Introduction to Photography

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Why take pictures?

- Fun
- Artistically and intellectually satisfying
- Memories/keepsakes
- Documentation, journalism, history
- Marketing/sales
- Art

What We'll Cover...

Photographer: Unknown

Camera Settings & Controls:
- F-stops
- Shutter speed
- ISO
- Focusing

Canon

1/4000 F5.6
-2..1..0..1..2 ISO100
P
ONE SHOT
RAW L (100)

A FINE
WB AUTO
ISO 100
1/2 F5.6 AF-C
+0.3 0.0 OFF
Set [258]
Nikon

Photographer Unknown

Gear
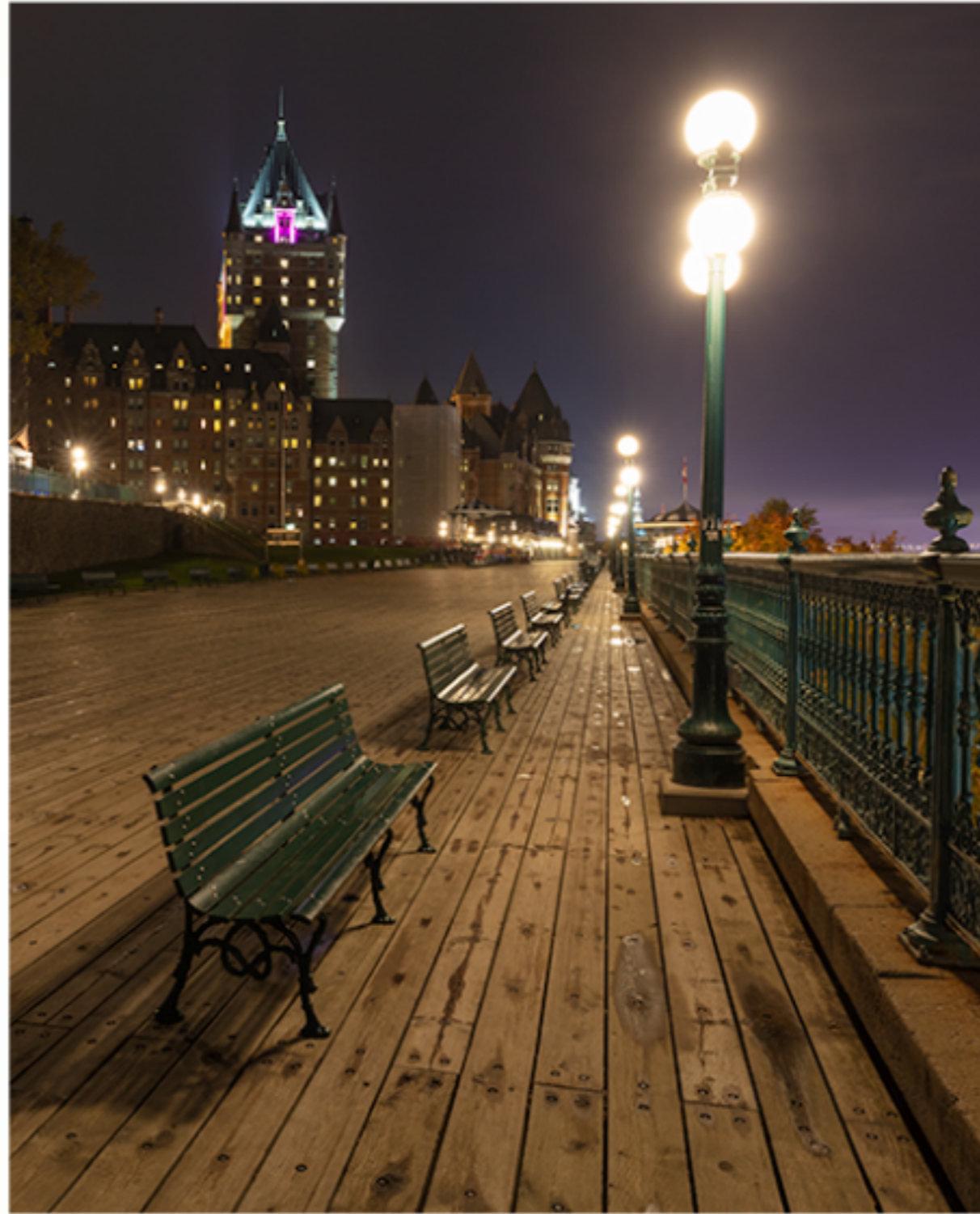(cameras, lenses, tripods, filters)

Before

After

Editing

Landscapes & Scenics

Travel

People and Portraits

Photojournalism

Nature & Wildlife

Action

Creative

Composition & Tips

What is a photography?

Webster's:

*the art or process of producing images
by the action of radiant energy and especially light
on a sensitive surface (as film or a CCD chip)*

PHOTO GRAPH

Light Writing

Pixel Power

1 pixel = 1 square of solid color

Pixels and Megapixels

1 pixel = 1 square of solid color

Pixels and Megapixels

Megapixel = 1,000,000 pixels

Pixels and Megapixels

Thousands of pixels of various shades . . .
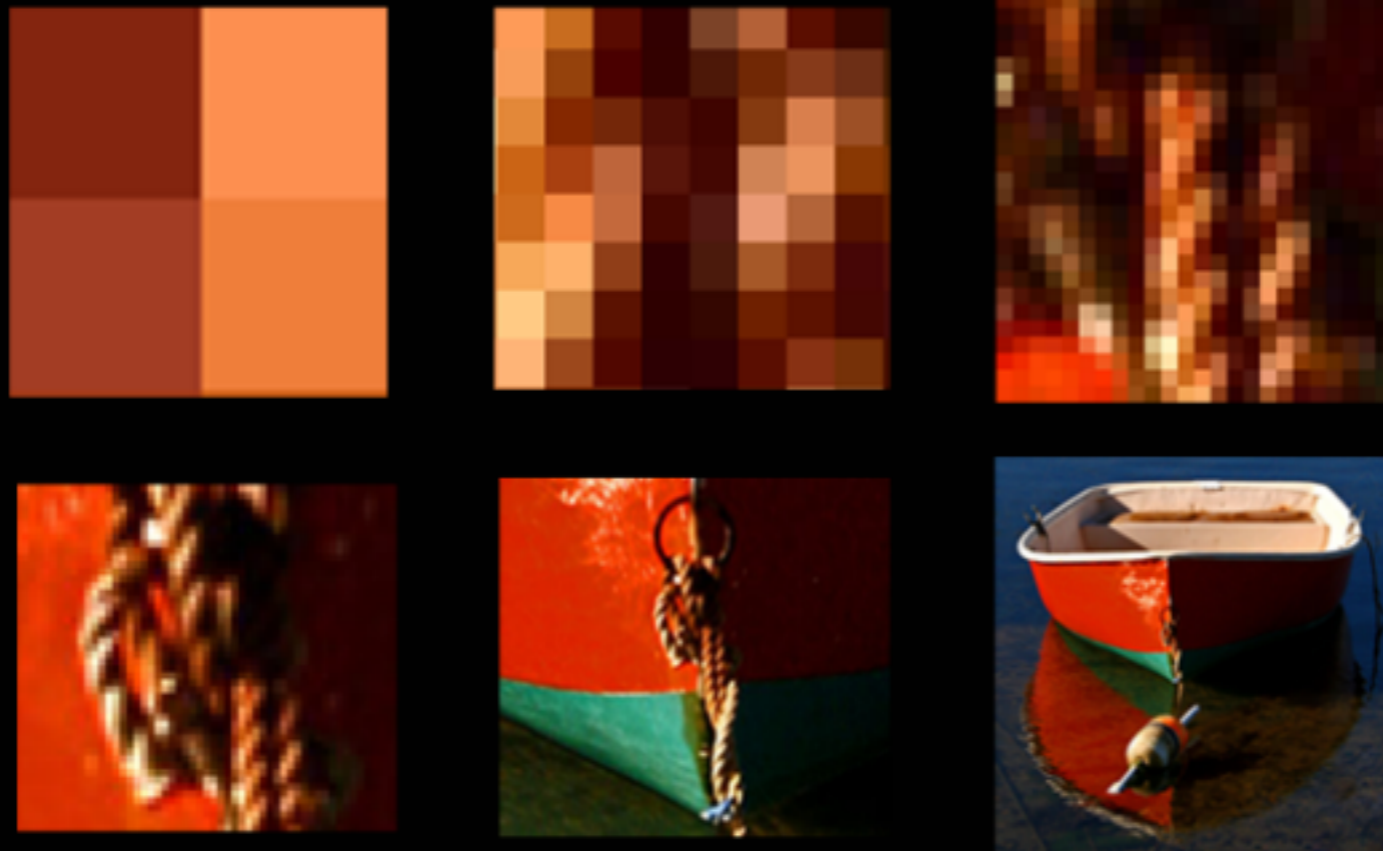
Pixels and Megapixels

make up . . .

