

BASICS OF DIGITAL PHOTOGRAPHY

Robert Sambak, discussing the fundamental concepts of digital photography

BASICS OF DIGITAL PHOTOGRAPY

VERY WARM WELCOME PATHFINDERS!!!

INTRODUCTION

WORKSHOP PROGRAMME

- 📷 Story of photography
- 📷 The principles of digital camera construction and how it works
- 📷 The importance of light
- 📷 Monochrome camera
- 📷 Different lenses
- 📷 Image formats and different compression
- 📷 Knowledge for a picture well taken

WORLD'S FIRST PHOTOGRAPH

France, 1826

📷 Joseph Nicéphore



WORLD'S FIRST CAMERA

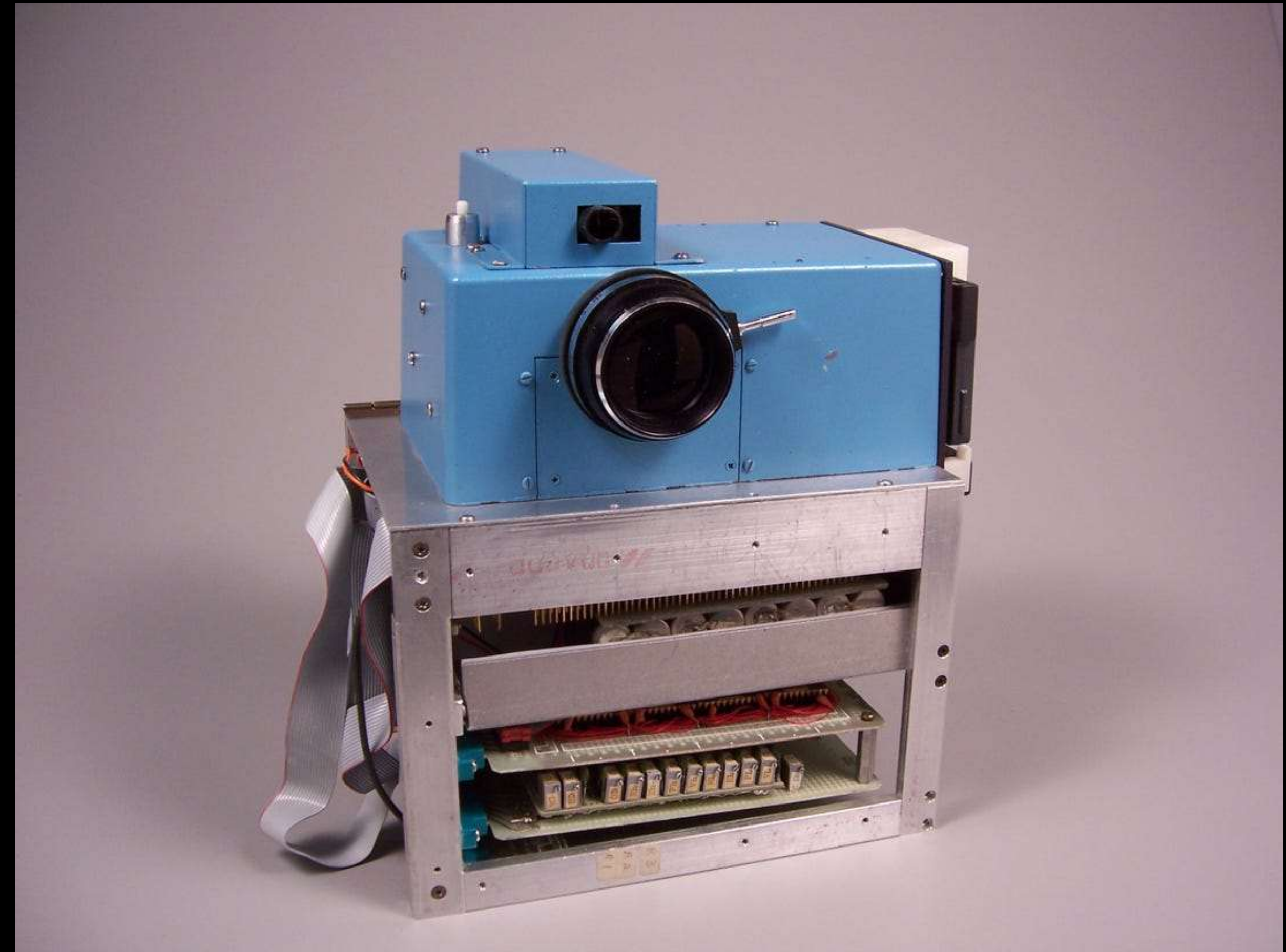
📷 Susse Freres Daguerrotype

📷 1839



WORLD'S FIRST DIGITAL CAMERA

- 🌀 Steve Sasson (Kodak)
- 🌀 1975
- 🌀 23 seconds to take a picture



MODERN DIGITAL CAMERA

CAMERA BODY



MODERN DIGITAL CAMERA

LENSES



IT'S ABOUT LIGHT!

