF



f/7.1, 1/320 sec

ISO 640

150-600mm @ 532mm

Wide Angle Lens Large DOF



f/4.0, 1/250 sec

ISO 500

17-40mm @ 17mm

Shutter Speed & Aperture

To manage the amount of light entering the camera through the lens, there are two controls: the **shutter speed** and the **aperture**.

The shutter controls how fast your camera's shutter opens and closes to expose the sensor. Aperture controls the size of the hole in the lens.

Large aperture needs a **fast shutter speed** to balance the exposure (makes the background go "blurry").

Small aperture needs a **slower shutter speed** to balance the exposure (makes the background "sharp").

Shutter Speed & Motion

A slow shutter speed makes a moving object blurrier.



Shutter Speed & Motion

Slow Shutter Speed



f/20.0, 1/25 sec

ISO 200

28-200mm @50mm

Fast Shutter Speed



f/8, 1/8000 sec

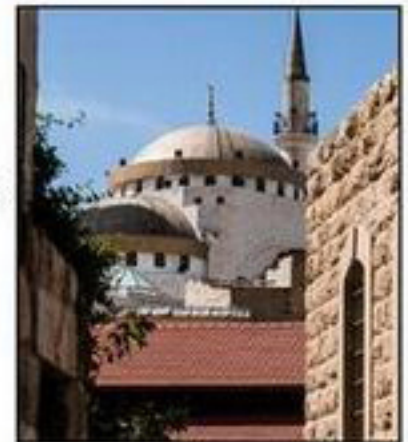
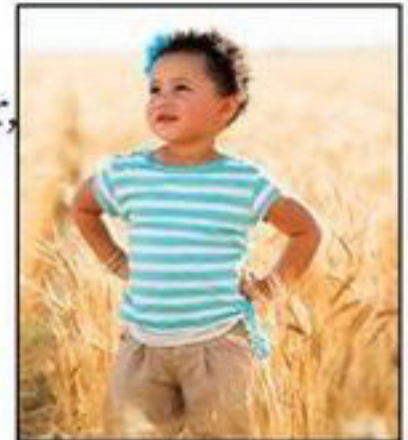
ISO 1000

28-300mm @ 300mm

(taken from a moving car)