Pixels and Megapixels
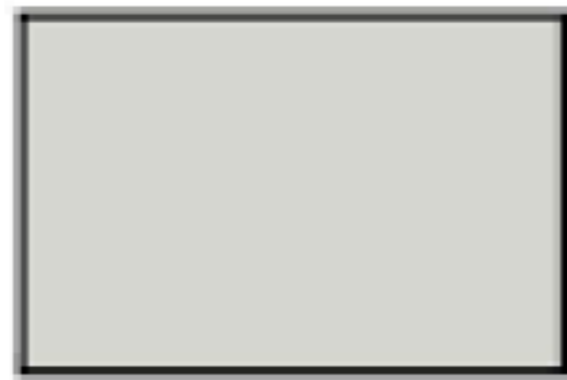

. . . every picture

Pixels and Megapixels

More pixels = more data = higher quality image
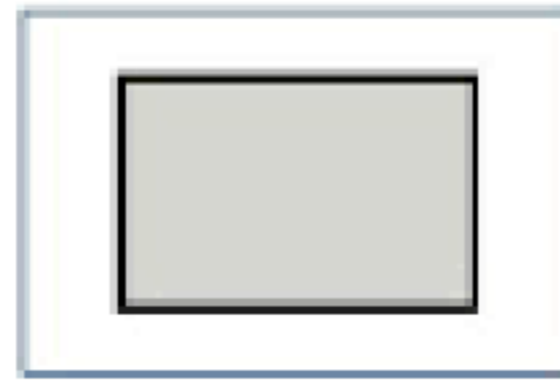
7-15 megapixels good for most situations

*Lens and sensor also affect image quality

All pixels aren't created equal

SENSOR SIZE COMPARISON

Full Frame Sensor

APS-C

Four Thirds

1 Inch

Phone

File Formats & Image Quality

JPEG
RAW

JPEG
Compressed file format
Smaller file, lower quality
But lower quality
All software reads JPEGs
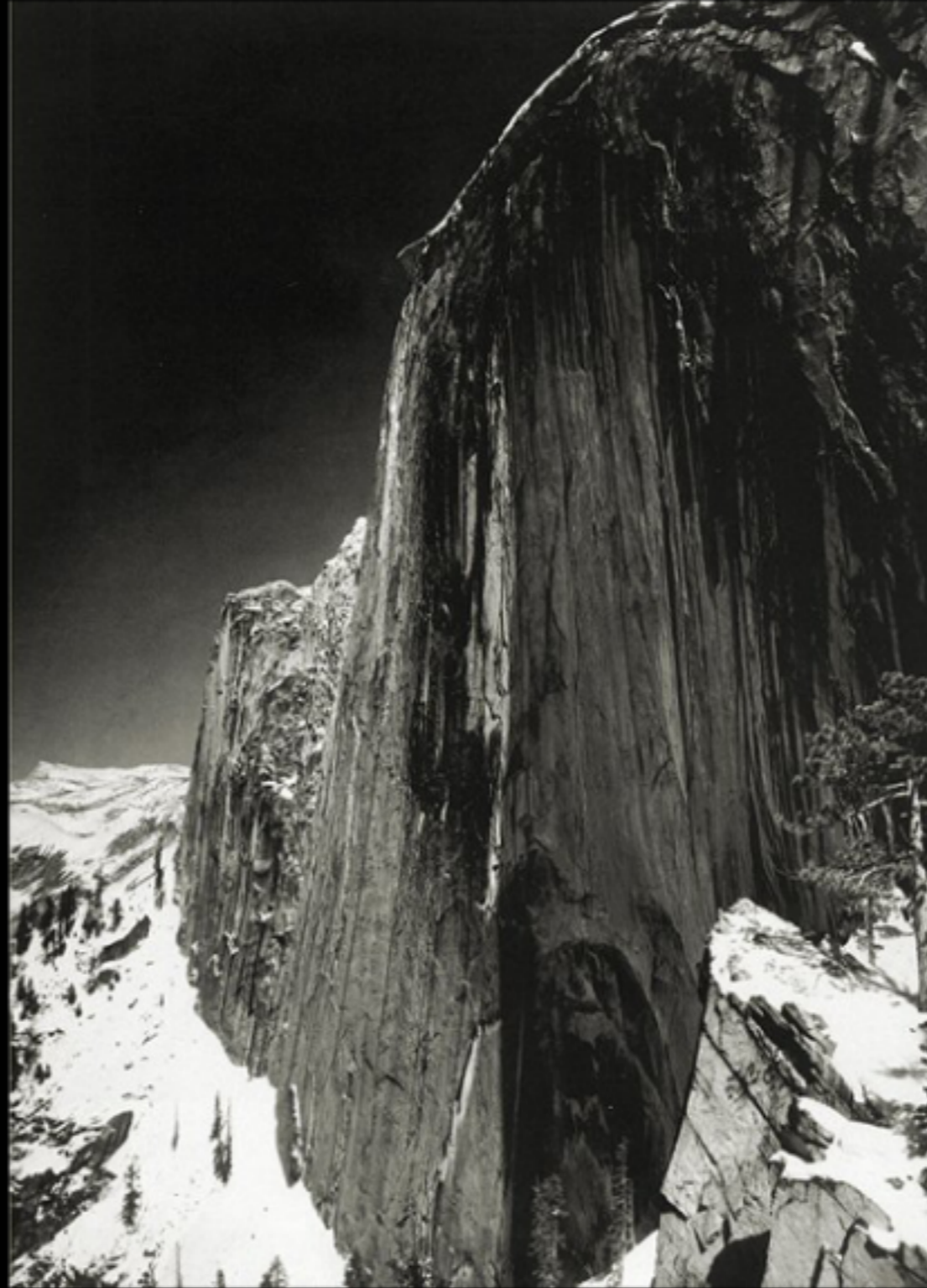Use highest quality setting - L, Fine, Super Fine

RAW
High quality, large file
Uncompressed data. Captures all data.
Larger color gamut
More flexibility in processing image
Requires RAW software (comes w/Photoshop & Elements)
RAW may not be option on compact cameras

You don't take a photograph...you make it.
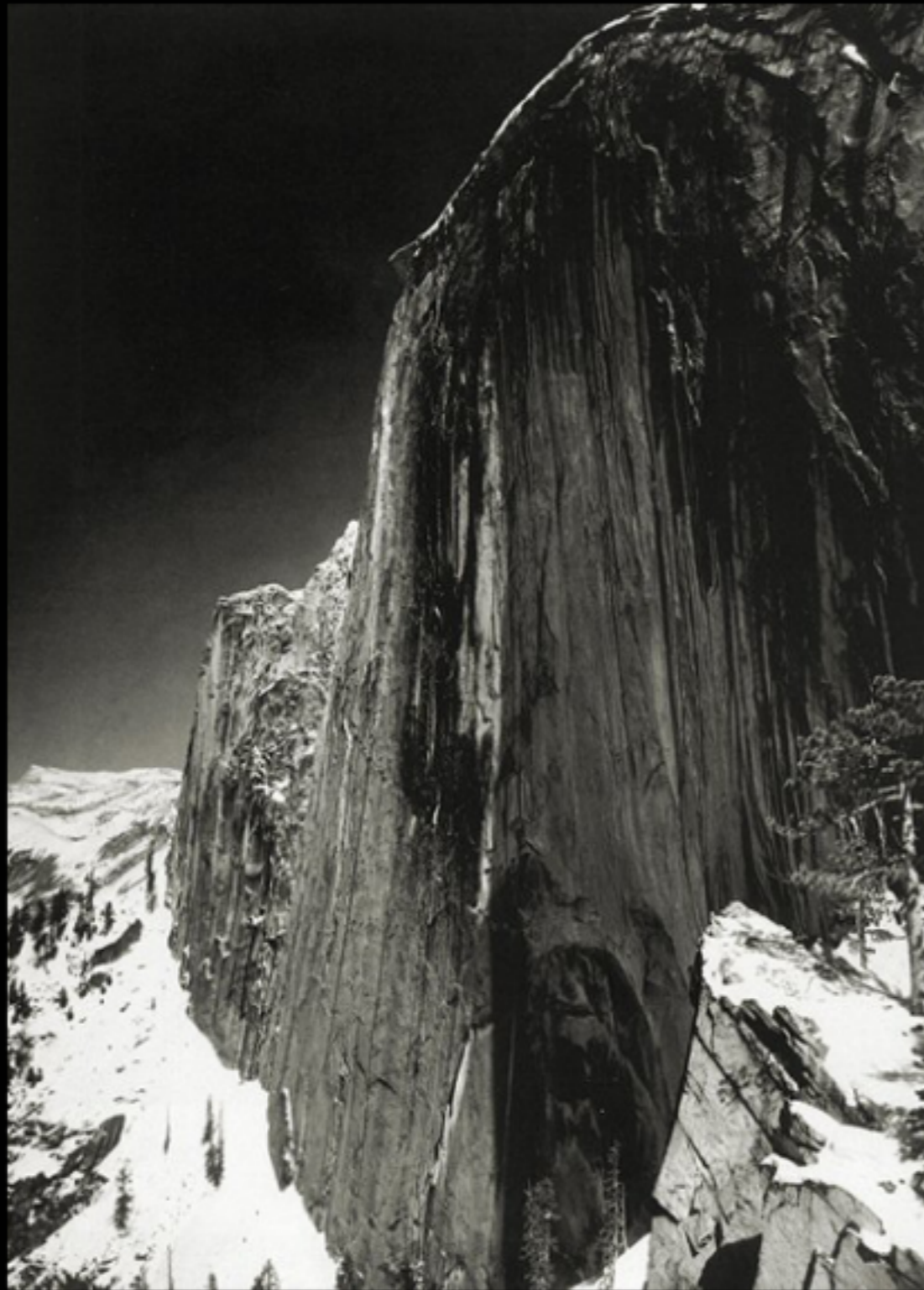- Ansel Adams