Photography = drawing with light

Exposure is the total amount of light allowed to fall on the film or image sensor

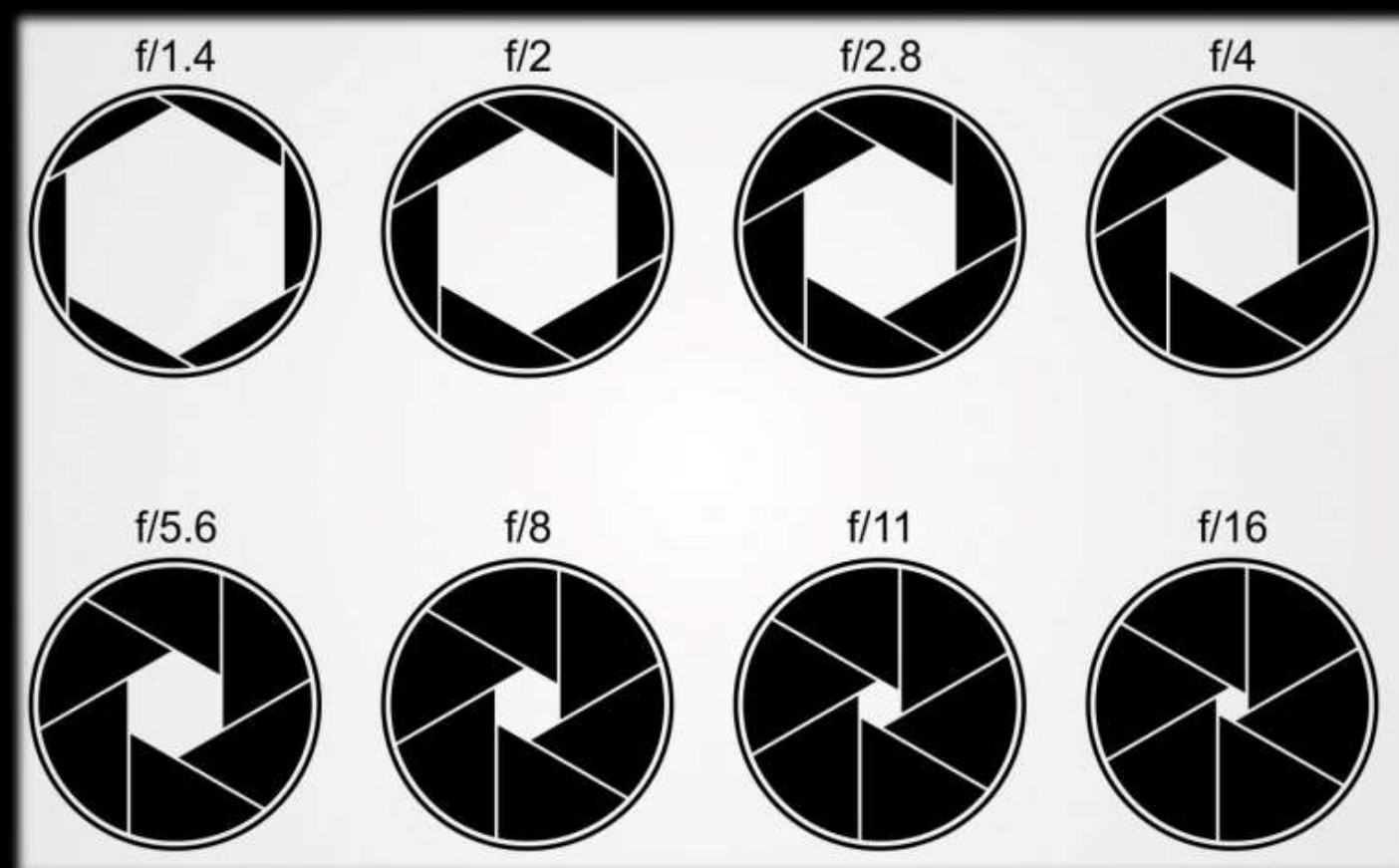


