Introduction to Photography

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Why take pictures?

- Fun
- Creatively and intellectually satisfying
- Memories/keepsakes
- Work: Art, Advertising, Journalism, Portraits, Weddings, etc.

What We'll Cover...

Photographer: Unknown

Camera Settings & Controls:

- F-stops
- Shutter speed
- ISO
- Focusing


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Nikon


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MENU
AF-ON
INFO
SET

Canon

PENTAX

SONY

FUJIFILM

Nikon

OLYMPUS®

SAMSUNG

Photographer Unknown

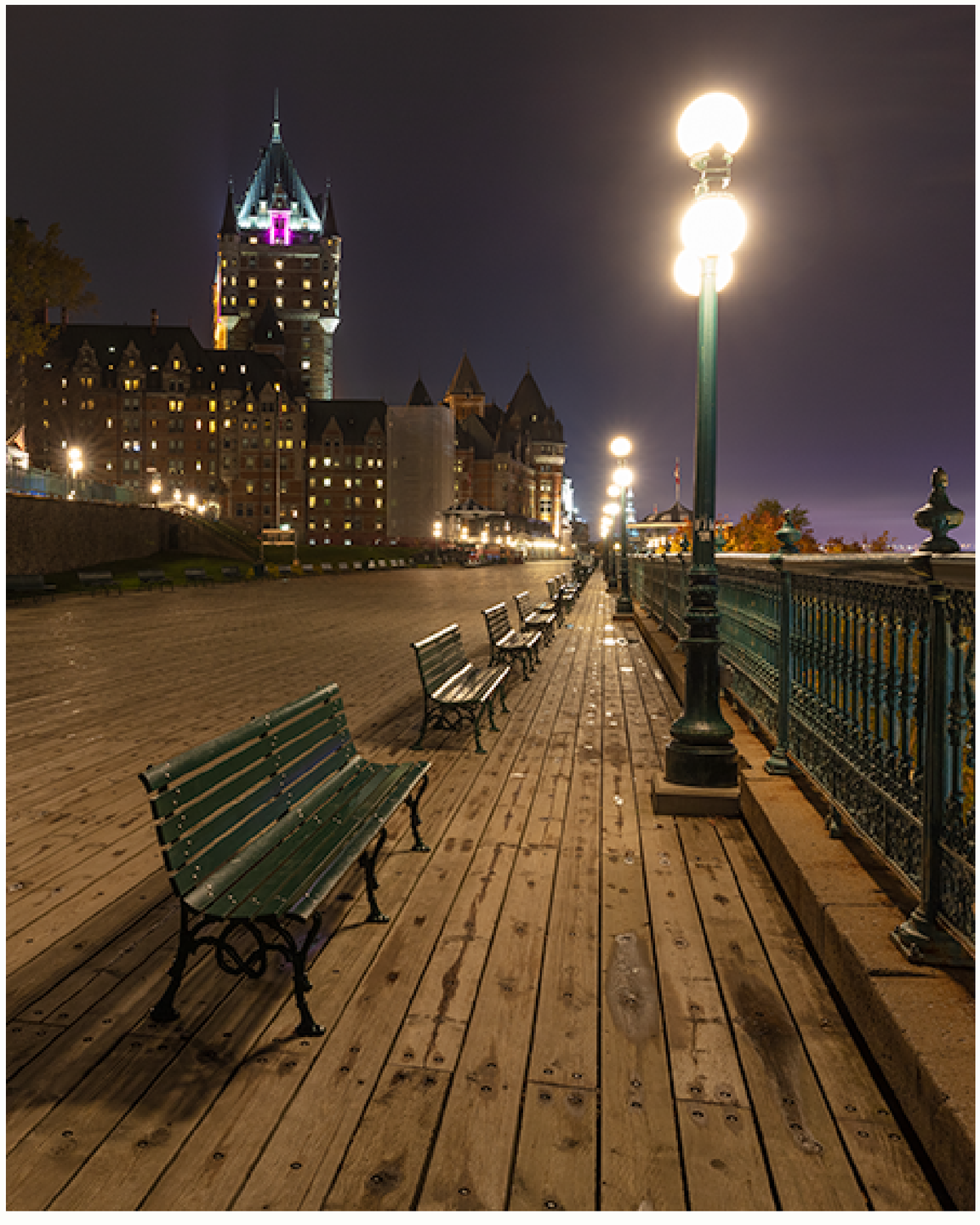
Gear
(cameras, lenses, tripods, filters)

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 . . .

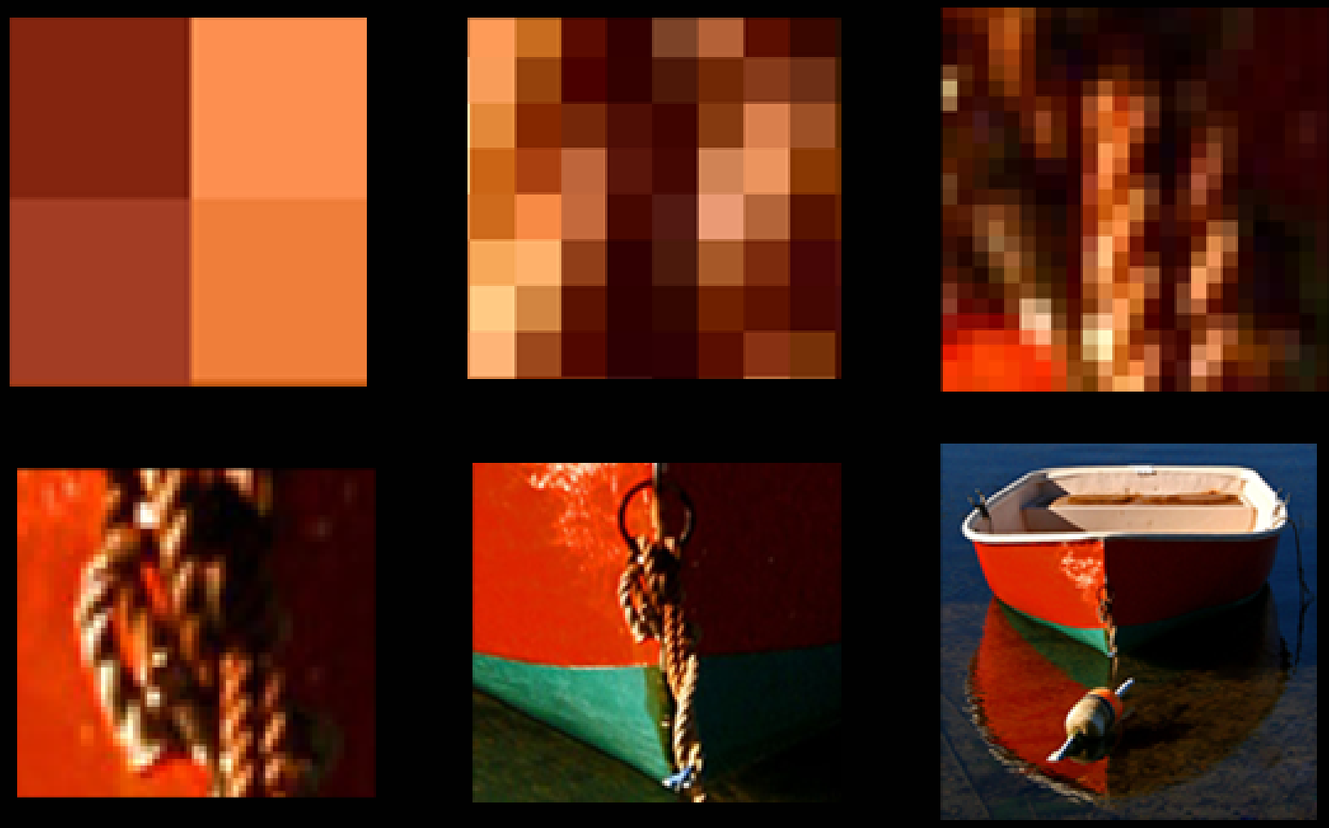
Pixels and Megapixels

make up . . .

Pixels and Megapixels

. . . every picture

Pixels and Megapixels



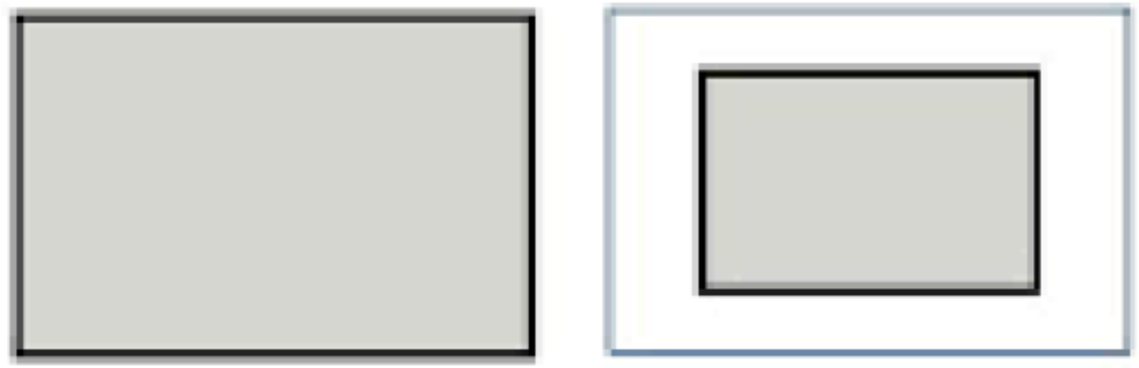
More pixels = more data = higher quality image