Making a Picture

1927

Monolith, The Face of Half Dome

Ansel Adams

Making a Picture

1927

1980

Monolith, The Face of Half Dome
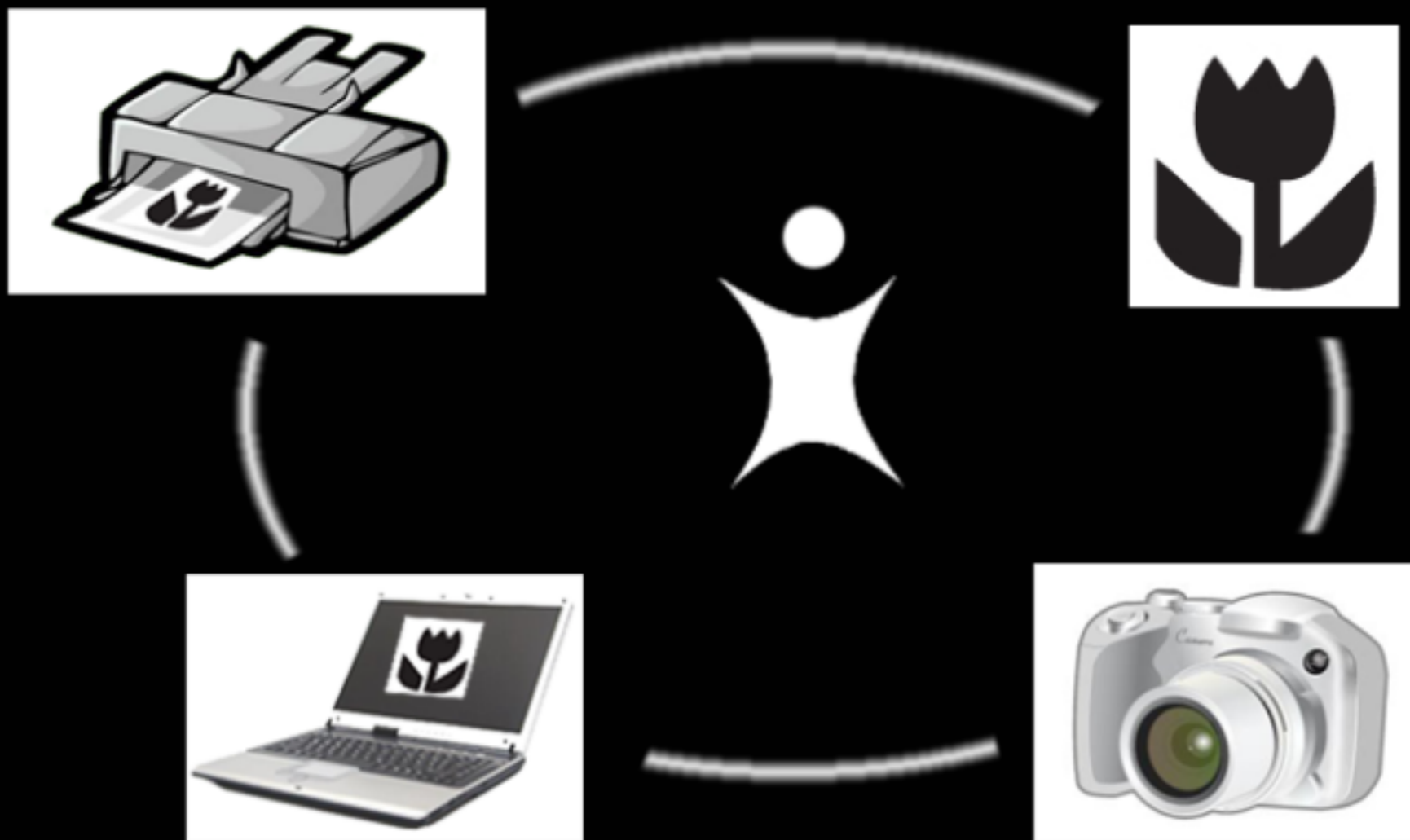Ansel Adams

Making a Picture

Winter Sunrise

Ansel Adams

Making a Picture

Winter Sunrise

Ansel Adams

The Digital Photography System.

Camera Modes

A   Auto -- Automatic control of exposure and flash

P   Program -- Mostly auto. Lets you control ISO, flash
      and white balance

Av   Aperture Priority -- You adjust f-stops, camera adjusts shutter speed to amtch

Tv   Time/Shutter Priority -- You control shutter speed. Camera
      automatically adjust aperture to maintain proper exposure

M   Manual -- You have full control

Four keys to a good photograph

Light
Composition
Subject
Communication

Three steps to a good photograph
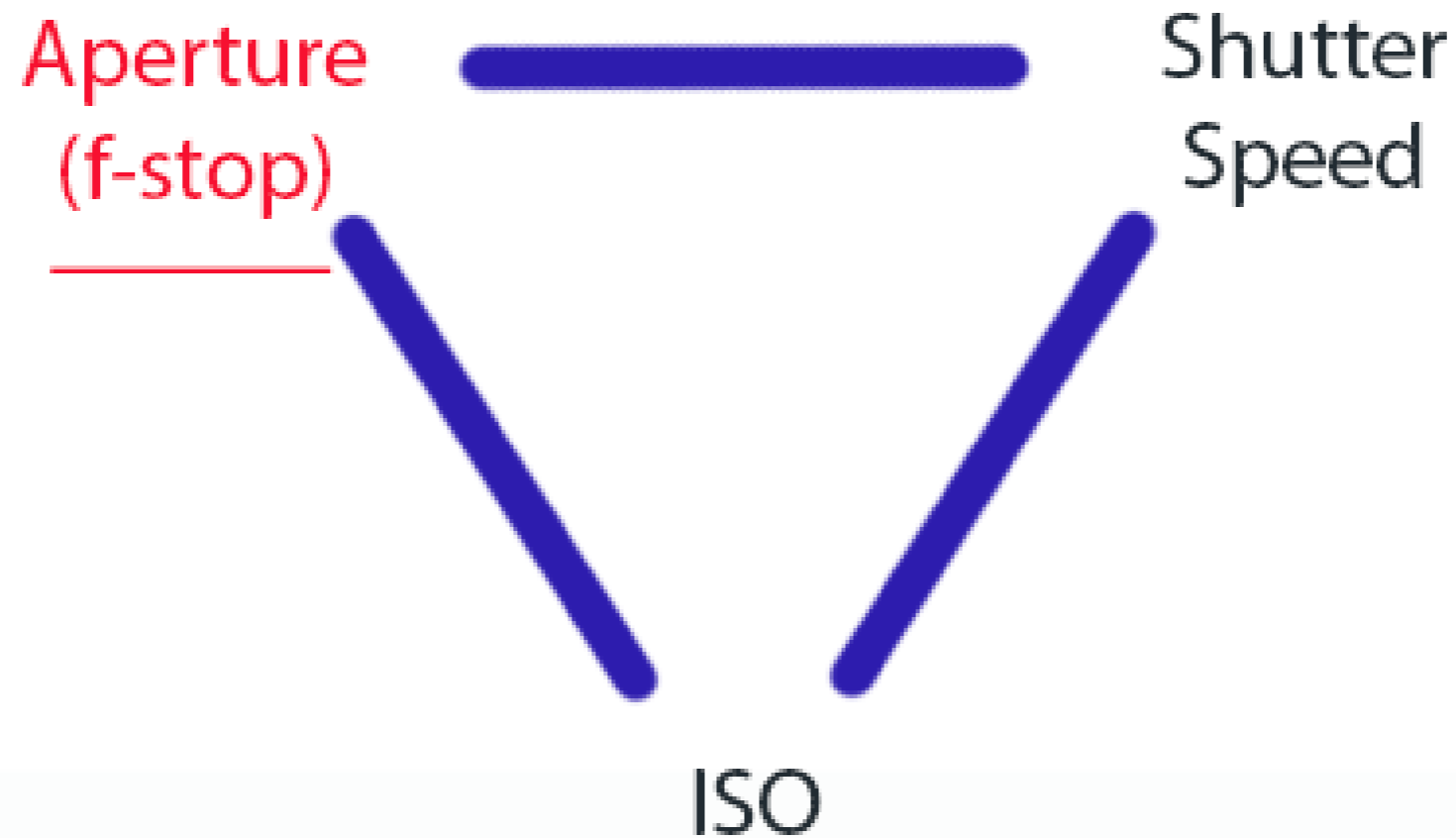
- Proper Exposure
- Focus/Sharpness
- Composition