CONTROLLING EXPOSURE

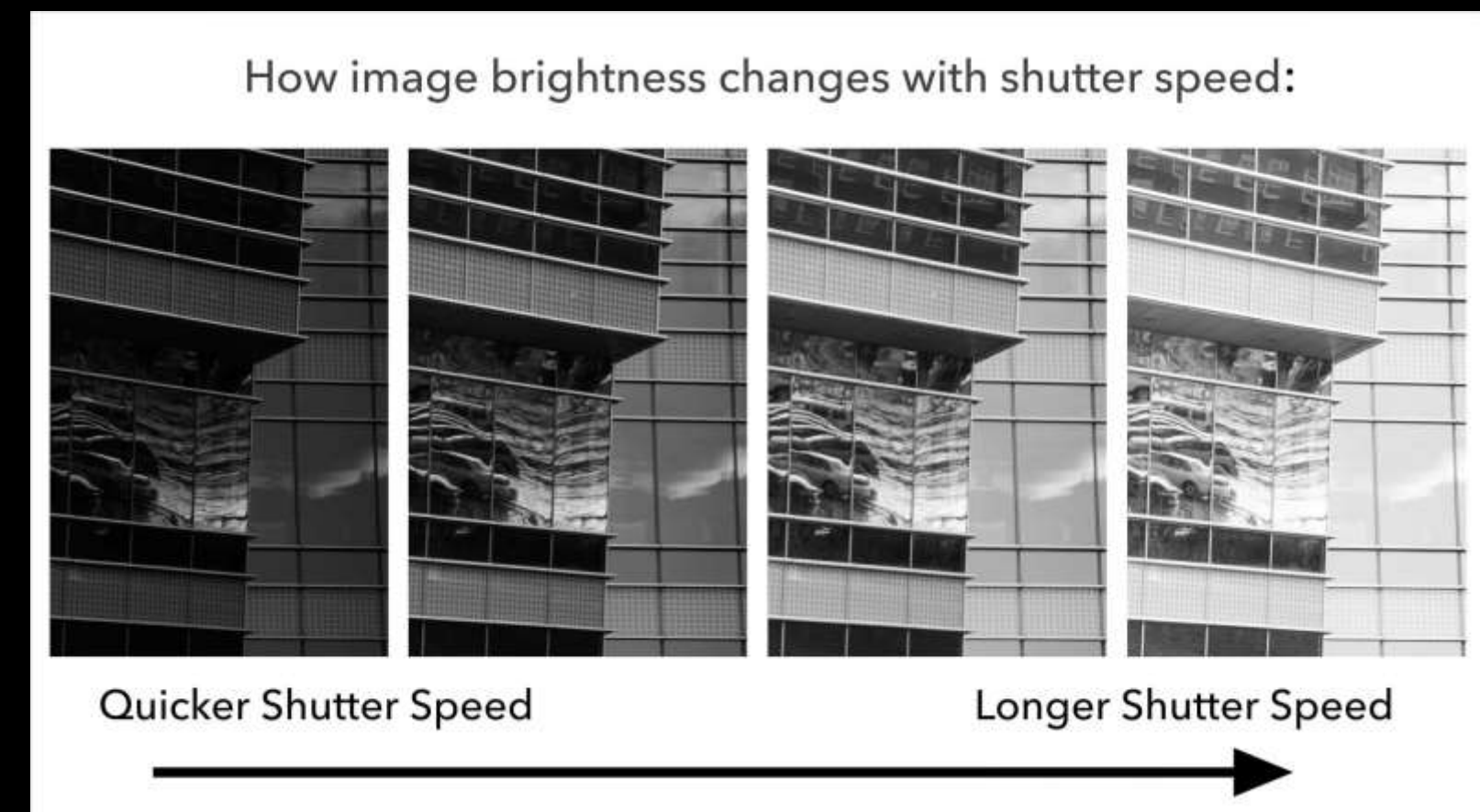
- ☉ Mainly two things let us control the exposure