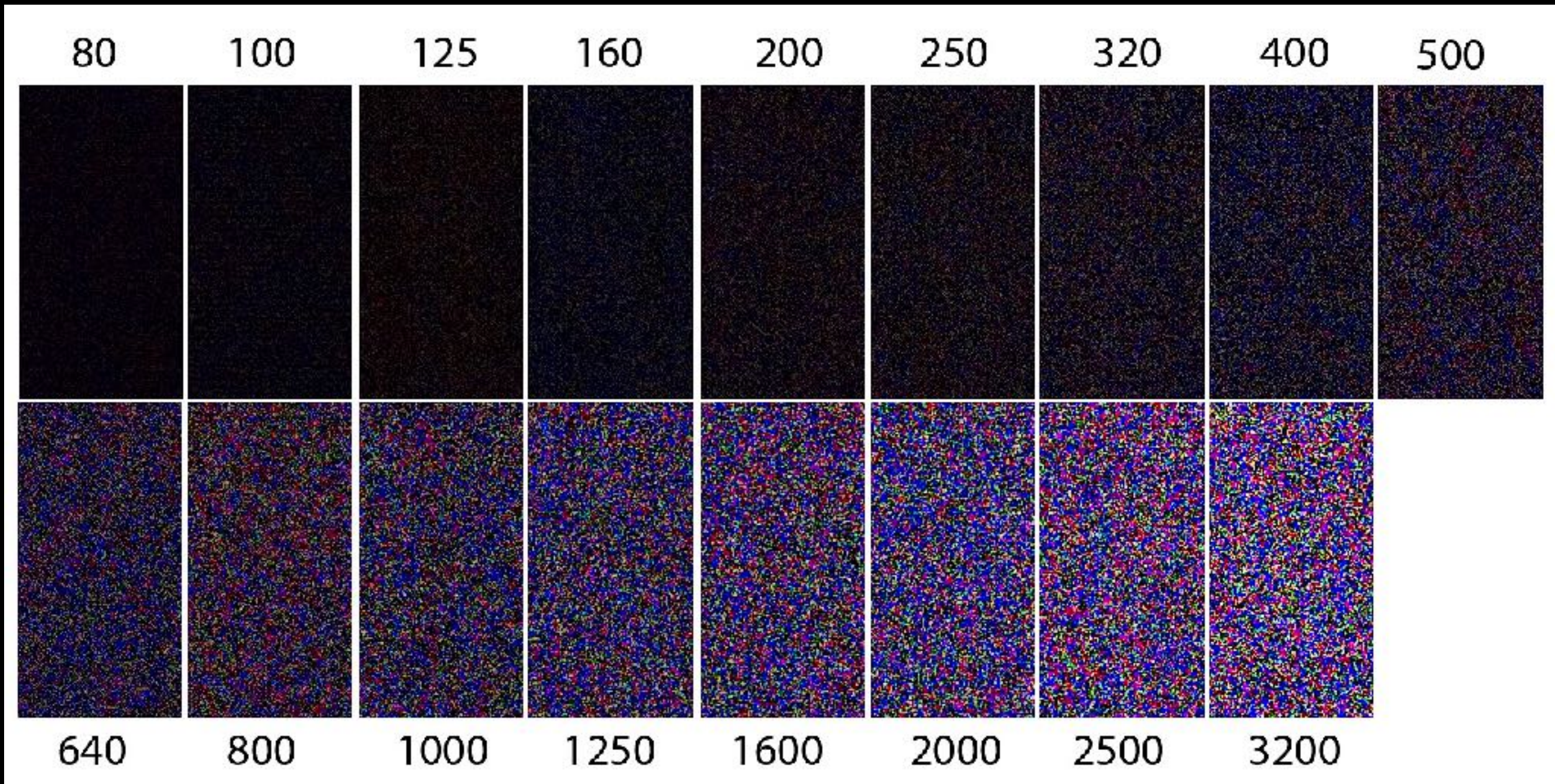
Shutter Speed & Motion

Shutter Speed	Typically Used For
1/4000 sec	freezing super fast objects
1/2000 sec	freezing cars driving fast
1/1000 sec	sports photography
1/500 sec	slow moving sports (soccer, basketball, etc)
1/250 sec	photographing kids
1/125 sec	standard photos
1/60 sec	slowest handheld shot
1/30 sec	when panning sports/cars
1/15 sec	blur objects in motion
1/8 sec	blur fast moving water
1/4 sec	panning people walking
1/2 sec	blur slow moving water
1 sec or slower	very long exposure



ISO

iso controls the amount of amount of noise.



best practice is to shoot for 1/60th of second

ISO

Approximate Guide

BRIGHT SUN OUTDOORS

ISO 100

BRIGHT SUN OUTDOORS

ISO 200

RAINY OR CLOUDY OUTDOORS

ISO 400

BRIGHTLY LIT ROOM

ISO 800

DIMLY LIT ROOM

ISO 1600

REALLY DARK ROOM
proceed with caution

ISO 3200+

Three-Point-Lighting

Three point lighting is the standard lighting technique used in video. The goal of three point lighting is to create the illusion of a three-dimensional subject in a two-dimensional image with light and shadow.