Aperture
(f-stop)   Shutter
                           Speed

ISO
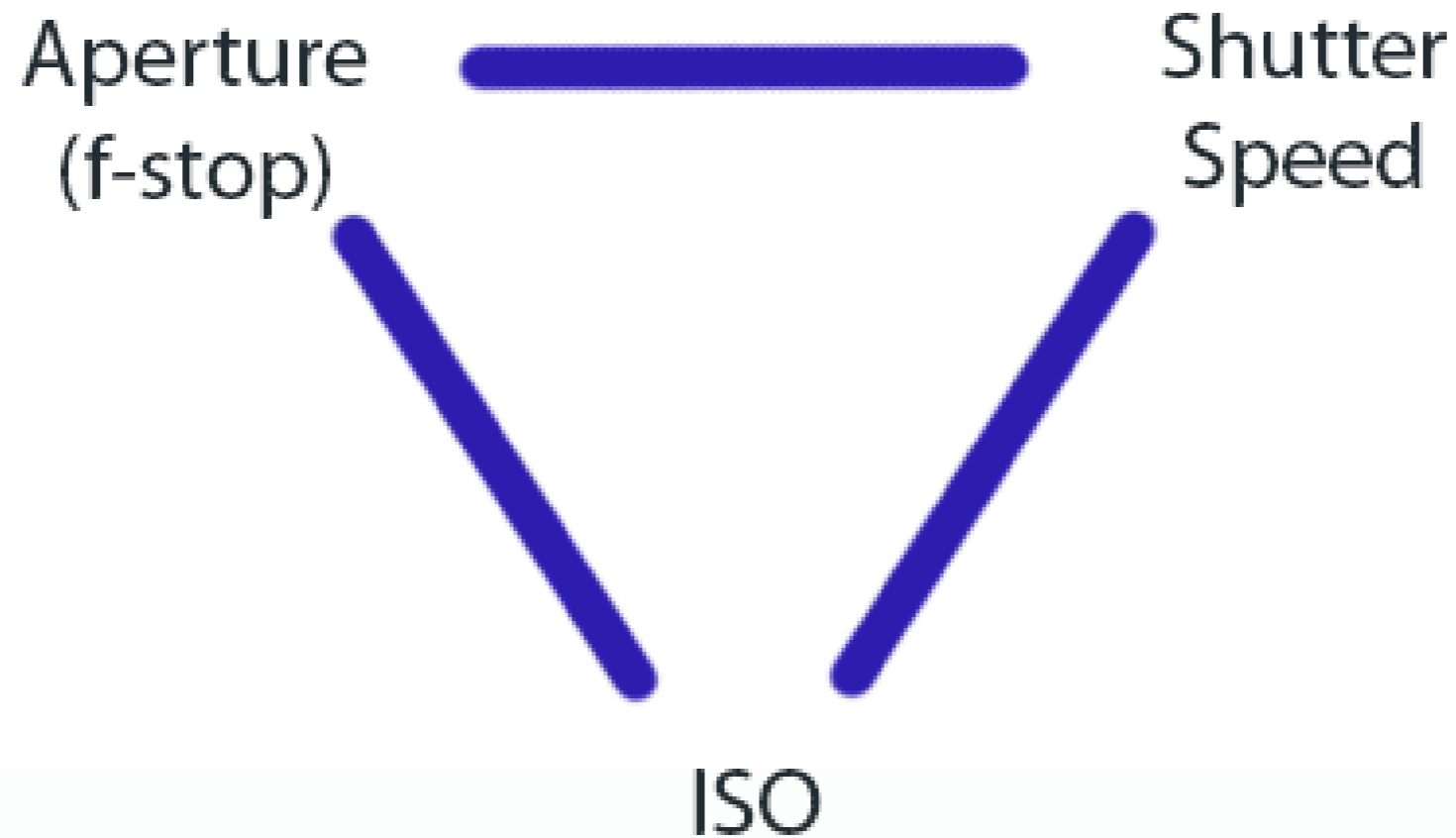
Aperture

Small diameter
High f-stop (f11+)
Less light

Large diameter
Low f-stop (<f5.6)
More light

Aperture

Aperture is the size of lens opening,
and it controls how much light reaches the sensor.

Aperture settings are called f-stops.

Lower f-stop means wider aperture and more light.

Higher f-stop means smaller aperture and less light.

Aperture also affects depth of field
(how much of the image is sharp)

F11

Higher f-stops create
greater depth of field

F4

Lower f-stops create
shallower depth of field

The Exposure Triangle

Aperture
(f-stop)