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

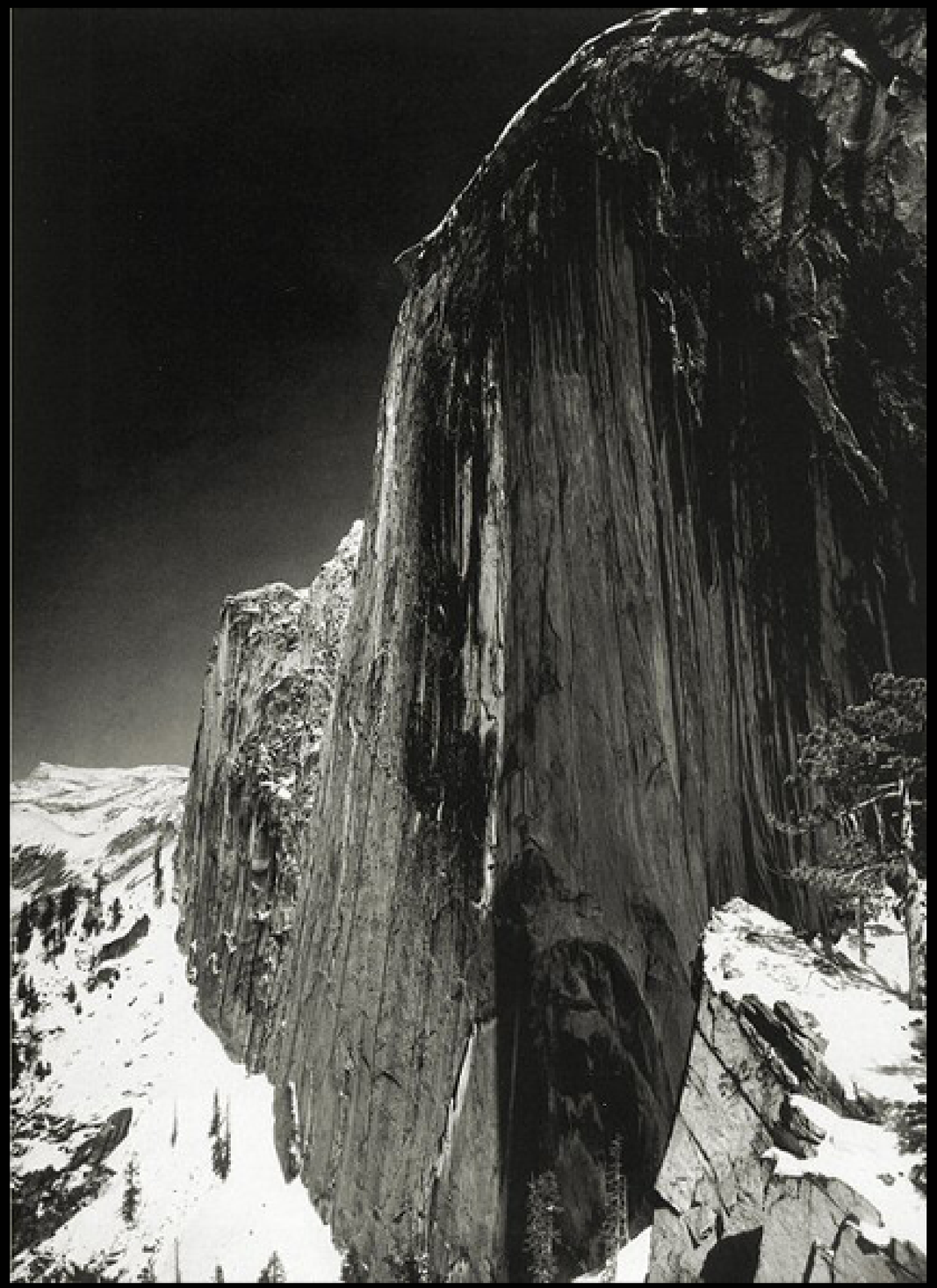
Phone

Homework

You don't take a photograph...you make it.