- The **Key Light**

This is the main light used on your subject

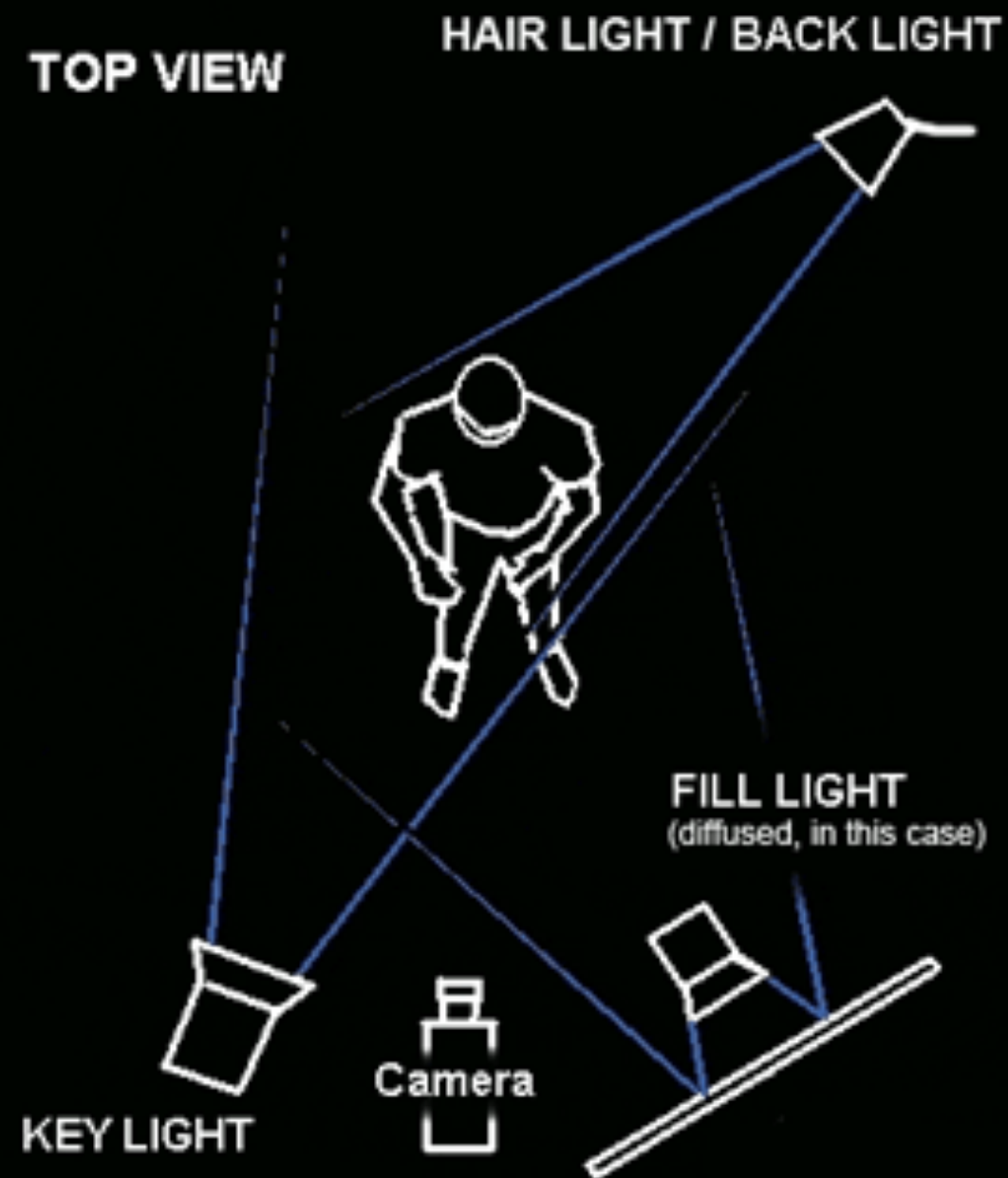
- The **Fill Light**

The purpose of this light is to fill in the shadows created by the key light, preventing them from getting too dark