Shutter
Speed

ISO
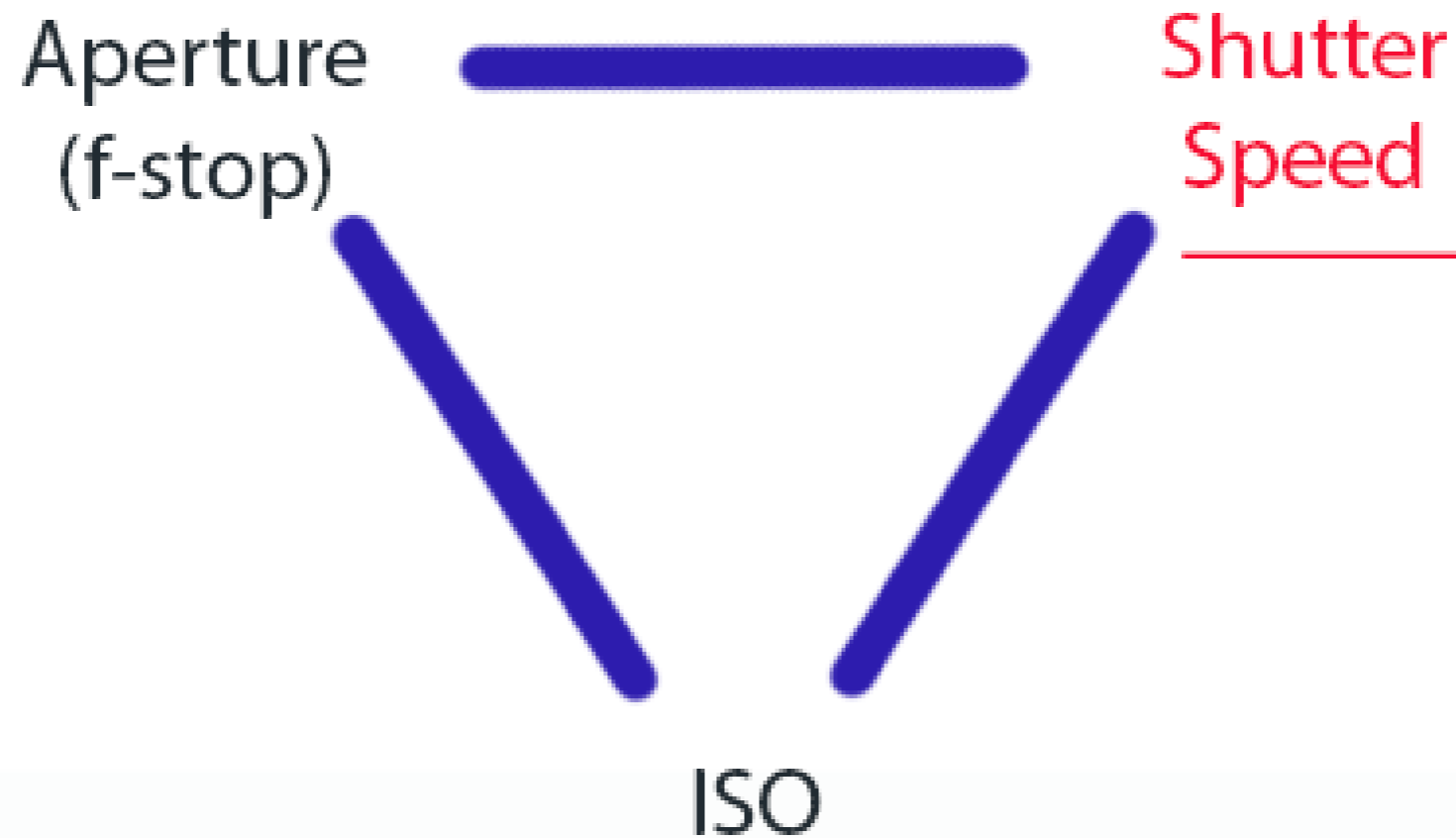
3 Elements of Expoure

Shutter Speed

1/8   Tripod

1/15

1/30   Hand Held

1/60

1/125

1/250   Stop Action

1/500

1/1000

Freeze Motion
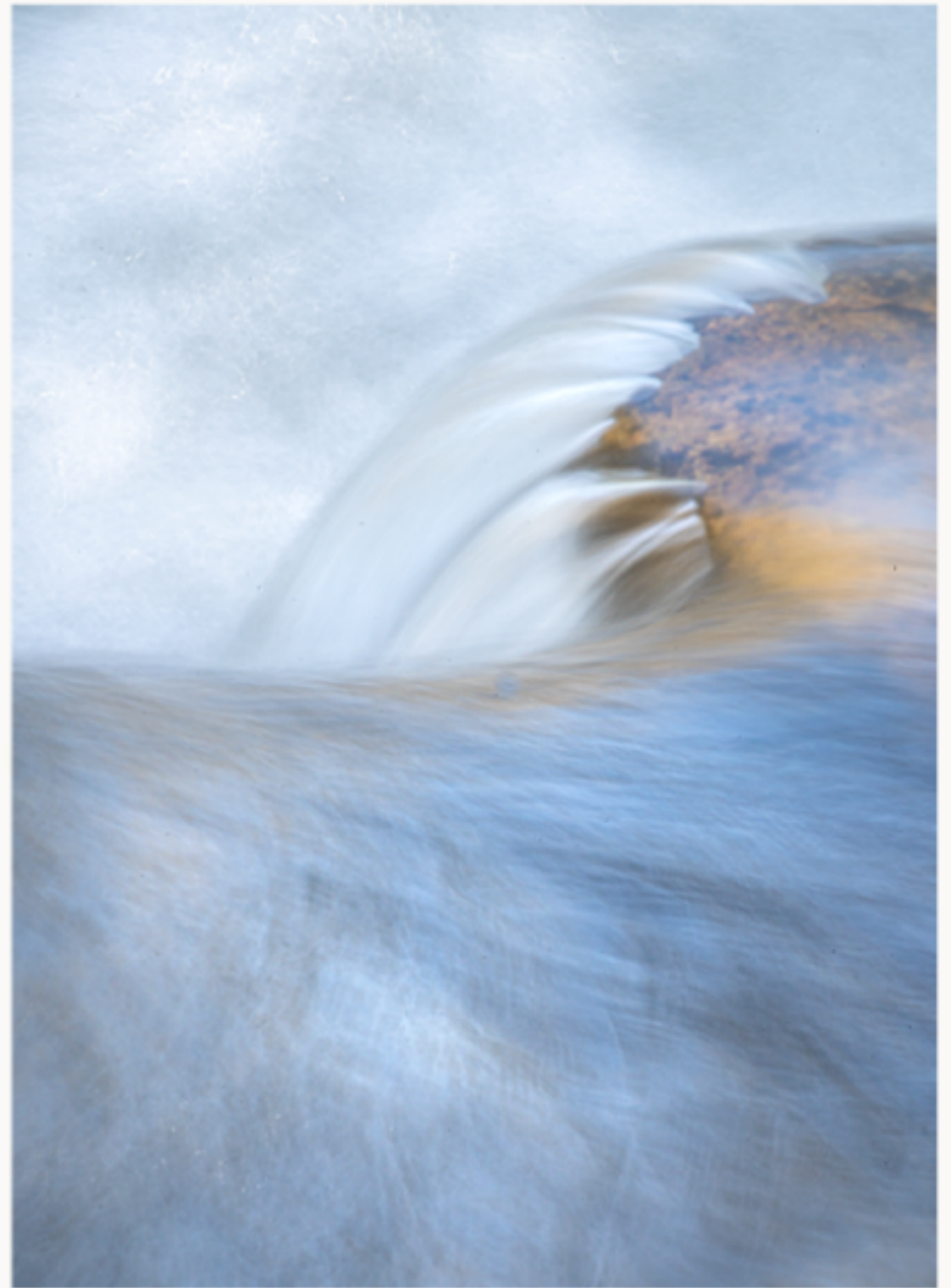
Blur Motion

Shutter Speed

The Exposure Triangle
Aperture (f-stop) — Shutter Speed
ISO
3 Elements of Expoure
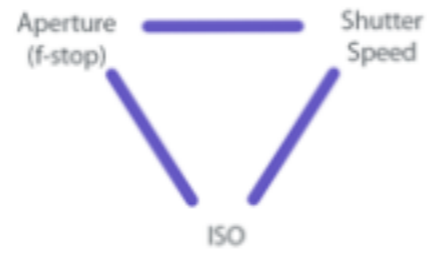
ISO

Basic Settings

100

200

400

800

1600

3200

6400

12,800

25,600

ISO can make the exposure brighter or darker.
Higher settings create a brighter exposure.
Lower settings create a darker exposure.

ISO

100
125
200
250

320
400
500

640

800
1000
1250
1600

Bright lighting
Great quality images
Longer exposures

Faster shutter speeds
Medium to low light
Good quality

Low light
Fast shutter speed
May result in grainier,
noisier images
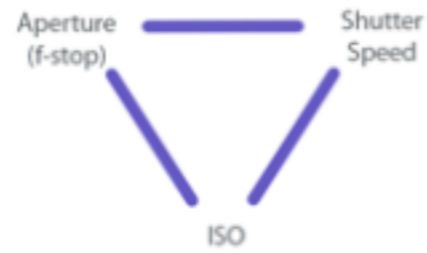
ISO

Changing the ISO setting gives you
more creative freedom to adjust f-stop
and shutter speed.

For example:
In low light, use a higher ISO to get a good exposure.
Increase your ISO to get a faster shutter speed.
A higher ISO will let you use a higher f-stop
and a faster shutter speed.

Caution:

High ISOs may reveal noise

Reciprocity
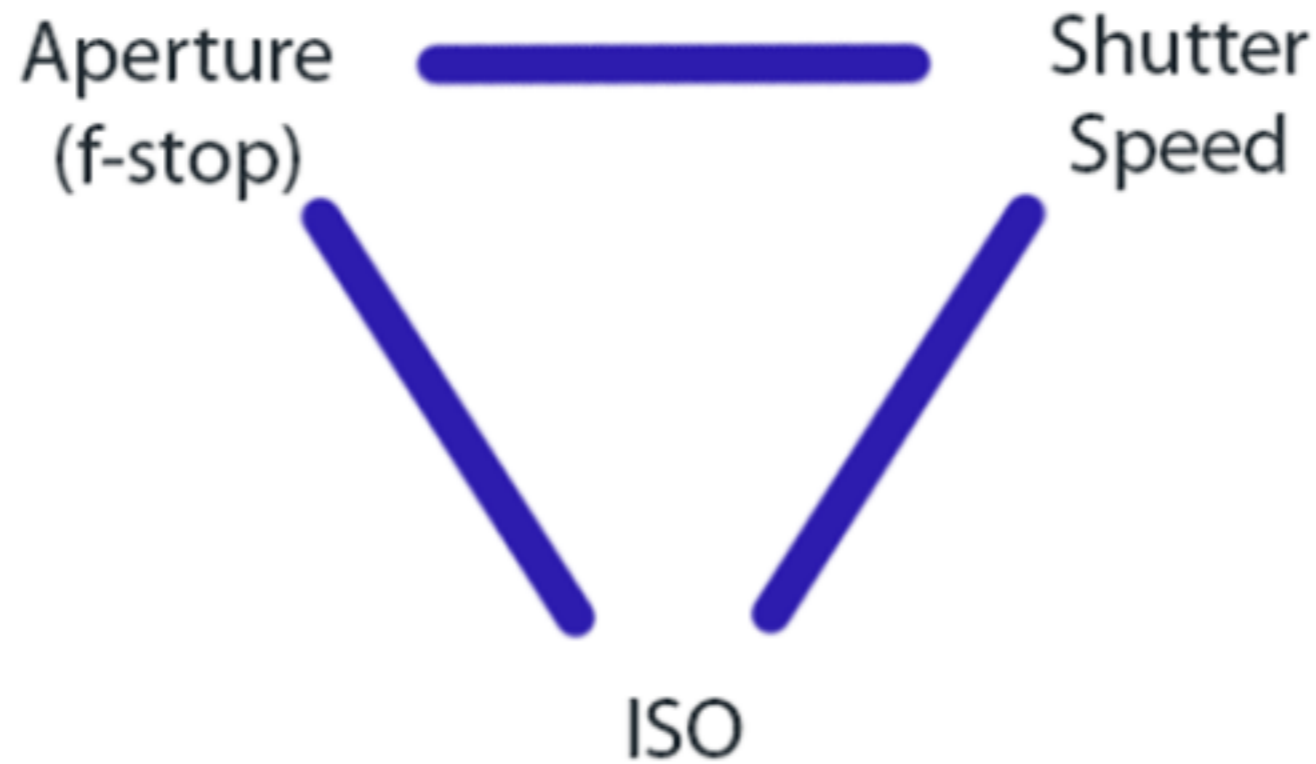
Aperture, shutter speed and ISO work together
to create a balanced exposure.

If one goes up, then another one must go down to maintain
a balanced exposure.

Reciprocity

Shutter Speed	Aperture	Shutter Speed	Aperture
1/8	1.4	1/8	1.4
1/15	f2, f2.8	1/15	f2, f2.8
1/30	f4	1/30	f4
1/60	f5.6	1/60	f5.6
1/125	f8	1/125	f8
1/250	f11	1/250	f11
1/500	fl6	1/500	fl6
1/1000	f22	1/1000	f22

1/30 sec. at f11 is the same basic exposure as 1/250 sec. at f4
as long as the ISO hasn't changed.

Reciprocity*

f4, 1/250

f8, 1/60

f11, 1/30

f16, 1/15

Reciprocity may break down in extreme conditions -
ultra high ISO, long exposures, etc.

Reciprocity in Aperture Priority Mode

F-stops	Shutter Speed	ISO
2	1/15	100
2.8	1/25	200
4	1/60	400
5.6	1/125	800
8	1/250	1600
11	1/500	3200
16	1/500	6400
22	1/1000	12,800
32	1/2000	25,600

Reciprocity in Aperture Priority Mode

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16	1/500	6400
22	1/1000	12,800
32	1/2000	25,600