- Ansel Adams

Making a Picture

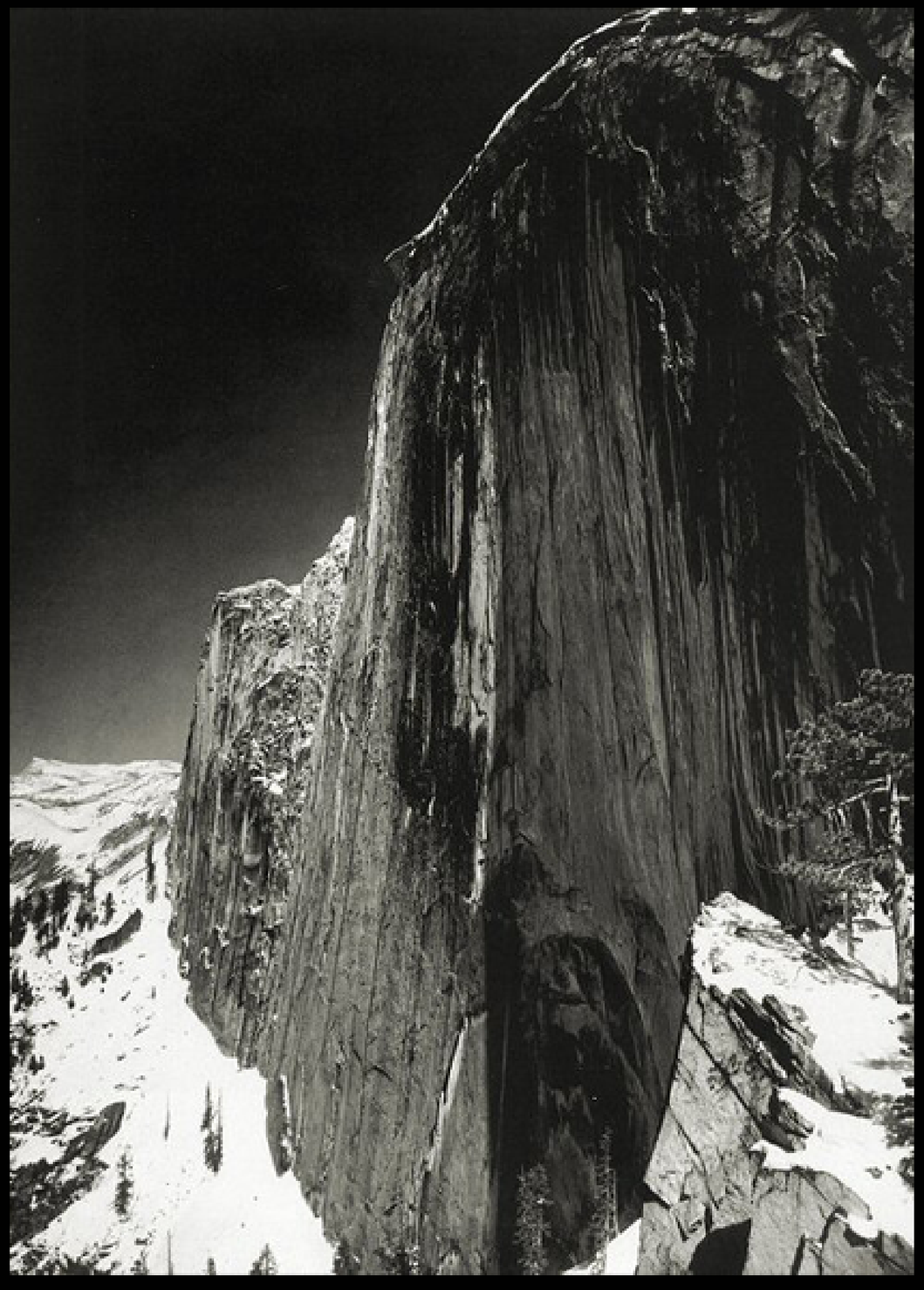


1927

Monolith, The Face of Half Dome

Ansel Adams

Making a Picture



1927

1980

Monolith, The Face of Half Dome

Ansel Adams

Making a Picture

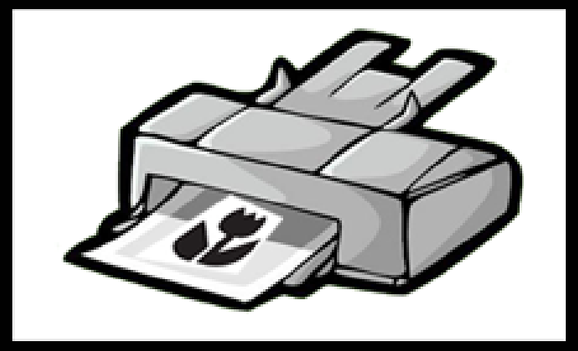
Winter Sunrise

Ansel Adams

Making a Picture

Winter Sunrise

Ansel Adams



The Digital Photography System

Menu Systems

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

Formatting memory card

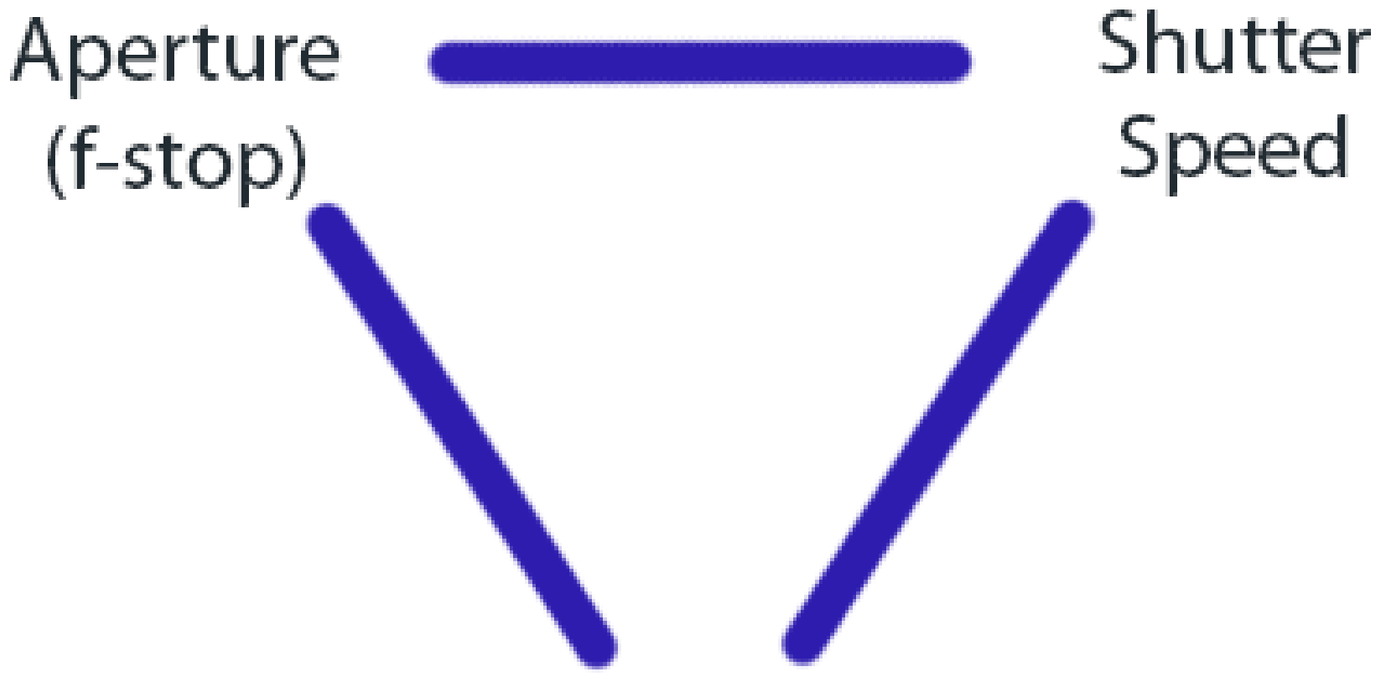
Deleting images


Three elements
to successful image:
Light
Composition
Subject
Communication

Three steps to a good photograph

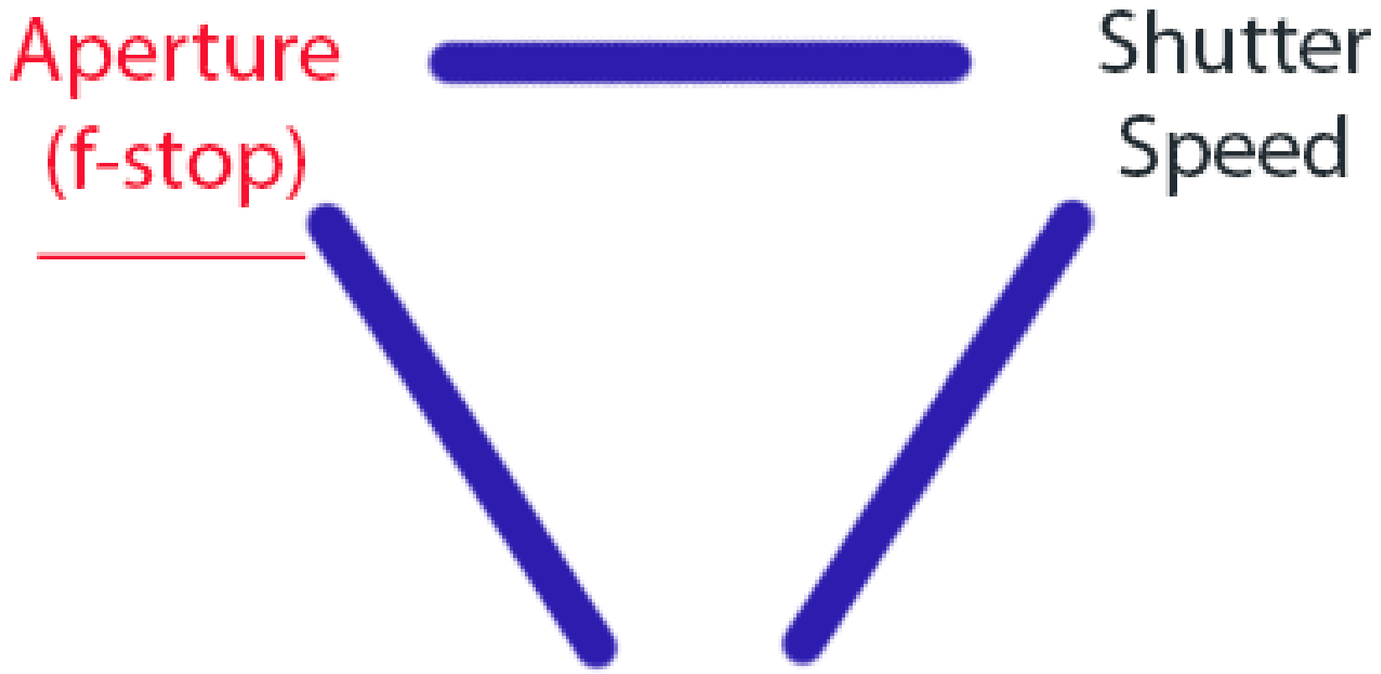
- Proper Exposure
- Focus/Sharpness
- Composition

The Exposure Triangle



3 Elements of Expoure

The Exposure Triangle



3 Elements of Expoure

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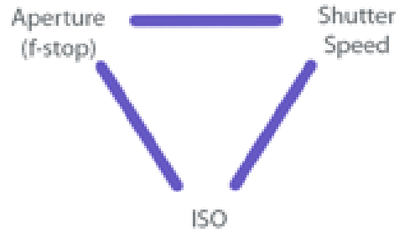


Aperture

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)