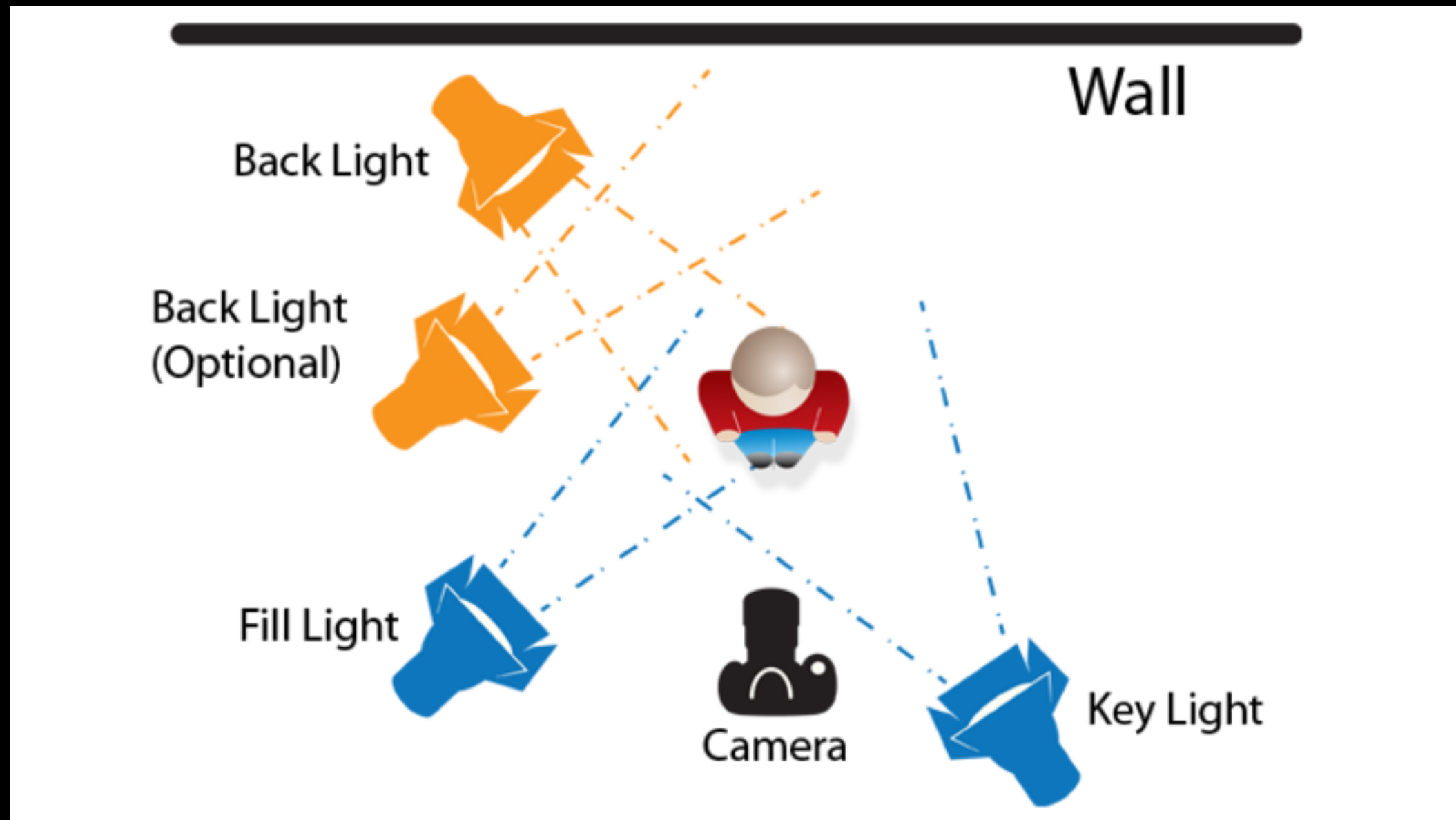
- The **Back Light**

This is used to separate the subject from the background

Three-Point-Lighting



Three-Point-Lighting (Green Screen)