Reciprocity in Aperture Priority Mode

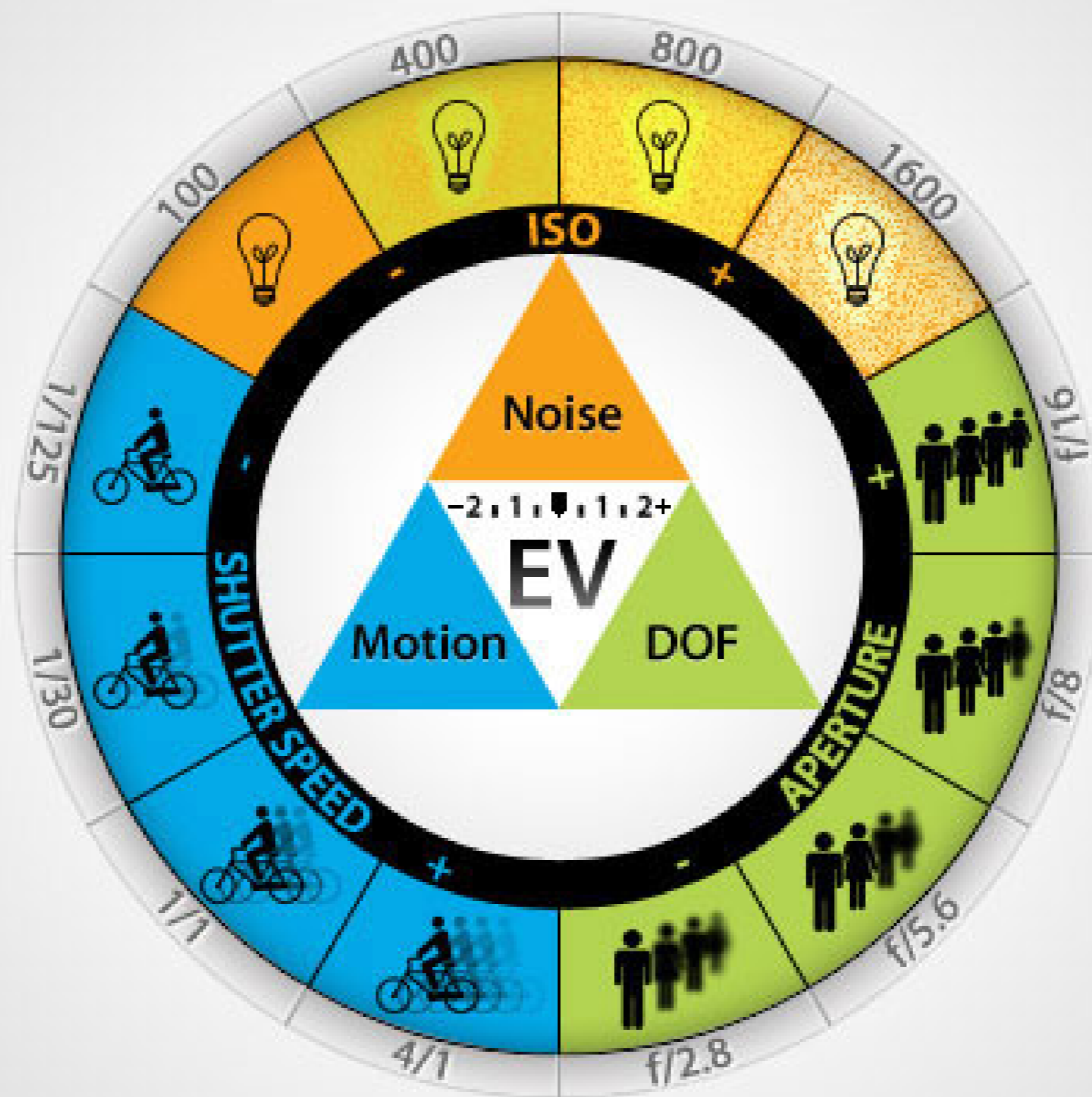| F-stops	Shutter Speed	ISO
2	1/15	100
2.8	1/25	200
4	1/60	400
5.6	1/125	800
8	1/250	1600
11	1/500	3200
16	1/500	6400
22	1/1000	12,800
32	1/2000	25,600

If the f-stop goes up three stops from f8 to f22,
creating a smaller aperture and therefore less light
reaching the sensor, then the shutter speed
has to go down three stops to maintain a good exposure.

Reciprocity in Aperture Priority Mode

F-stops	Shutter Speed	ISO
2	1/15	100
2.8	1/25	200
4	1/60	400
5.6	**1/125**	800
8	1/250	1600
11	1/500	3200
16	1/500	**6400**
22	1/1000	12,800
32	1/2000	25,600

If you need a faster shutter speed, but don't want to change the f-stop, increase the ISO.

The shutter speed will then increase
the same number of stops that you increase the ISO.

exposureguide.com

Camera Modes

A Auto -- Automatic control of exposure and flash

P Program -- Mostly auto. Lets you control ISO, flash
 and white balance

Av Aperture Priority -- You adjust f-stops, camera adjusts shutter speed to amtch

Tv Time/Shutter Priority -- You control shutter speed. Camera
automatically adjust aperture to maintain proper exposure

M Manual -- You have full control

Aperture Priority Mode

You control aperture (f-stop) setting

Camera automatically adjusts shutter speed based on aperture/f-stop

Advantages of Aperture Priority Mode

You control exposure, depth of field and shutter speed

F8

F8

Start with F8 and then adjust as needed.

"F8 and be there."

Weegee, the famous
photojournalist and street photographer
when asked how he got such great photos.

Aperture Priority Mode

You control aperture (f-stop) setting
Camera automatically adjusts shutter speed to match aperture

If f-stop goes up, shutter speed slows down.

If f-stop goes down, shutter speed goes faster.

If ISO goes up and f-stop stays the same,
shutter speed will increase.

If ISO goes down and f-stop stays the same,
shutter speed will decrease.

Three steps to a good photograph

- Proper Exposure
- Focus/Sharpness
- Composition

Focus/Sharpness

How AF works
- Two systems: Phase Detection and/or Contrast Detection
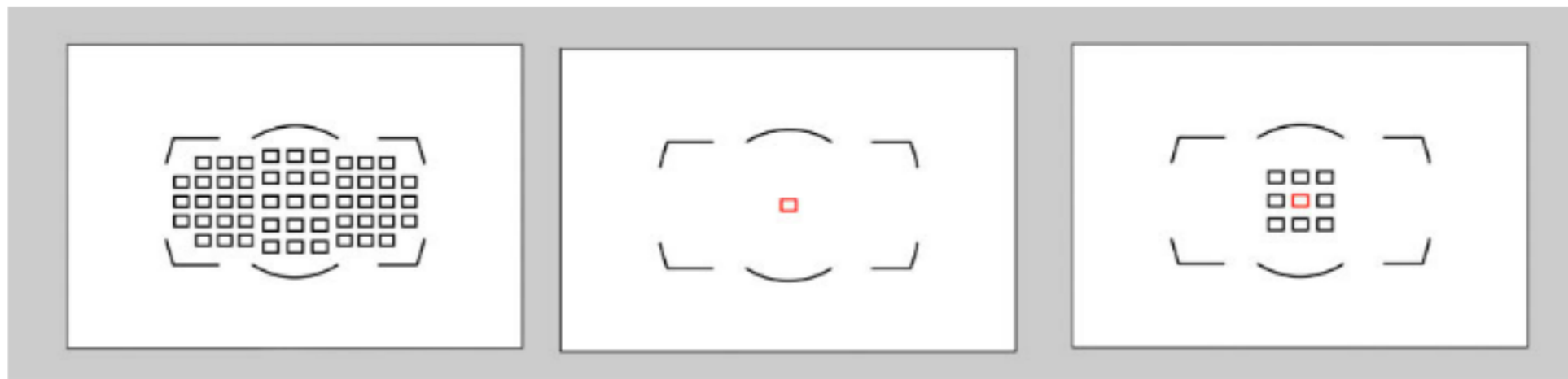- They both need contrast

- Shutter Lag
- Press Halfway, then shoot
- Focus Lock
- Focus Points

- Depth of Field / Aperture

- Hold camera steady
- Tripod
- Cable Release

- Image Stabilization
  (turn off with tripod or when moving)

Focus Modes

Auto Focus Point Selection*   Single Point   Expanded Point

*Not to be confused with Auto Focus

Drive Modes

Single   Continuous Low   Continuous High
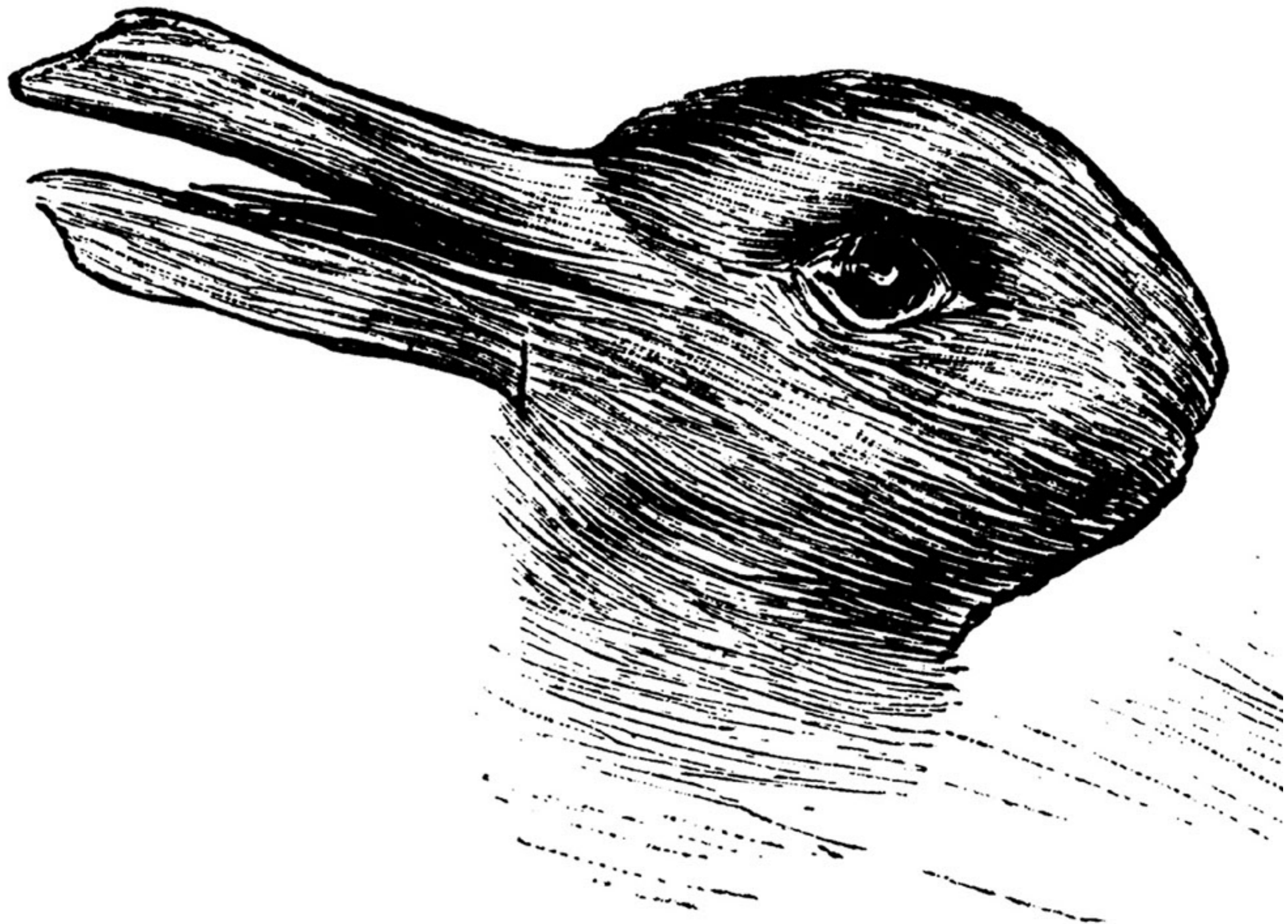
Composition