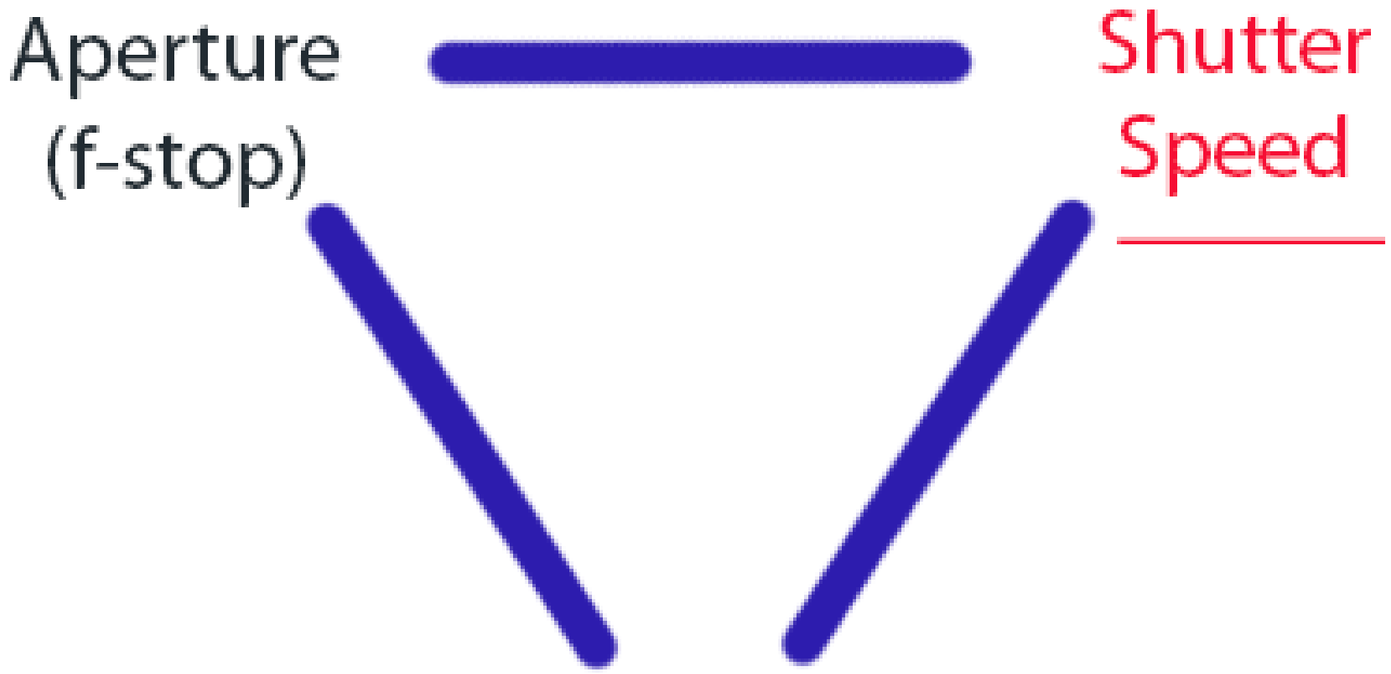
F11

Higher f-stops create
greater depth of field

F4

Lower f-stops create
shallower depth of field

The Exposure Triangle



3 Elements of Expoure

Shutter Speed

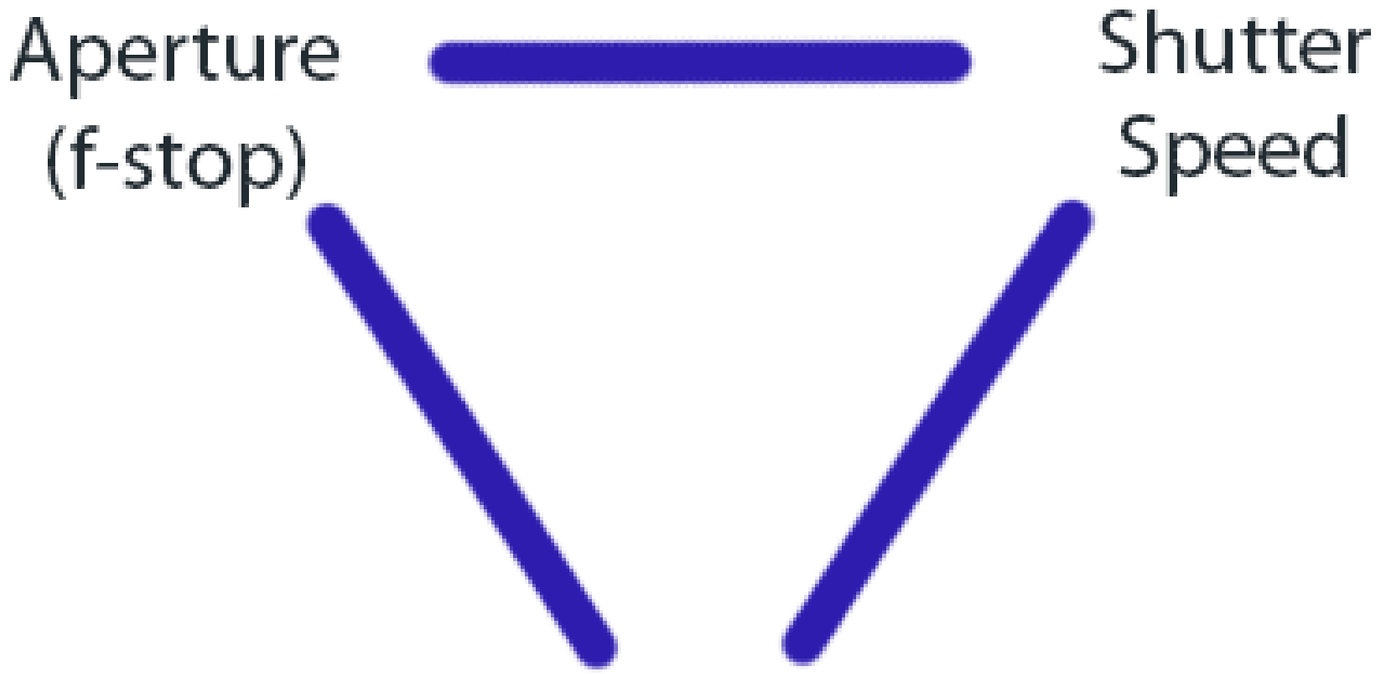
1/8	Tripod
1/15	
1/30	Hand Held
1/60	
1/125	
1/250	Stop Action
1/500	
1/1000	

Freeze Motion

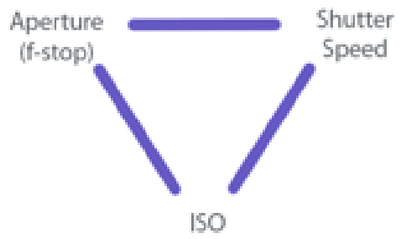
Blur Motion

Shutter Speed

The Exposure Triangle



3 Elements of Expoure

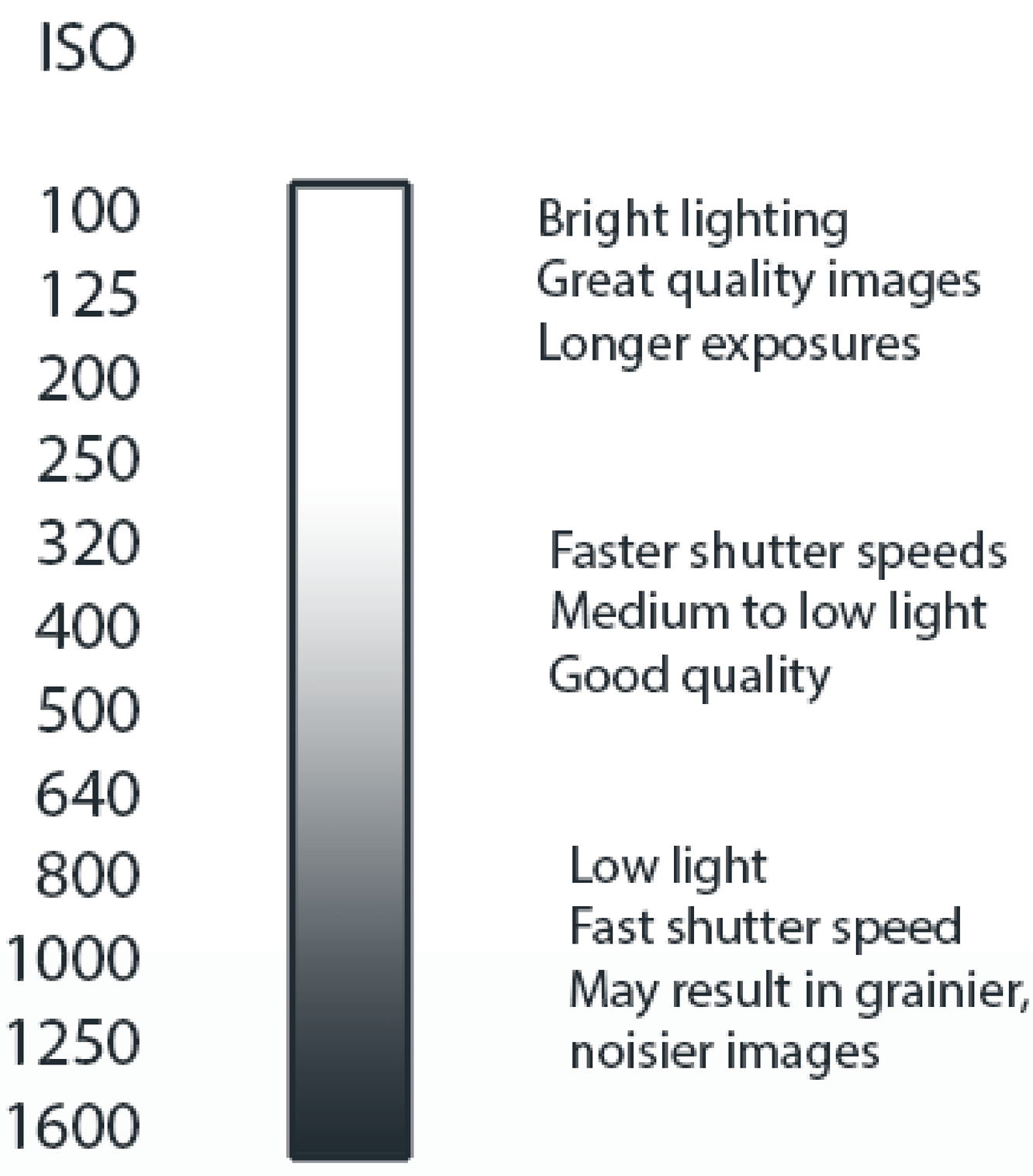


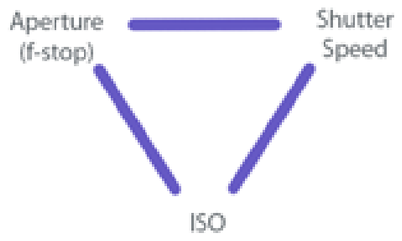
ISO

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

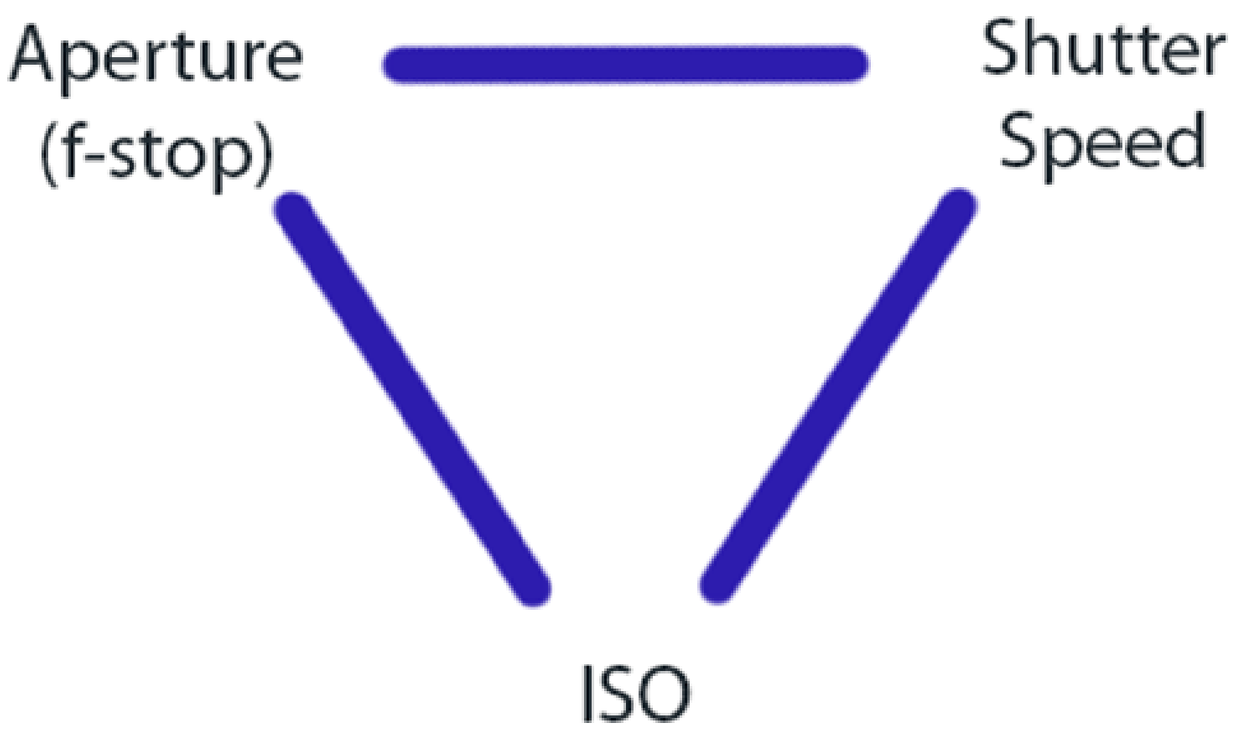
Changing the ISO setting gives you more creative freedom to adjust f-stop and shutter speed.