Aperture



Shutter Speed



UNDERSTAND APERTURE

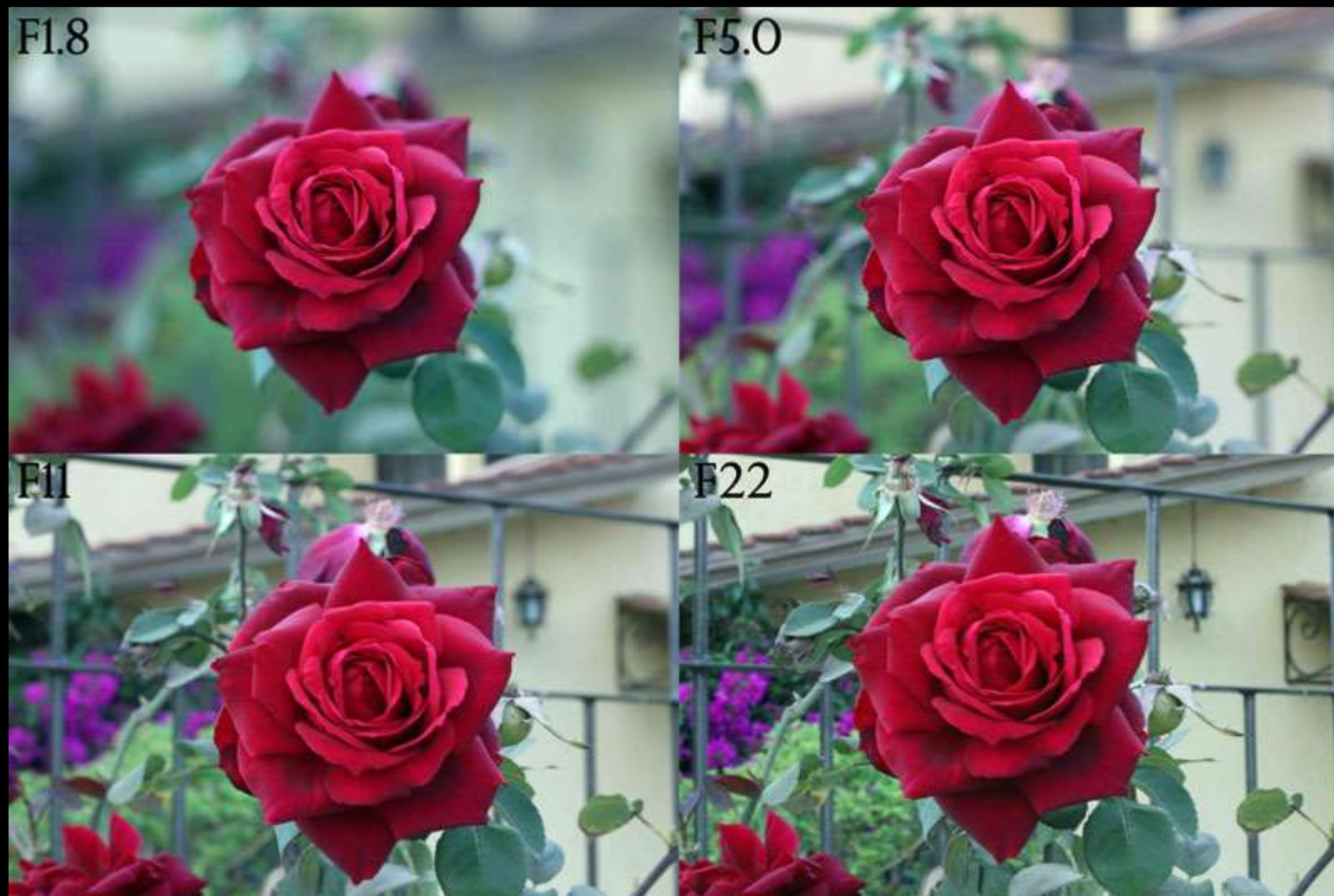


WHAT IS APERTURE?

- 🌀 (size of) hole or opening where light enters
- 🌀 Aperture is normally measured in **f-stop number**
- 🌀 Higher the f-stop, lower the aperture (and vice-versa)



DIFFERENT APERTURE EXAMPLE



DIFFERENT APERTURE EXAMPLE

Aperture Adjustment Sequence - DOF



f/1.8



f/2.8



f/4.0



f/5.6



f/16









f/22

WHAT IS SHUTTER SPEED

- Length of time the camera's shutter is open
- Longer times lead to more light
- Shorter times lead to less light

Shutter Speed Chart

SHUTTER SPEED	EXPOSURE	SUBJECT	EXAMPLE
>2 secs	BRIGHTER ↑↑↑↑	Car Trails	
1 sec		Moving Water	
1/2		Panning Vehicles	
1/4		Portraiture / Street	
1/8	DARKER ↓↓↓↓	Action Sports	
1/15		Birds in Flight	
1/30			
1/60			
1/125			
1/250			
1/500			
1/1000			