There are no rules for good photographs,
there are only good photographs.

Ansel Adams

Photography
and
the Art of Seeing

Carl Warner

Framing

1. Use your viewfinder as a frame

Whatever is within its borders
will be in the picture

X   X

X   X

Check the corners and edges
for unwanted elements and distractions.
Try to get it right in the camera
(but don't be afraid to crop).

Viewfinder as frame

Viewfinder as frame

Viewfinder as frame

2.Use Elements in Scene to Frame Subject

- Draws attention to the subject

- Offers context

- Creates "packaging"

- Adds depth, layers

- Narrative, drama

- Leads the eye, isolates subjects

Use elements in the scene to frame the subject.

Balance/Harmony

Keep it simple: Fill the viewfinder

Keep it Simple

It's okay to have more than one element,
but the subject must be obvious

Rule of Thirds

Rule of Thirds

Rule of Thirds
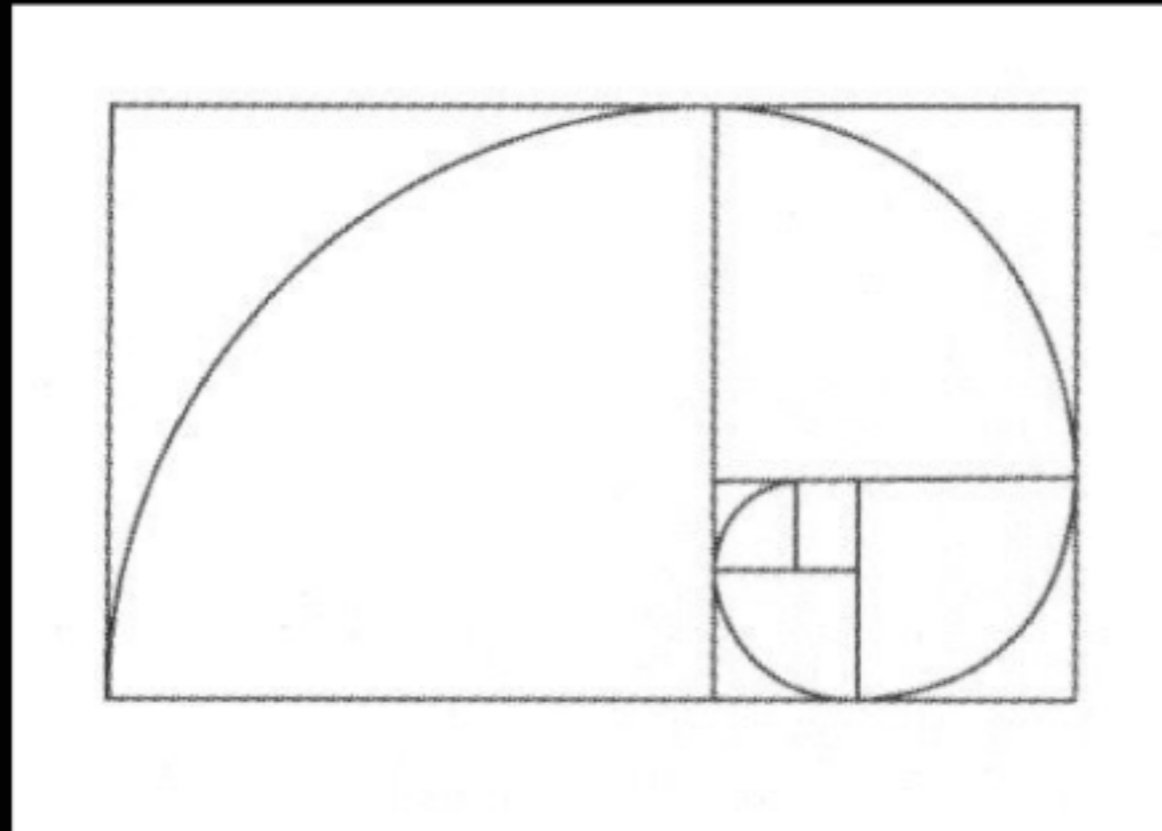
Rule of Thirds

Rule of Thirds

Rule of Thirds

Rule of Thirds
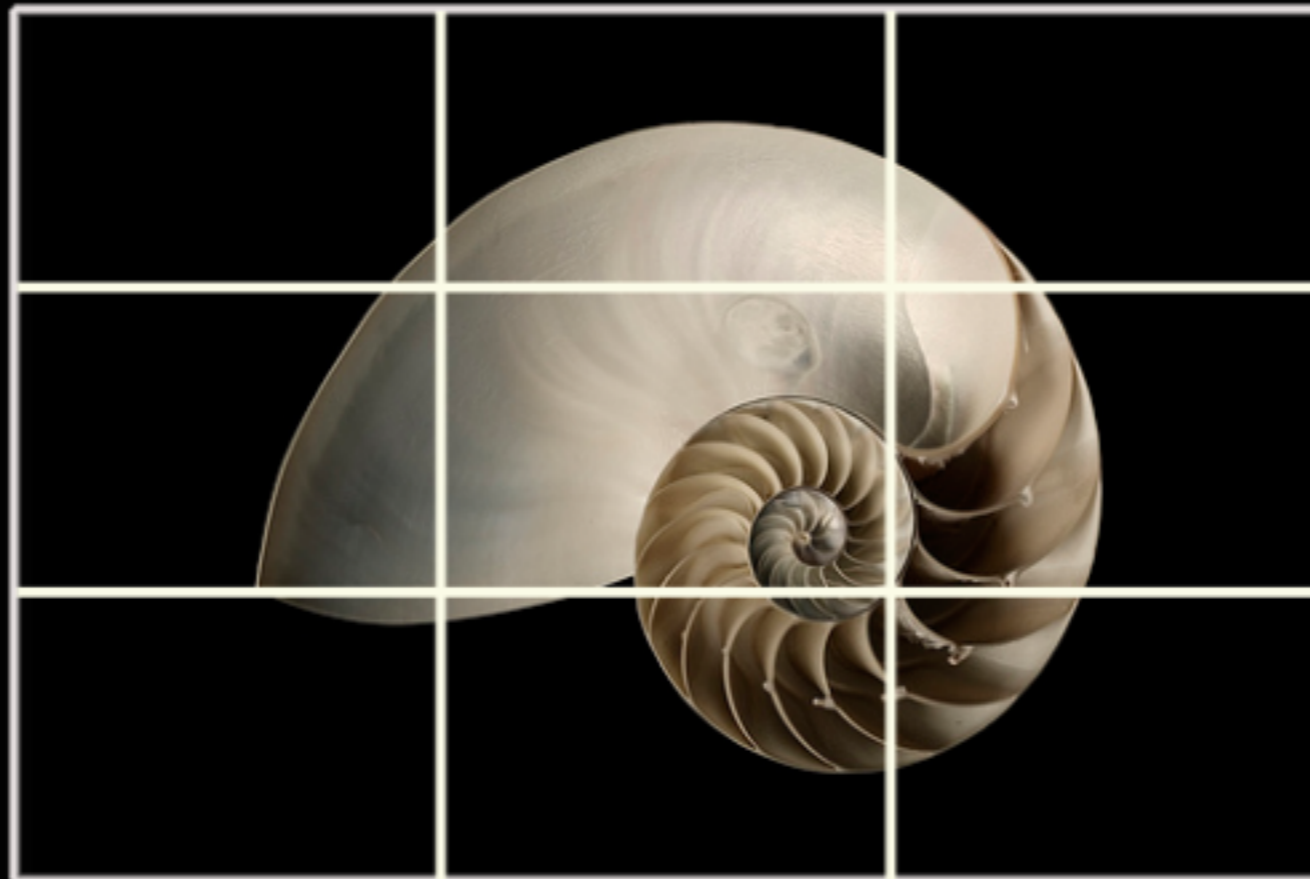
Rule of Thirds

Fibonaci sequence 0, 1, 1, 2, 3, 5, 8, 13, 21, 34...,

Golden mean/ratio 1.618

Flower petals, finger bones, etc

Balance and the Rule of Thirds

Balance and the Rule of Thirds

Rule of Thirds
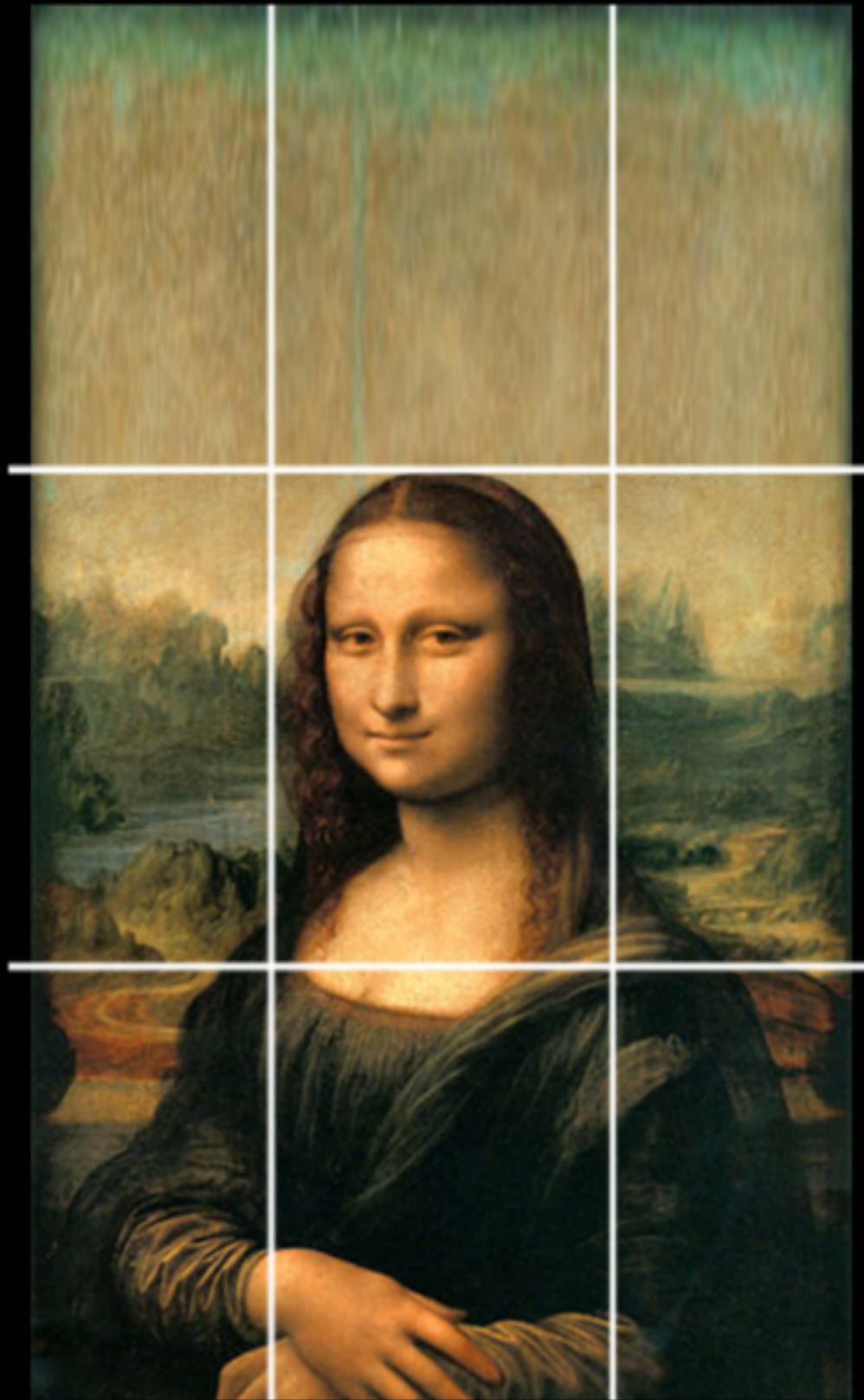

Alfred Eisenstadt - VJ-Day

Rule of Thirds

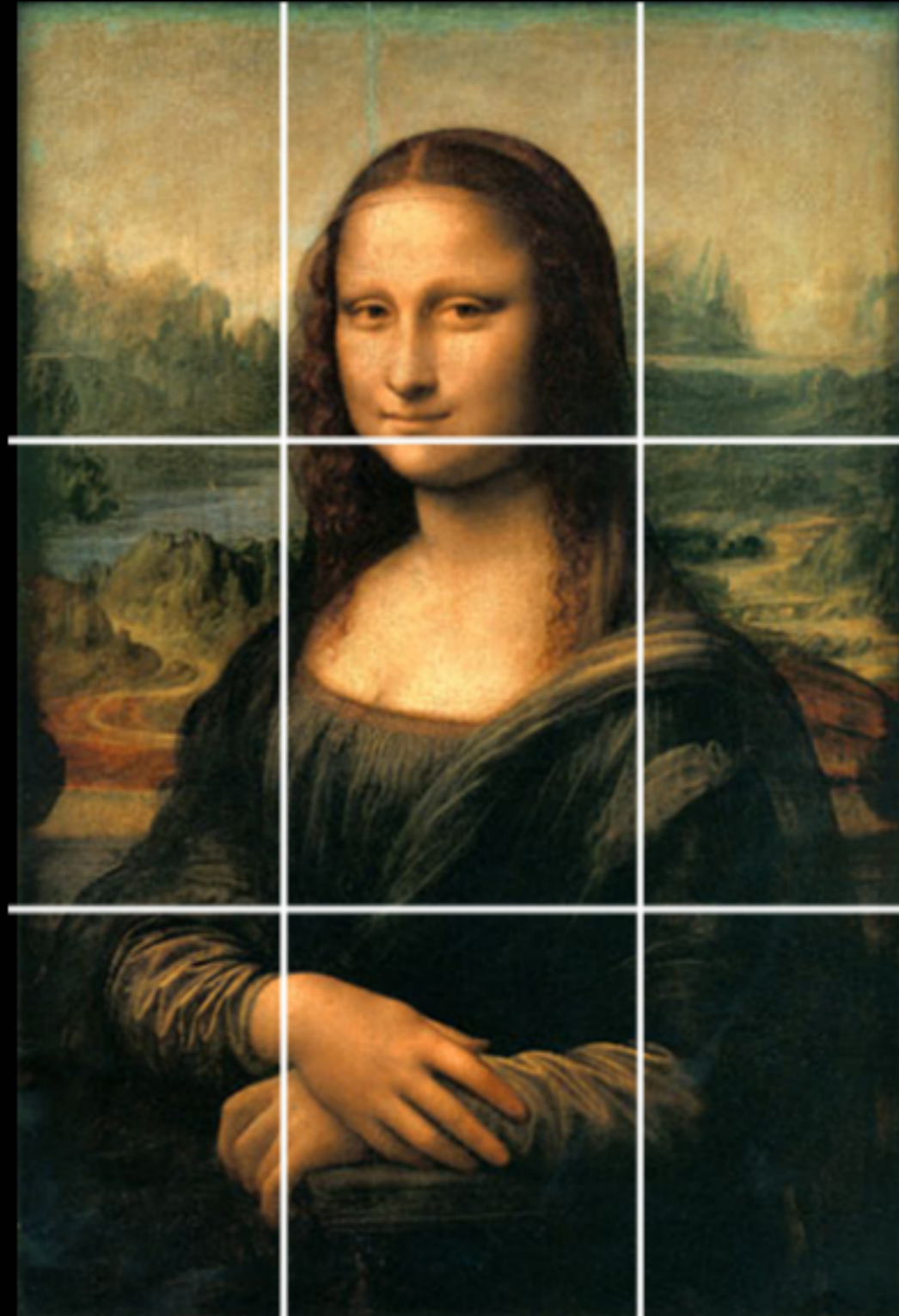Alfred Eisenstadt - VJ-Day

Rule of Thirds

Rule of Thirds

Rule of Thirds

Rule of Thirds

There are always exceptions to the rules.