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

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

F-stops	Shutter Speed	ISO
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5.6	1/125	800
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16	1/500	6400
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32	1/2000	25,600

Reciprocity in Aperture Priority Mode

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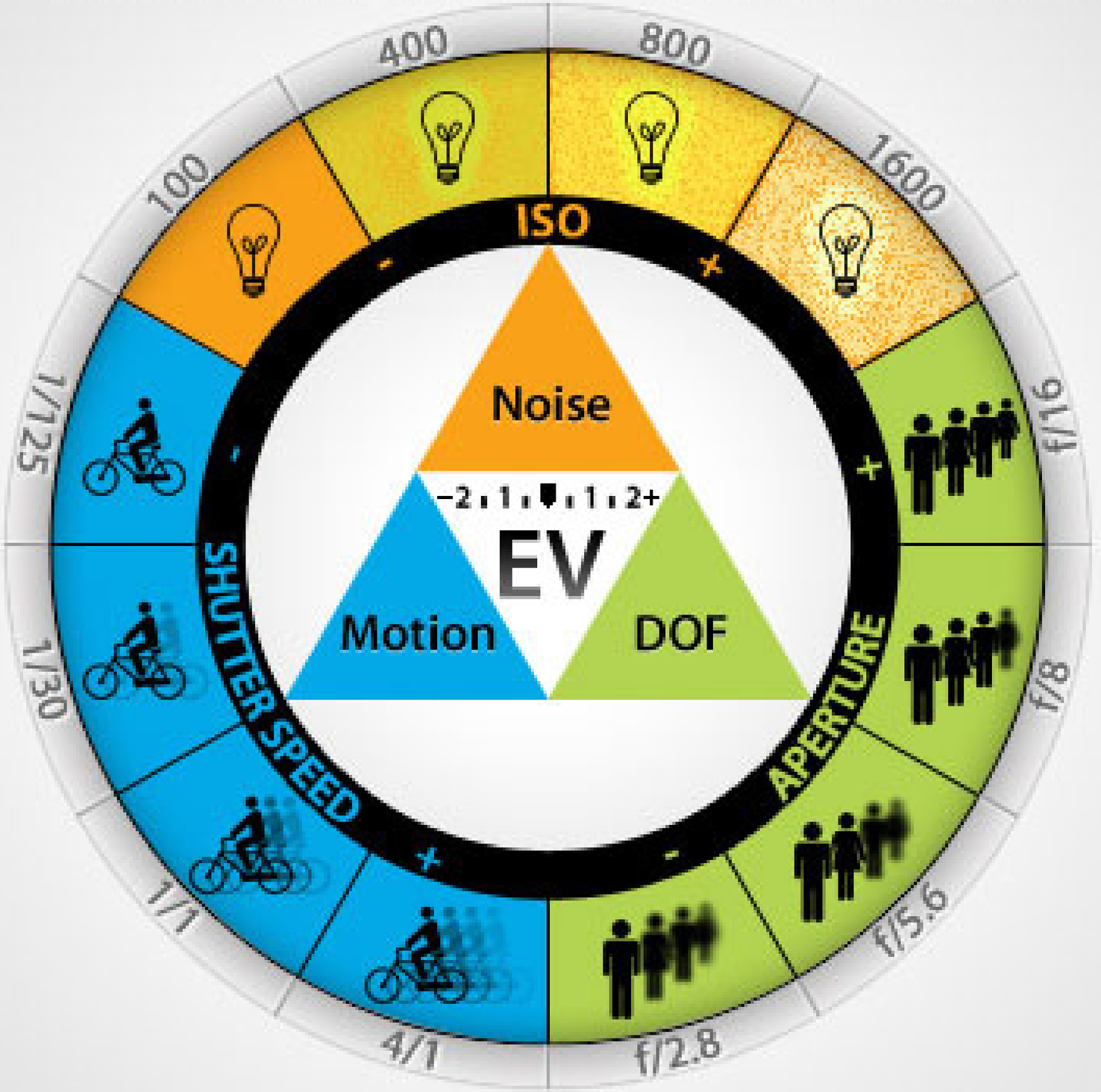
2.8	1/25	200
4	1/60	400
5.6	1/125	800
8	1/250	1600
11	1/500	3200
16	1/500	6400
22	1/1000	12,800
32	1/2000	25,600

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.

Aperture, Shutter Speed and ISO



exposureguide.com

Camera Modes

Nikon Canon

Auto -- Automatic control of exposure and flash

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

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

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

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

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.

F13

24mm

F6.3

F5.6

200mm

F4

F16

400mm

F11

F14

F22

16mm

70mm

F2.8

100mm

f10

F9

F4.5

So what setting should I use?

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.

Use these for now:

- Aperture Priority
  (You set the f-stop, the camera sets the shutter speed)

- Start at f8.

- Experiment with Auto ISO and manual IS settings from 100-800.

- Keep shutter speed above 1/30th sec. (ideally around 1/125th).

- Adjust f-stop and ISO as necessary.

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

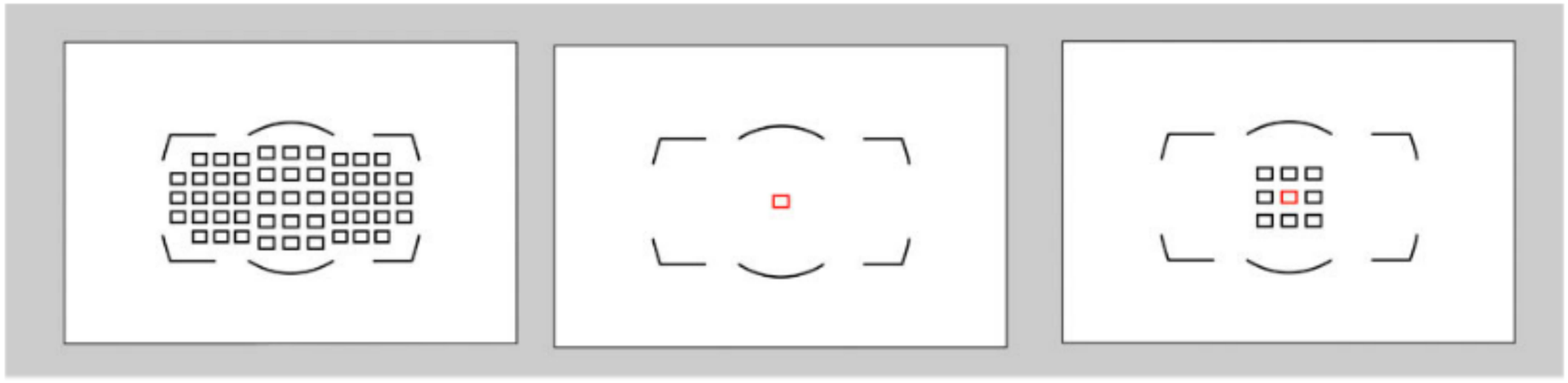
- Shutter Lag
- Press Halfway, then shoot
- Focus Lock
- Focus Points

- Depth of Field / Aperture

- Hold camera steady
- Tripod
- Cable Release

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

Focus Points



Auto Focus Point Selection*

Single Point

Expanded Point

*Not to be confused with Auto Focus

Focus Modes

AF-S One Shot

Locks focus on stationary subject.

AF-C AI Servo

Keeps focus on moving subject.

AF-A AI Focus

Switches between AF-S/One Shot and AF-C/AI Servo.

M M

Manual Focus.