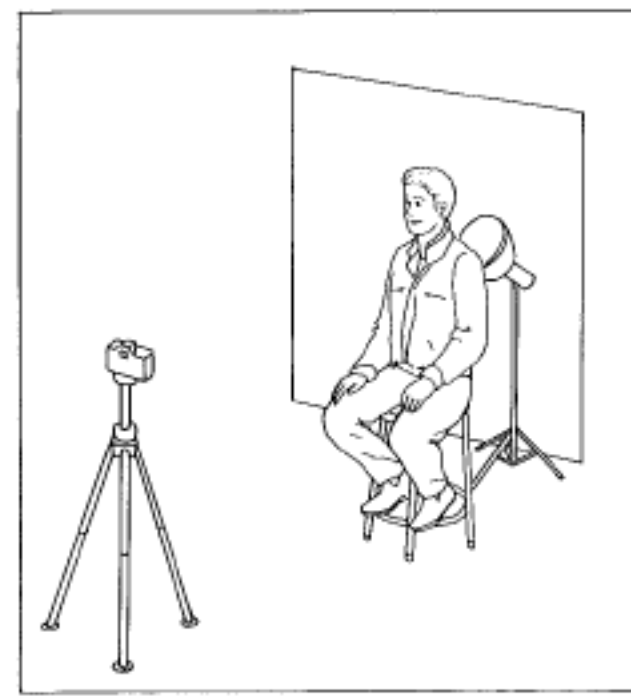
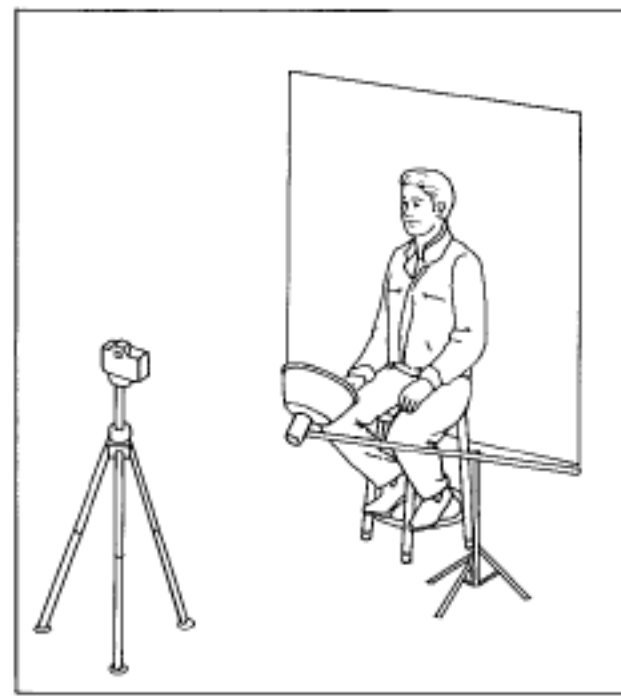
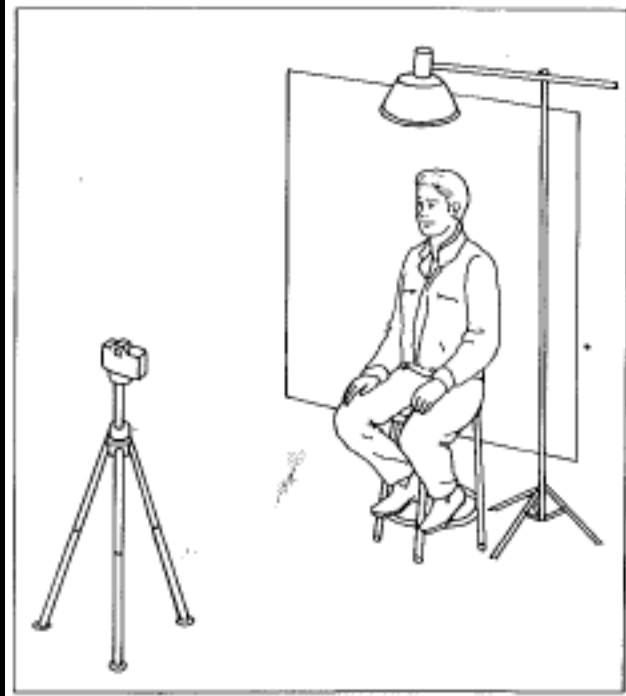
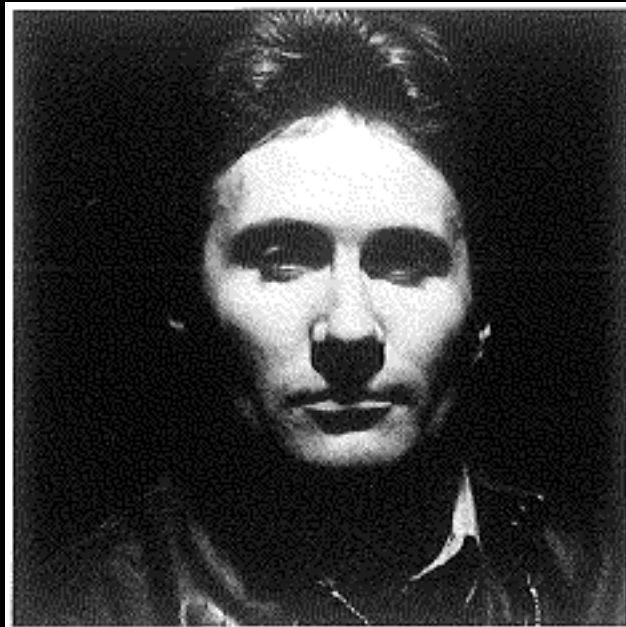
Key Light Positioning