DIFFERENT SHUTTER SPEED

EXAMPLE

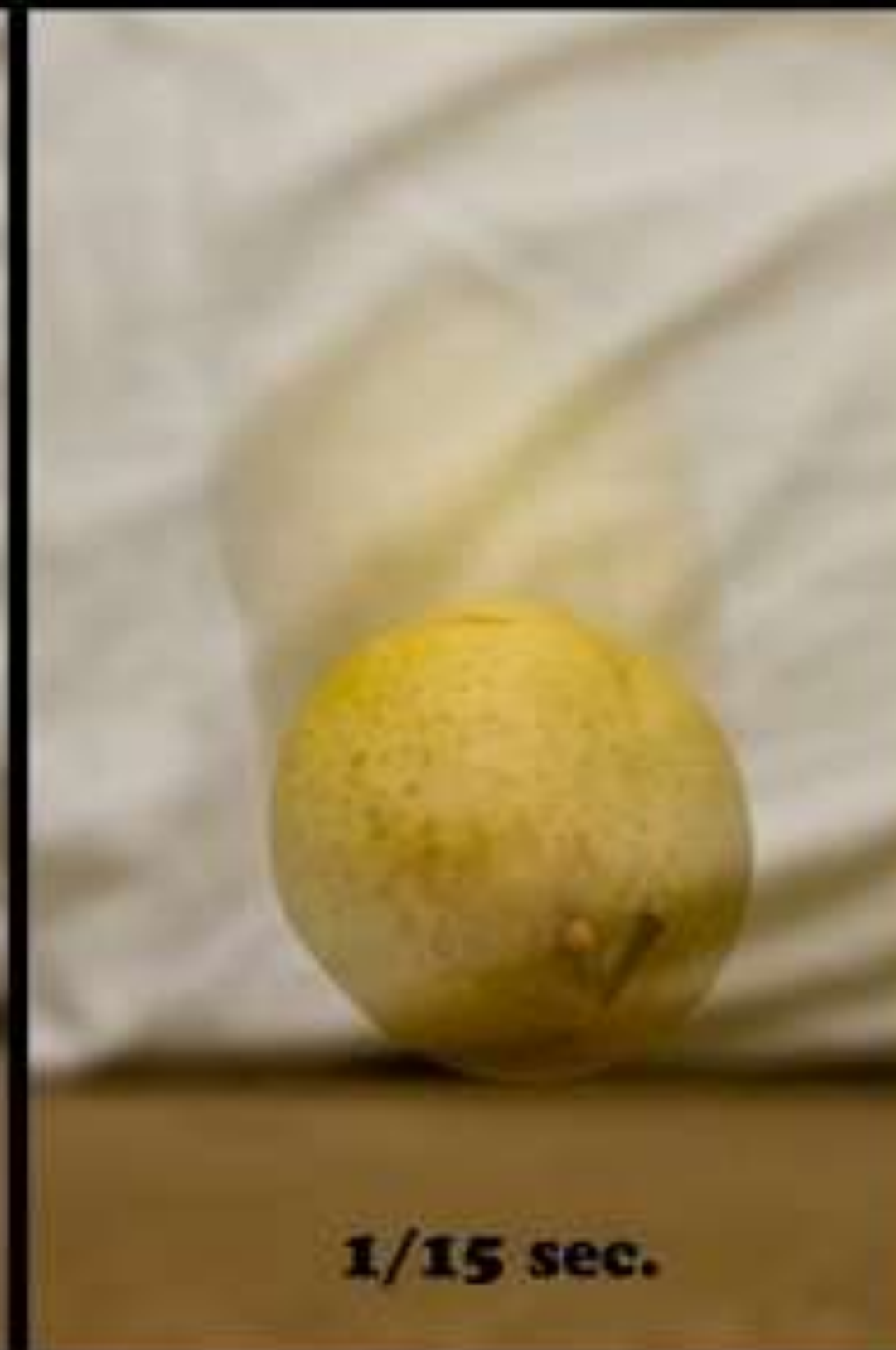
Faster speed=
Short Shutter=
Less Light

Motion Freeze



Slower speed=
Long Shutter=
More Light

Motion Blur



DIFFERENT SHUTTER SPEED