Drive Modes

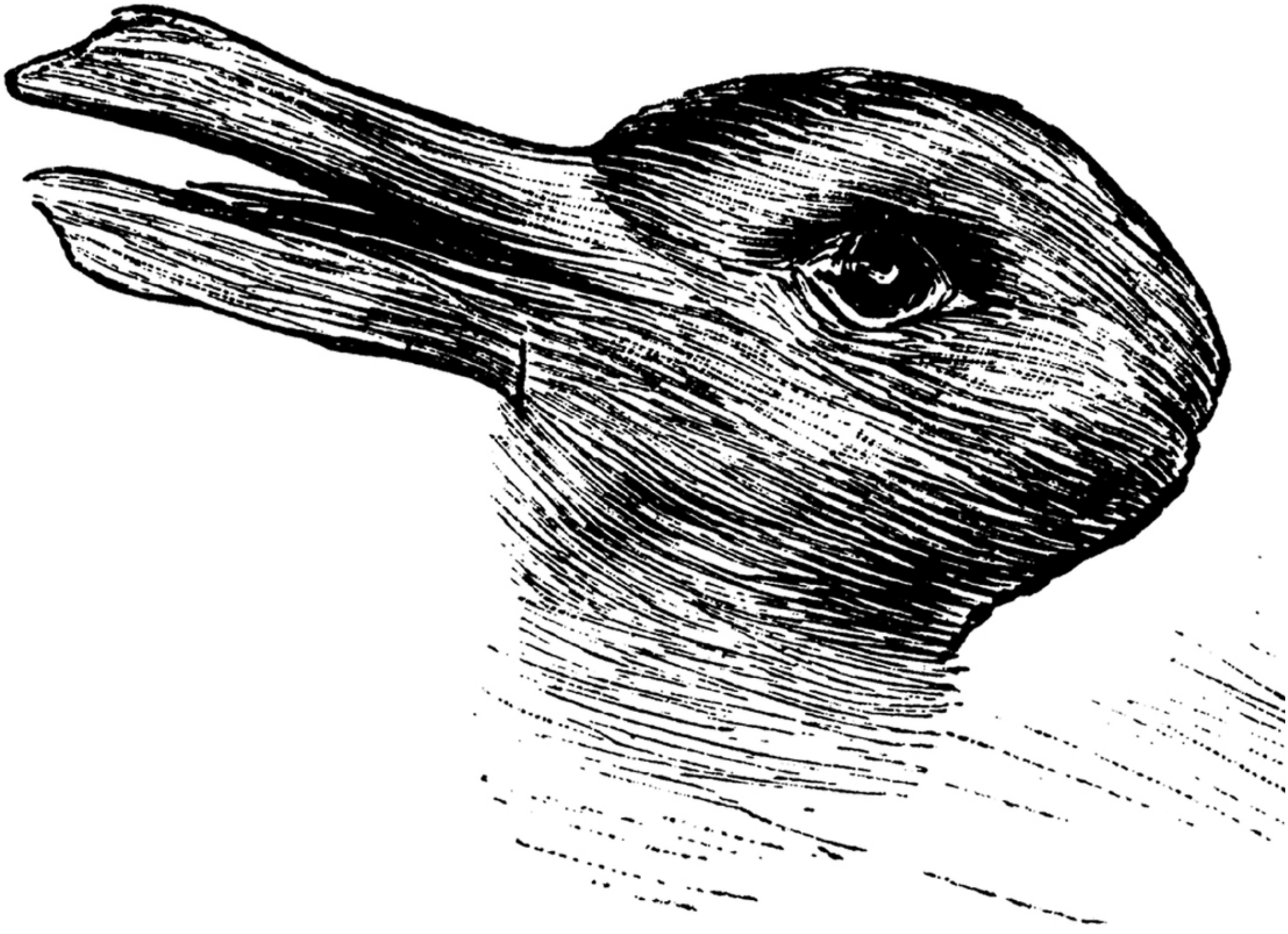
Single Continuous Low Continuous High


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

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.


MASS DEP
SB 54 1316

Balance/Harmony

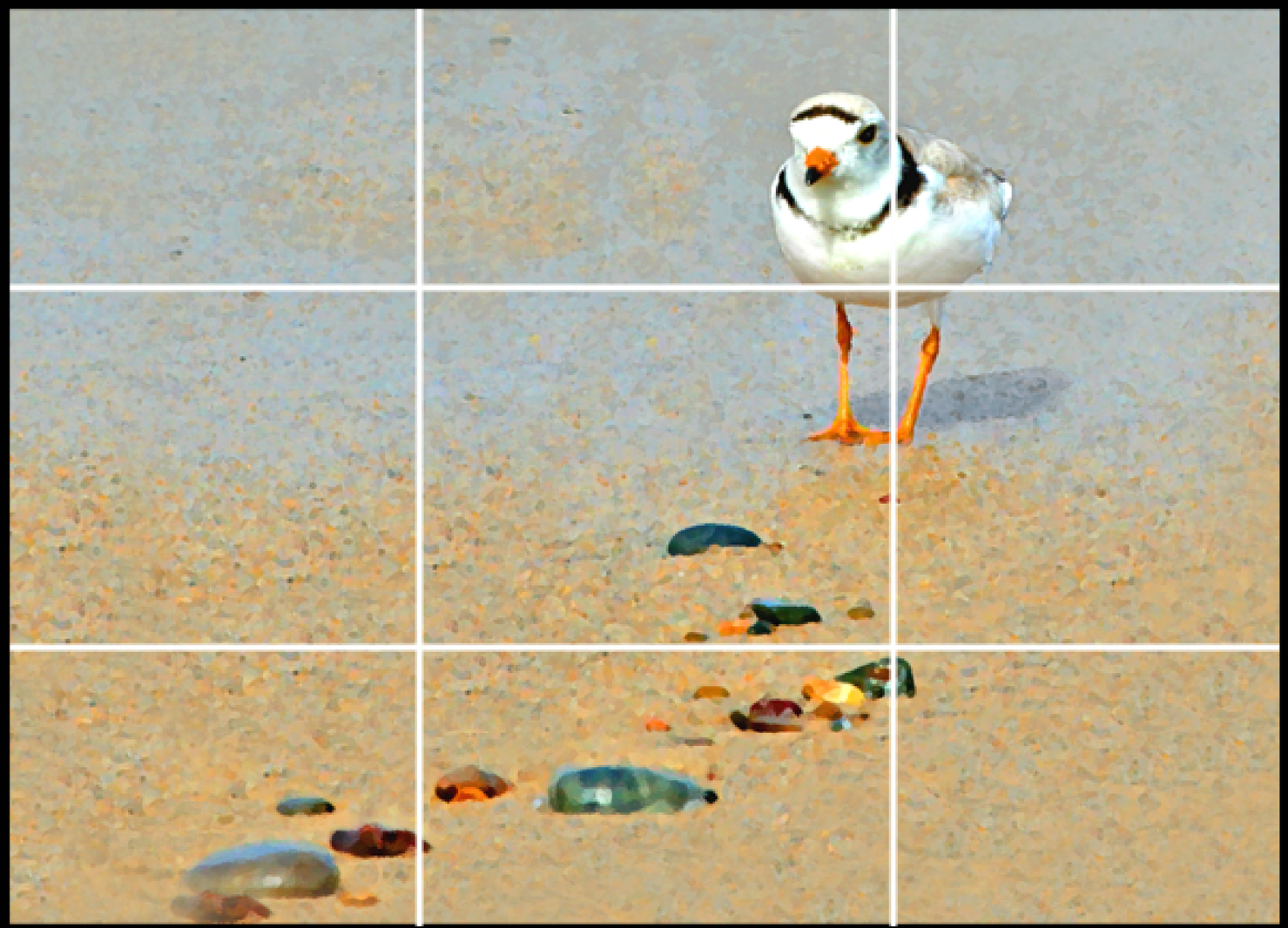
Keep it simple: Fill the viewfinder

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

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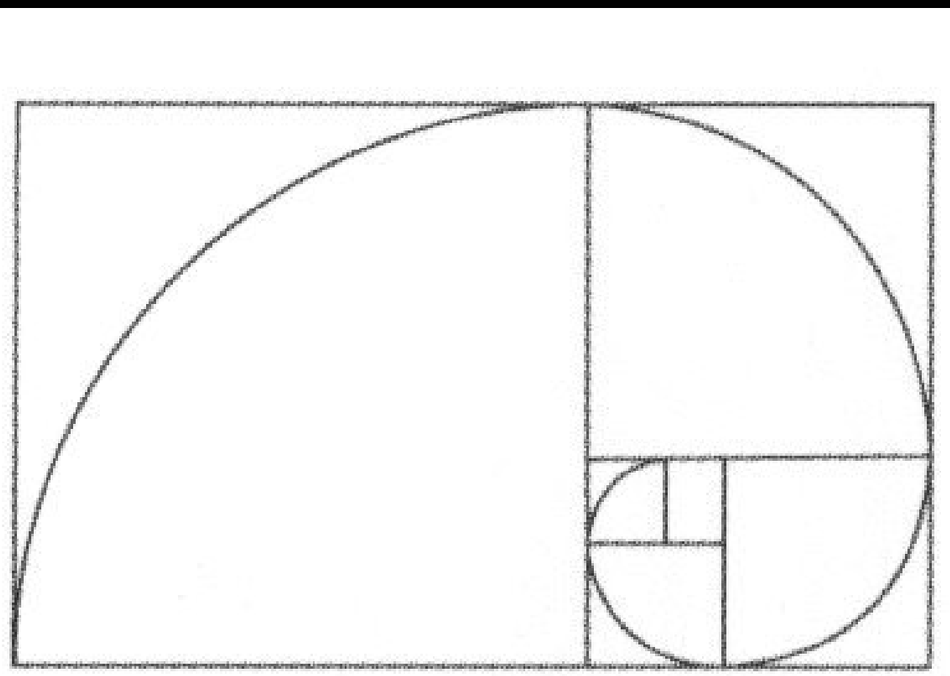
Rule of Thirds