Keylight at high elevation creates deep shadows in their eye sockets, usually an undesirable look. However, this technique is useful to make the subject look sinister.

Keylight at low angle lights the chin and the underside of the nose. It casts shadows in the opposite direction we're accustomed to seeing them, creating an unsettling feeling. It can be suitable for ghost stories and is highly dramatic.

Keylight for silhouette places the entire subject in shadow which is commonly called a silhouette. You can intentionally use this look to create a dramatic image, to keep the subject anonymous, to de-emphasize the subject or make it mysterious.

Light Positioning



High angle

Low angle

Silhouette

Light Positioning

Low angle Light



Frankenstein, 1931
James Whales

Overhead Light



Godfather III, 1990
Francis Ford Coppola

The Fill Light

The purpose of the fill light is simply to fill in the shadows caused by the key light.

The fill light should not create a second shadow. If you see two shadows, this means the fill light is too powerful and needs to be reduced.

Reduce fill light by:

- move the light further from the subject
- put scrims or diffusion material over the light
- use neutral density gels to reduce light. These “gels” are semi-transparent gray sheets that you can put over the light to reduce the light without changing its color.

The Back Light

Used in TV to create a glowing rim around the hair and shoulders of the subject.

Place the light above their head and behind them so it points about 45 degrees down toward their hair and back. Barn doors help control the direction of the light and prevent it from accidentally spraying light in the camera lens. The only place you want this light is on the head, neck, and shoulders of your subject (for a talking head shot).