EXAMPLE



DIFFERENT SHUTTER SPEED

EXAMPLE

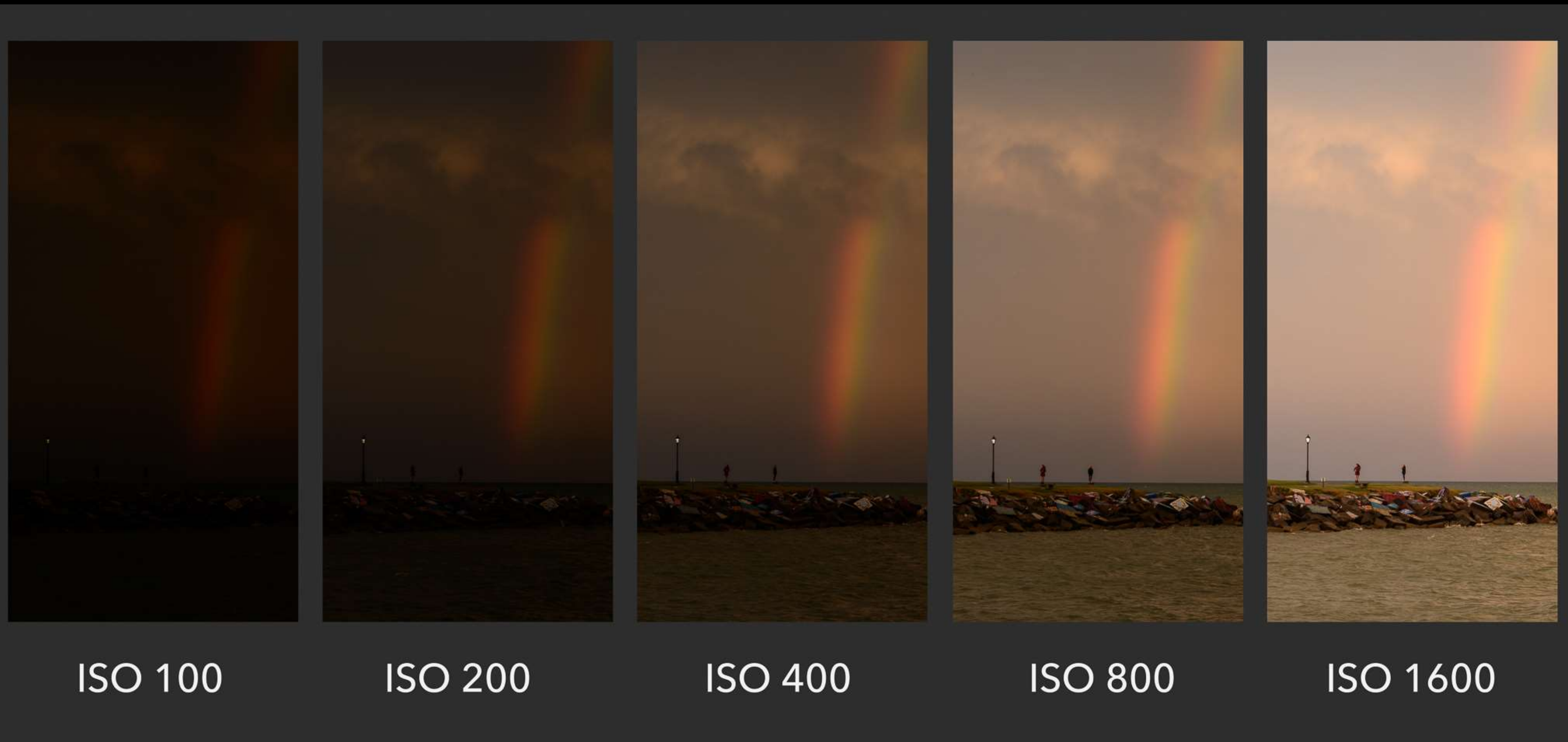


DIFFERENT SHUTTER SPEED EXAMPLE



WHAT IS ISO

In very basic terms, ISO is simply camera's sensitivity to light.