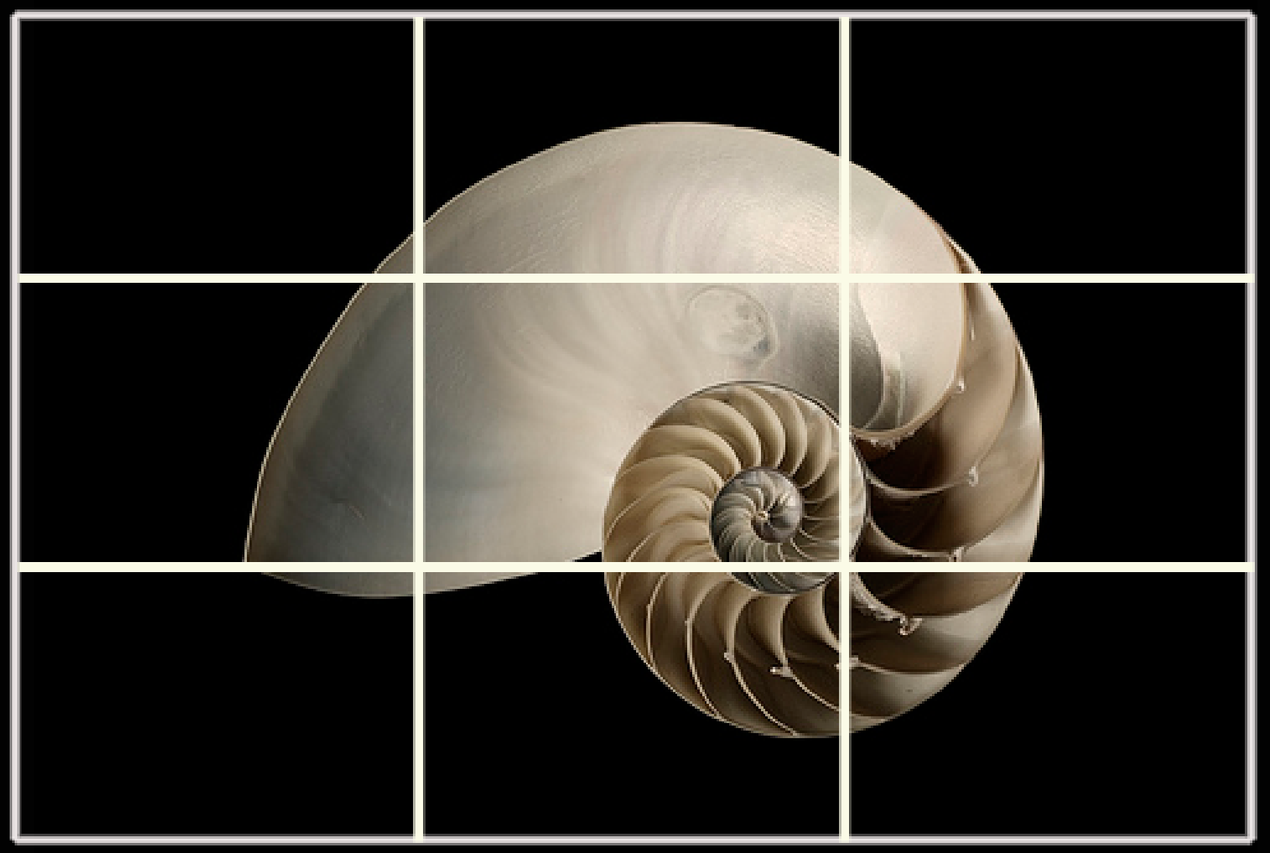


Fibonaci sequence 0, 1, 1, 2, 3, 5, 8, 13, 21, 34...,

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

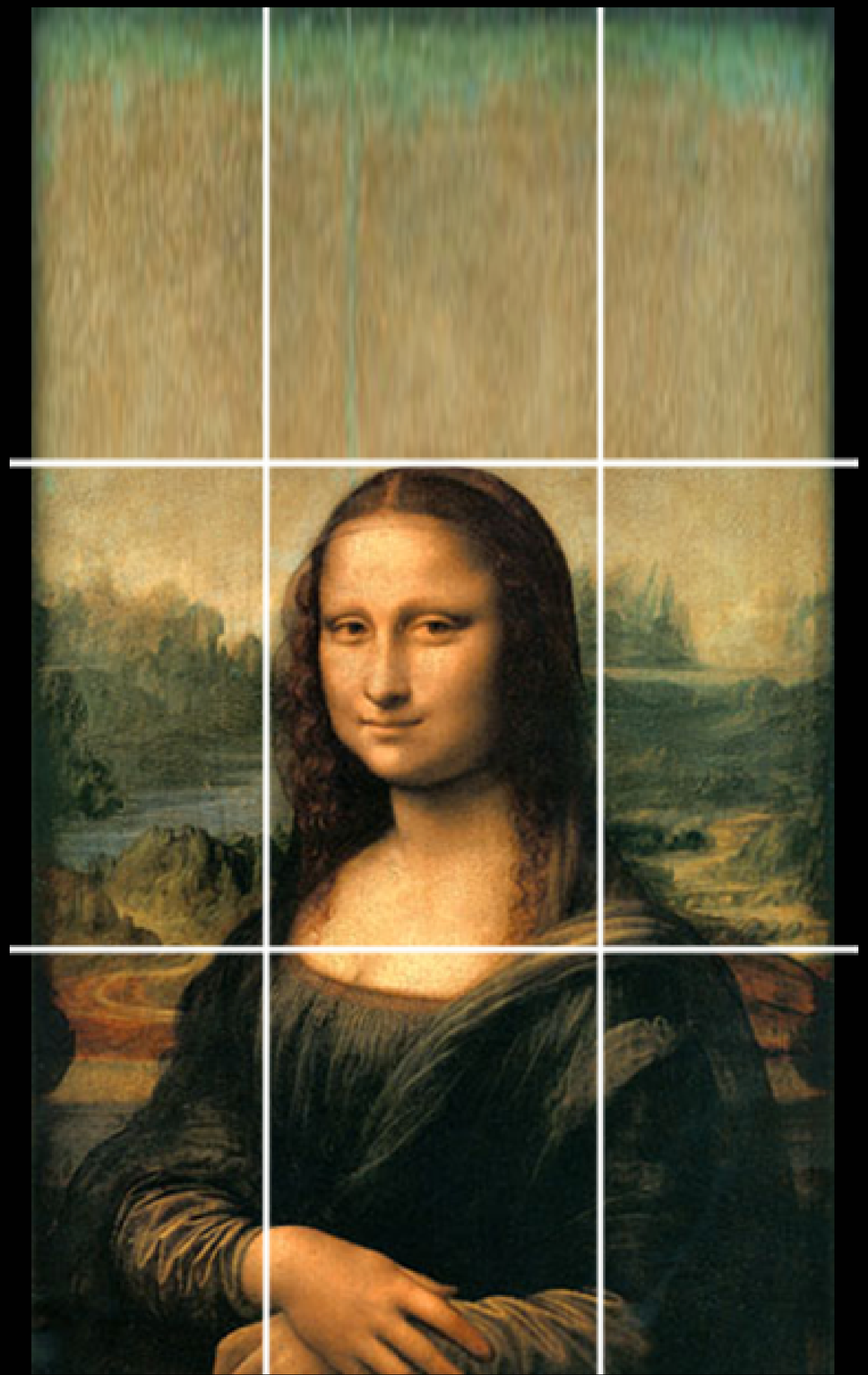
Alfred Eisenstadt - VJ-Day

Rule of Thirds

Alfred Eisenstadt - VJ-Day

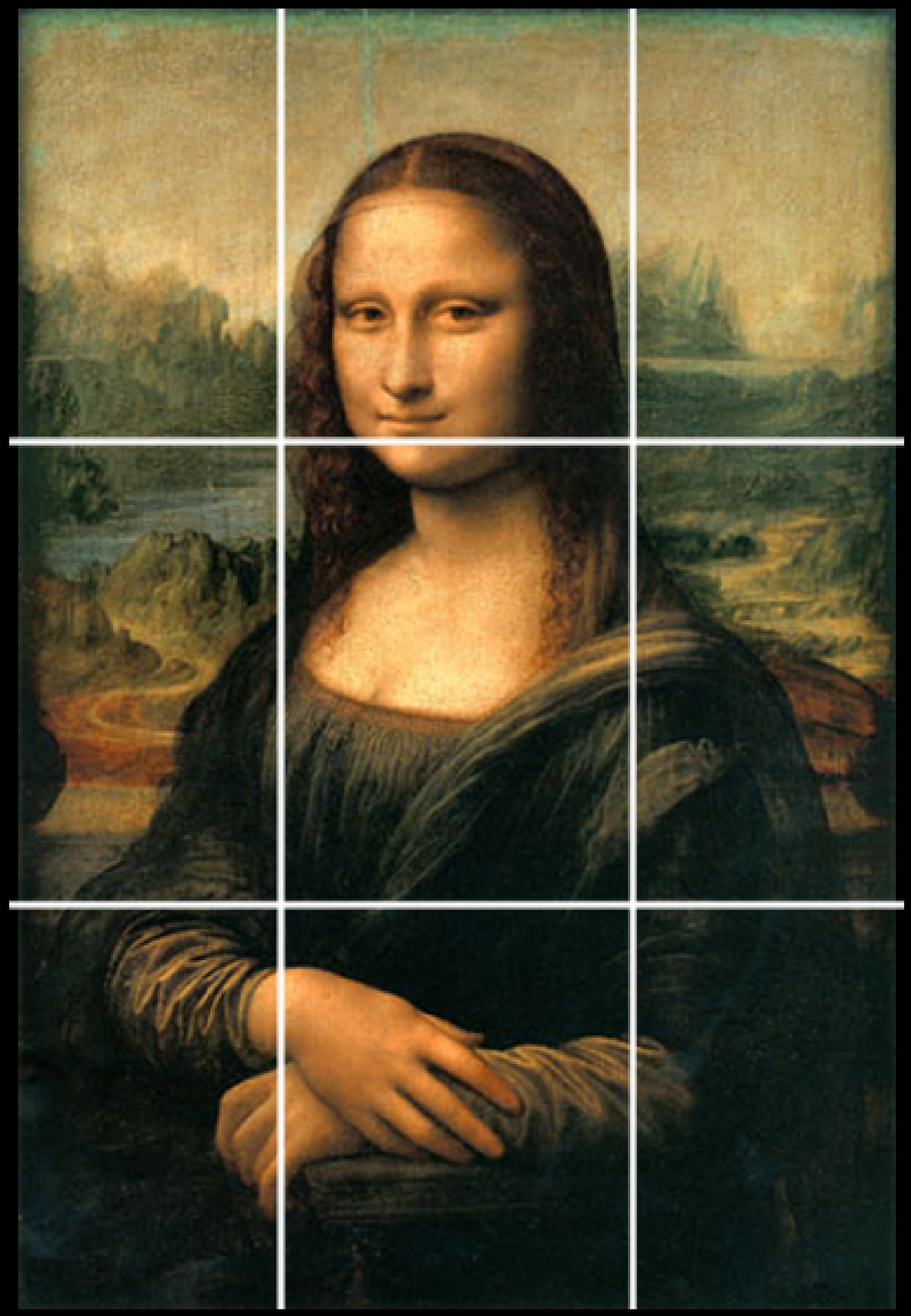
Rule of Thirds

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

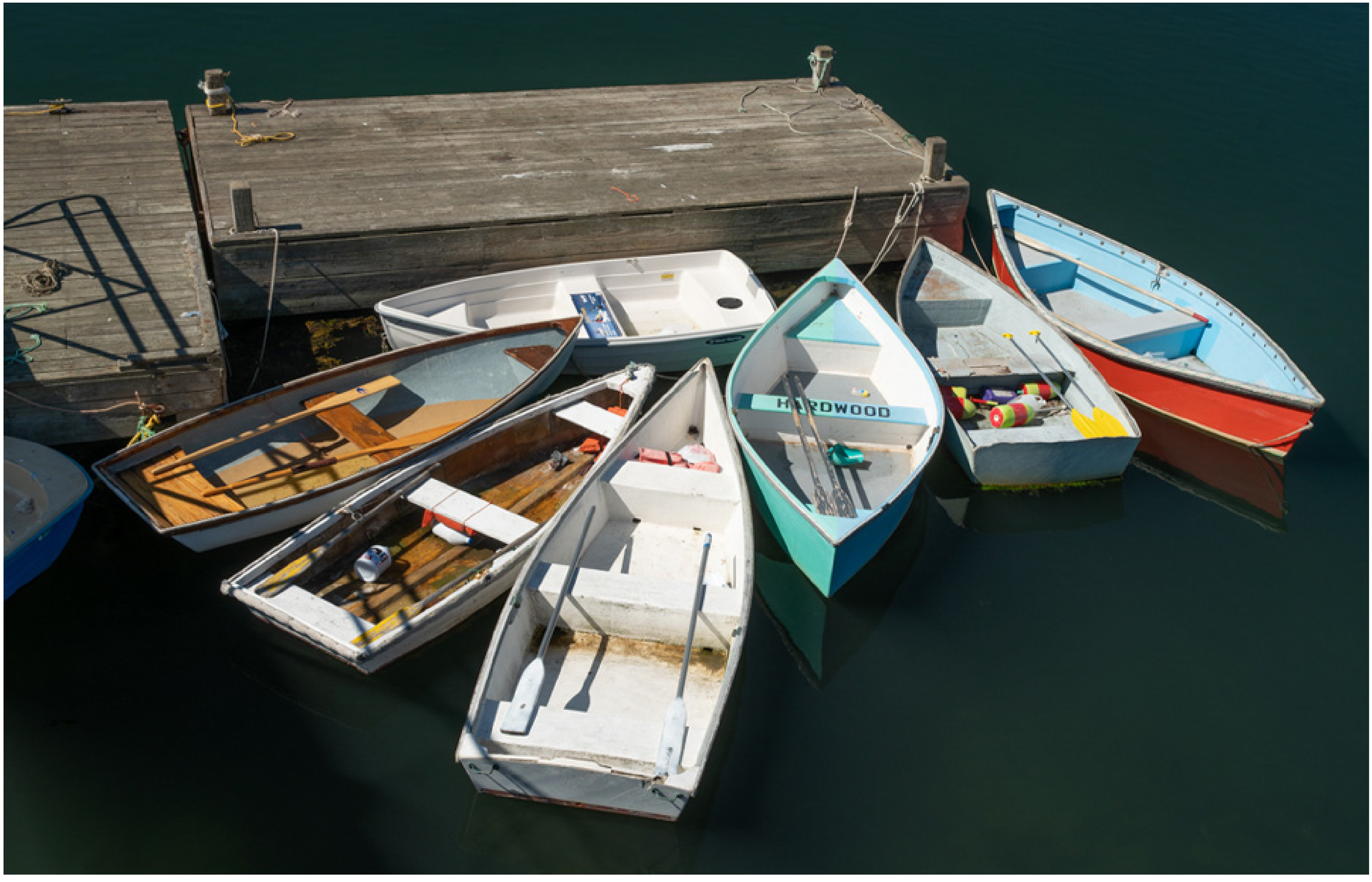
Shoot vertical . . .

Work the Scene

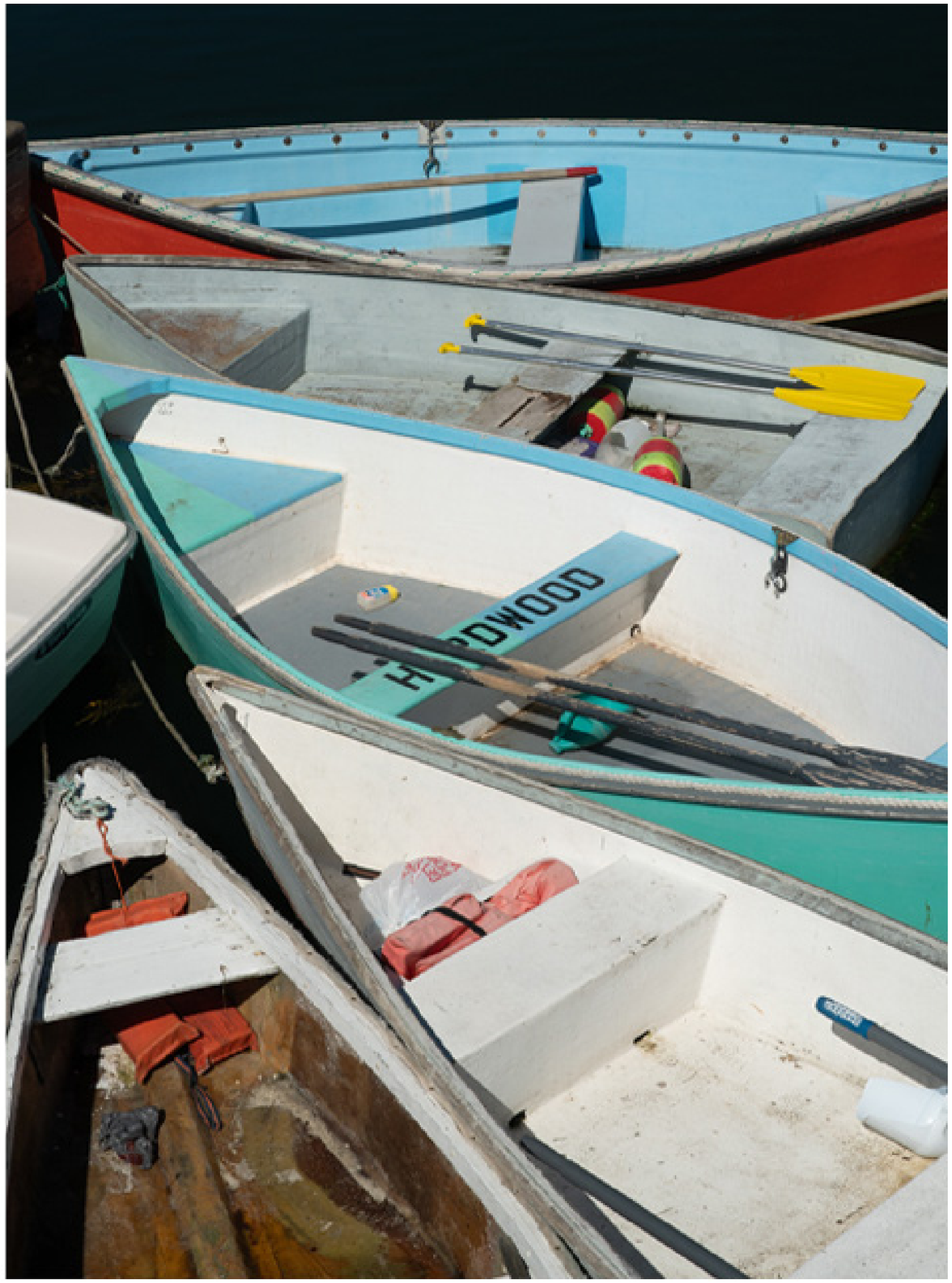
. . . or horizontal. Get in close. Isolate elements.

What you leave out
is as important
as what you leave in.

Move around for different angles...



One way, start wide...



...go tighter...

...isolate a detail.

Start wide...

...isolate a detail.

...go tighter...

Horizontal

Try different framing...

Vertical / Horizon low

Vertical / Horizon high

4 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. Frame the image.
   Tips: Check the edges and corners of the viewfinder.

HOMEWORK

1. Rule of Thirds

2. Framing

3. Work the scence

4. Read manual on focusing

Upload 10 +/- to Dropbox before the next class.

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