Image without
Back Light



Image with
Back Light

Basic Lights & Reflectors



Spot light used
as Key light



Fill light



Reflector

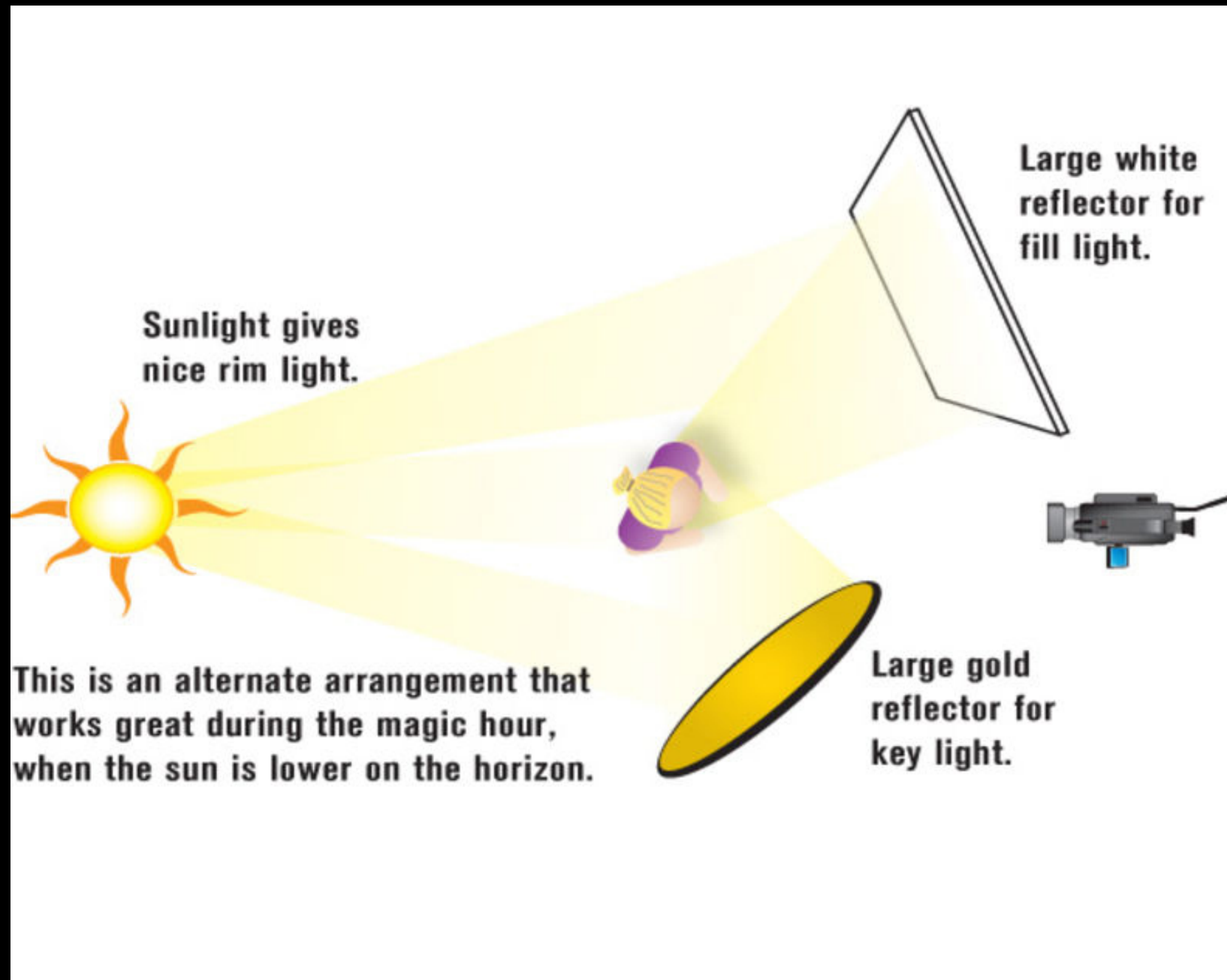


Umbrella used
as reflector

Reflectors as Lights Outdoors

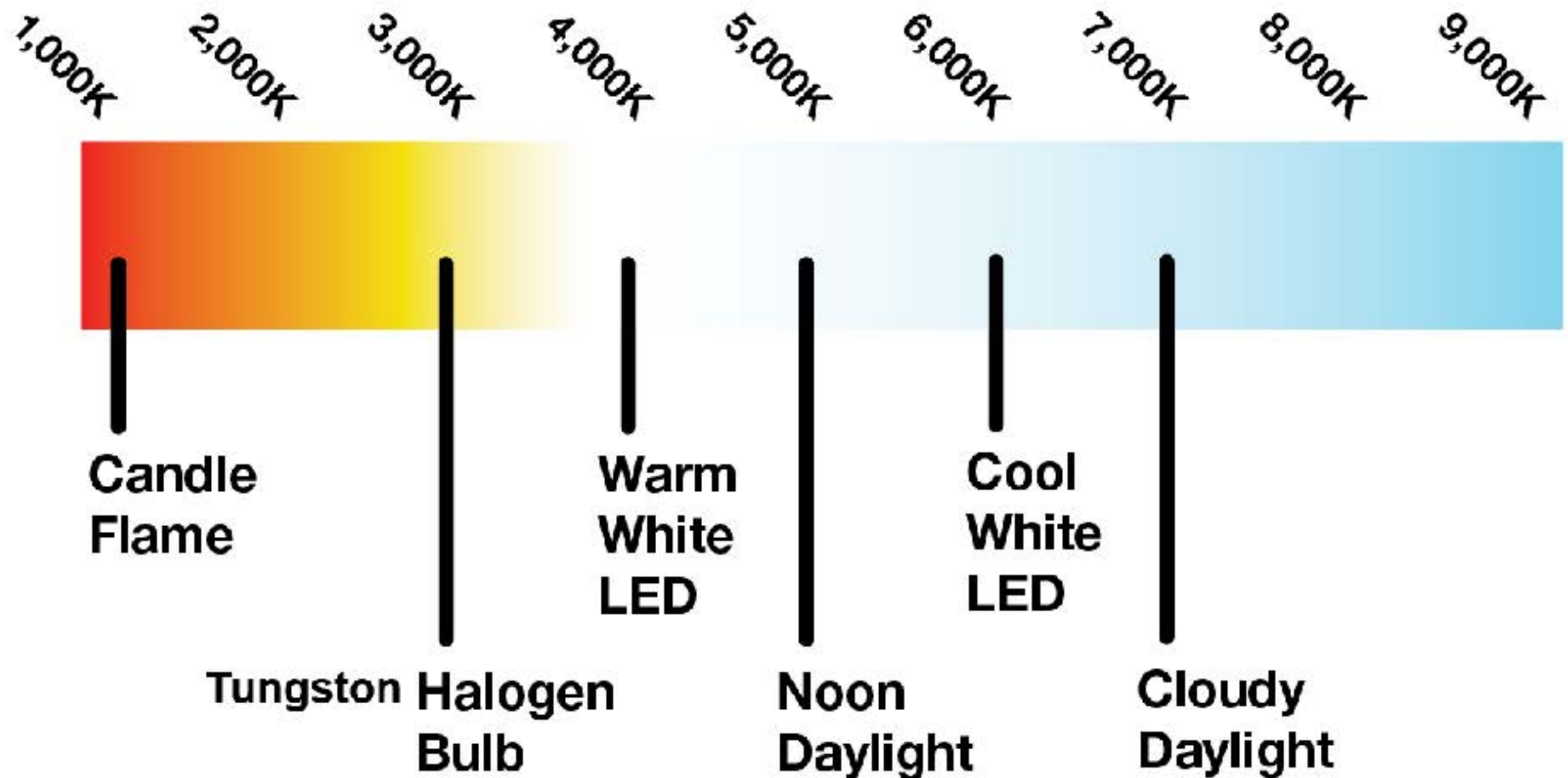


Outdoor Lighting



White Balance

Color Temperature Scale (°K)



White Balance



Los Angeles, Early Evening
Larry Sultan, c 1984



Brian with Flinstones, NYC
Nan Goldin, 1981

Dramatic Low Camera Angle



The New York
Times Building



Citizen Kane, 1941
Orson Welles

Timecode

Timecode is a signal recorded with your video that uniquely identifies every frame of your tape using a time stamp in hours, minutes, seconds, and frames. Timecode uses the following format:

Hours : Minutes : Seconds : Frames

SMPTE timecode

01:32:15:28

Hours

Minutes

Seconds

Frames

Frame Rate

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

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

B-roll

Secondary shots used in addition to main action shots.

B-roll shots are similar to cutaways in that they help break up the static interview shots, but B-roll plays a more major role in telling a visual documentary story.

For example, a soldier could tell us what it's like to be in combat, but when we cut in a shot of explosions and a chaotic firefight, his story is elevated.

Examples from Citizen Kane

Citizen Kane, 1941, Orson Welles – Deep Focus - mise en scène

Citizen Kane, 1941, Orson Welles – Low angle

Citizen Kane, 1941, Orson Welles – Camera movement

Analysis of *Citizen Kane* Breakfast Scene Timing