DIFFERENT ISO

EXAMPLE

ISO 100



ISO 200



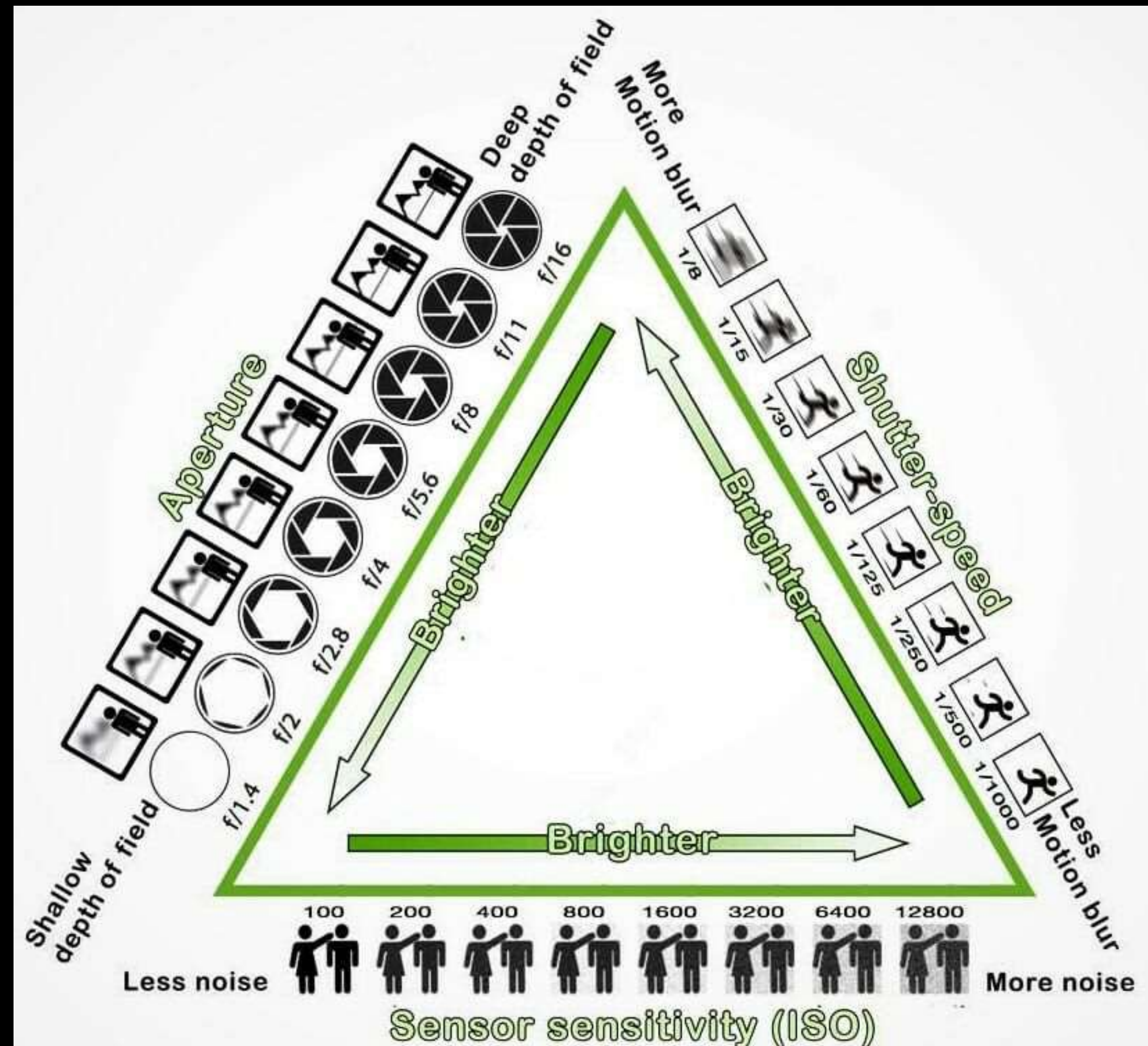
ISO 400



ISO 800



PERFECTLY EXPOSED PICTURE



COLOUR OR BLACK AND WHITE?

In digital photography, a color filter array, or color filter mosaic, is a mosaic of tiny color filter placed over the pixel sensor of an image sensor to capture color information.

There are some camera that are missing the filter array to create very specific B/W photos.

BLACK AND WHITE EXAMPLE



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BLACK AND WHITE EXAMPLE



BLACK AND WHITE EXAMPLE



DIFFERENT LENSES

There are 3 main lens category



Wide



Telephoto



Macro

WIDE LENS

Focal length
35mm or below
are considered
wide lenses



TELEPHOTO LENS

Focal length

- 📷 70mm or above are usually considerate telephoto lenses



Robert Ph

MACRO LENS

Focal length

📷 Various



IMAGE FORMAT

Most popular Image Format

- 📷 JPEG Joint Photographic Expert Group
- 📷 PNG Portable Network Graphics
- 📷 GIF Graphics Interchange Format
- 📷 RAW

IMAGE COMPRESSION

There are two kinds of image compression methods: LOSSLESS and LOSSY

- LOSSLESS compression is a method to reduce the size of a file while maintaining the same quality as before it was compressed.
- In order to give an even smaller size, LOSSY compression discard some parts of a photo.

DIFFERENT STYLE DIFFERENT PHOTOGRAPH

- 📷 Portrait
- 📷 Photojournalism
- 📷 Fashion
- 📷 Sport
- 📷 Architectural

PHOTOS EXAMPLE



PHOTOS EXAMPLE



PHOTOS EXAMPLE



PIXEL

A Pixel is the smallest unit of a digital image or graphic that can be displayed and represented on a digital display device.
Pixels are combined to form a complete image, video, text or any visible thing on a computer display.



IMAGE RESOLUTION

Resolution refers to the number of pixel in an image.

Resolution is sometimes identified by the width and height of the image as well as the total number of pixel in the image.

For example, an image that is 2048 pixel wide and 1536 pixel high will contain (2048x1536) 3.145.728 pixels or more common 3.1 Megapixel

WHAT IS THE SUBJECT?

Now that we know how to take a perfectly exposed picture we need to understand where to put the main subject that we want take picture of.

FRAMING

In digital photography , framing is the presentation of visual elements in an image, especially the placement of the subject in relation to other objects.

Framing can make an image more aesthetically pleasing and keep the viewer's focus on the "framed" object.

FRAMING EXAMPLE



USE THE LIGHT



USE THE LIGHT



USE THE LIGHT



USE THE LIGHT



RULE OF THIRDS

In Photography, the rule of thirds is a type of composition in which an image is divided evenly into thirds, both horizontally and vertically. The subject of the image is placed at the intersection of those dividing lines.



RULE OF THIRDS

EXAMPLE



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RULE OF THIRDS

EXAMPLE



LEADING LINES

Leading lines are lines that appear in a photograph that have been framed and positioned by the photographer to draw the viewer's eye toward a specific point of interest.