Sometimes centering works.

Working the Scene / Learning to See

Work the Scene

Try a different angle . . .

Work the Scene

Fill the screen with your subject . . .

Work the Scene

Change your point of view --
Shoot from above, below, the side, etc.

Work the Scene

Remember rule of thirds, keep subject off center.
Check the background and foreground .

Work the Scene

Shoot vertical . . .

Work the Scene

. . . or horizontal. Get in close. Isolate elements.

Work the Scene

Experiment and play

Work the Scene

Work the Scene

Work the Scene

Work the Scene

Work the Scene

Work the Scene

5 Questions to Ask Before You Shoot

1. Is the subject/center of interest distinct?
   Will it be obvious to the viewer.
   Tips: Simplify. Position your subject or yourself
      so that the subject stands out. Get closer.

2. Where is the subject in the composition?
   Tip: Use the rule of thirds as a guide. Try for balance.

3. What is the best point of view?
   Tips: Work the scene. Shoot up, down, straight ahead,
      profile, three-quarters. Try horizontal and vertical.

4. What's in the background/foreground?
   Tip: Re-position yourself or your subject
      to minimize distracting clutter.

5. What's along the edges of the viewfinder?
   Tip: Same as above. Also, use other elements
      to frame your subject.

HOMEWORK

1. Rule of Thirds

2. Framing

3. Work the scence

4. Read manual on focusing

Bring 10-12 pictures to class on a memory stick.

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