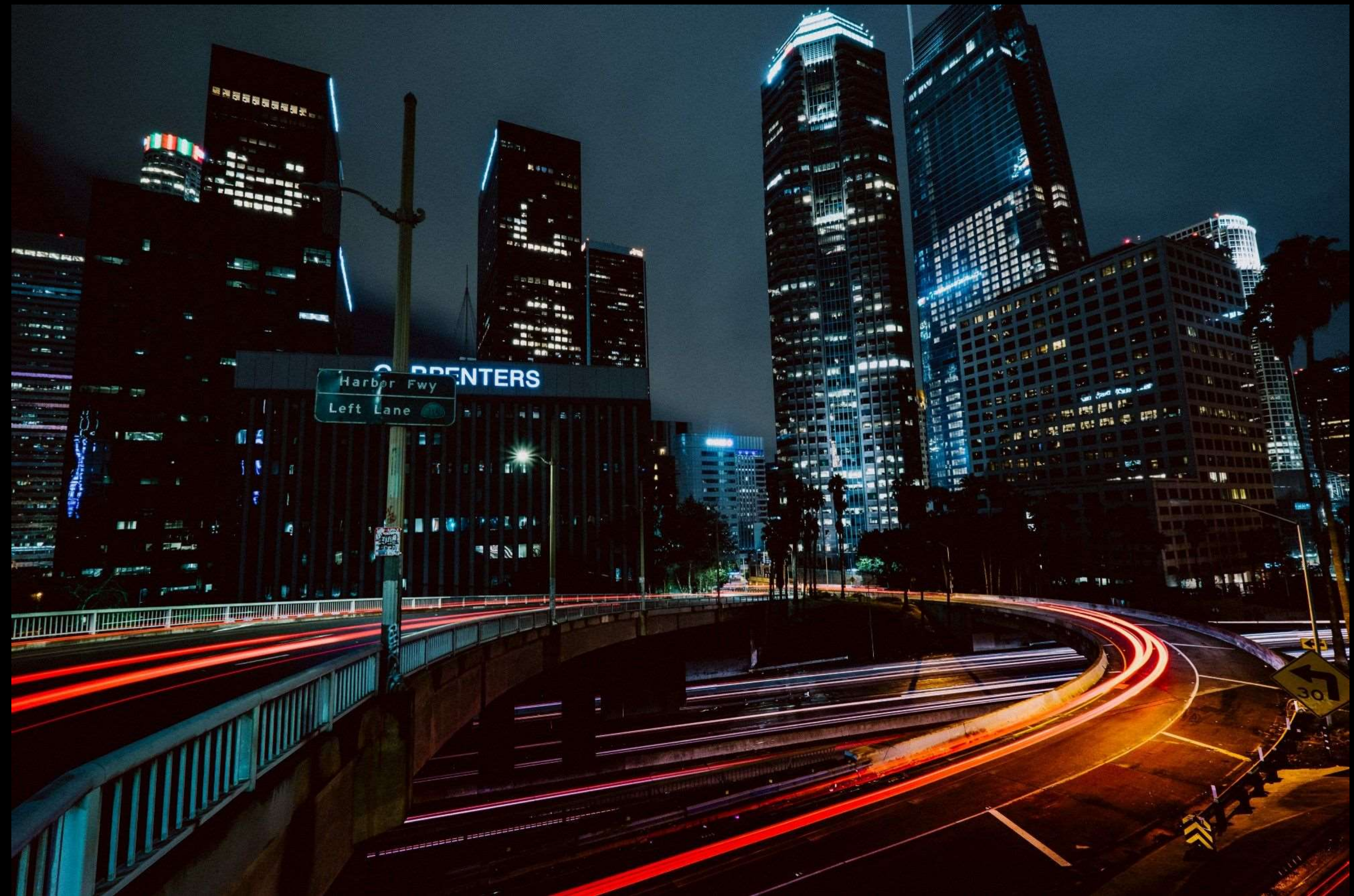
LEADING LINES

EXAMPLE



NIGHT PHOTOGRAPHY

Night photography refers to the activity of capturing images outdoors at night, between dusk and dawn.



BUT HOW?

In certain settings where you need to lower the shutter speed to allow enough light to reach the sensor, you may find yourself in need of using a camera support called a tripod.



NIGHT PHOTOGRAPHY EXAMPLE



EYE LEVEL PHOTOGRAPHY

An eye level shot refers to when the level of your camera is placed at the same height as the eyes of the characters in your frame.



HORIZON

The horizon line, which separates the foreground from the sky, is an important element in many scenes.

Photographers can use the horizon line to highlight certain aspects of an image, create impact, and compose a unique shot that is pleasing to the viewer.

HORIZON SHOT EXAMPLE






HORIZON SHOT EXAMPLE



EXTRA REQUIREMENTS

- Direction of light - front, side, backlight
- Quality of light- shade, sunlight and time of day
- Fill the frame
- Post production

PROJECT

-  CD Cover
-  Photo scrapbook page
-  Collage

THANK YOU!

No matter how sophisticated the camera, the
photographer is still the one that makes it.

D. Bartlow