



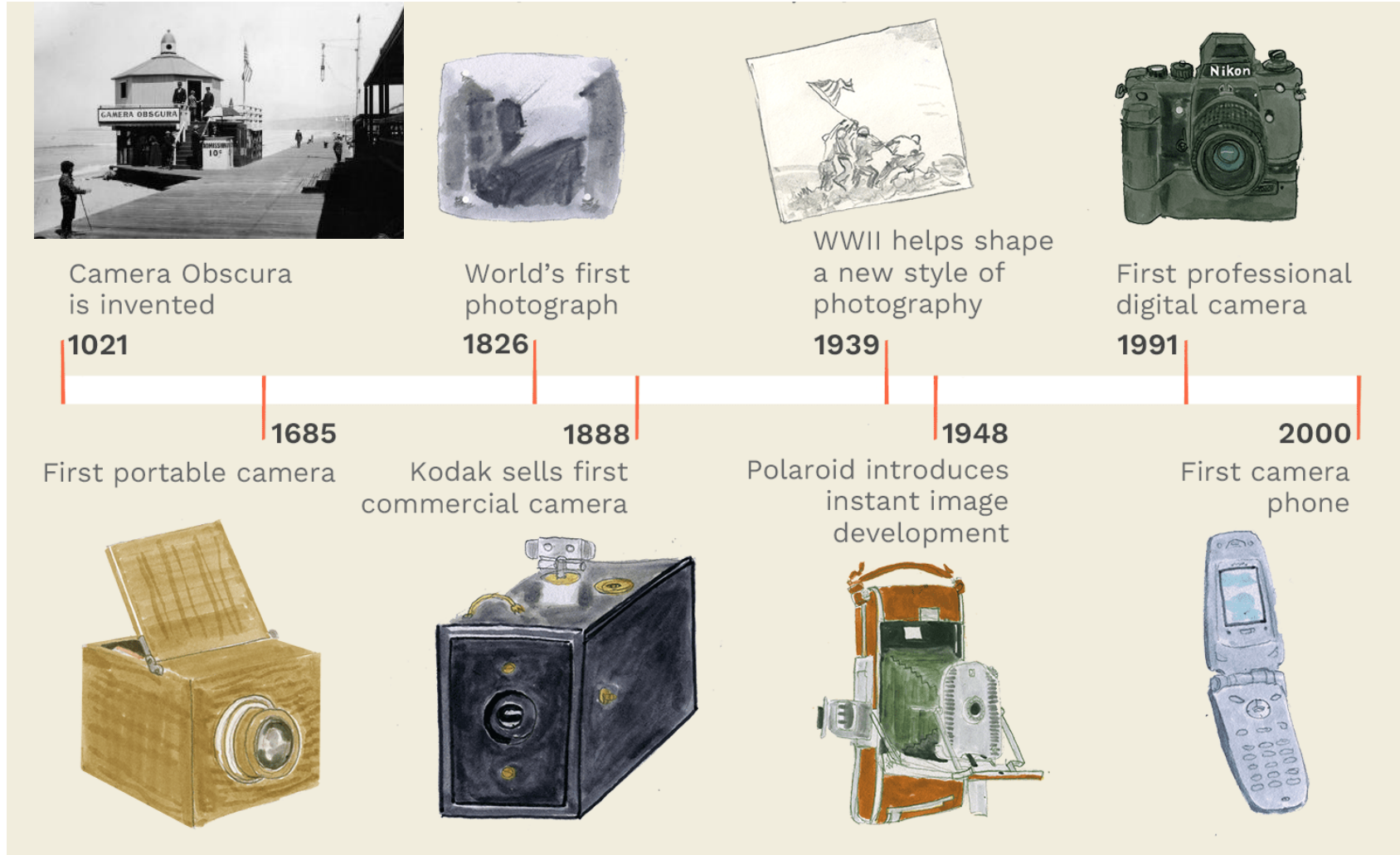
How to Take Great Photos

Presenter: Robin Artiga

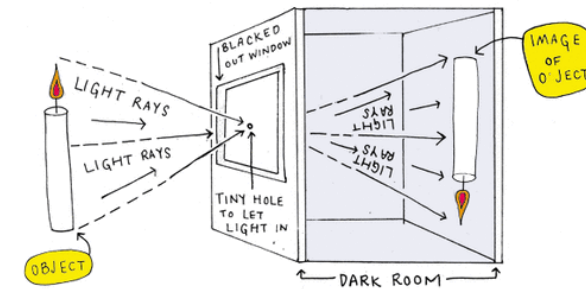
How to take great photos



Brief history



Camera obscura - darkened room with a small hole or lens at one side through which an image is projected onto a wall

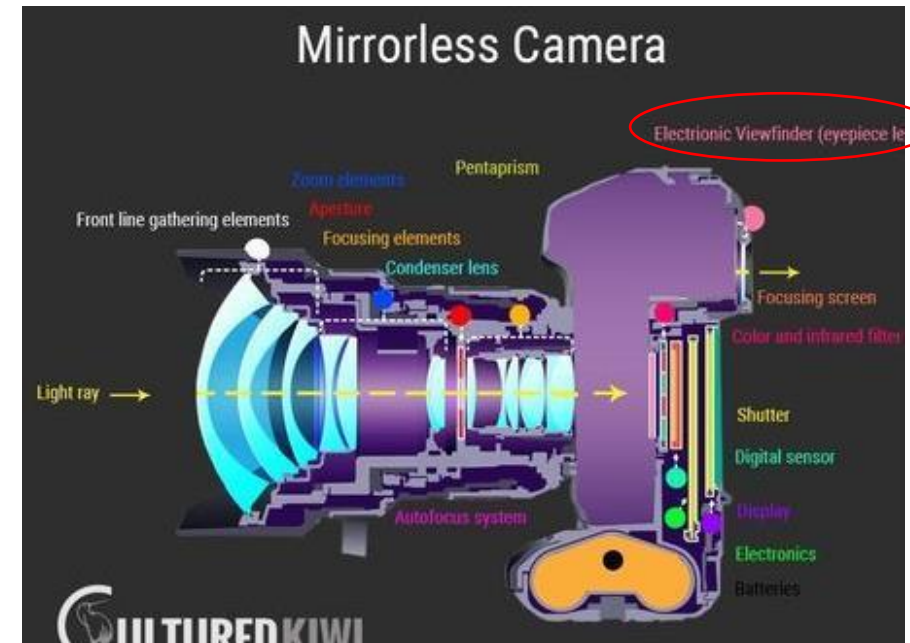


DSLR vs Mirrorless

Light hits a mirror angled at 45 degrees, light goes to viewfinder, true optical path, louder, heavier but longer battery life



Light passes straight through lens to sensor and is processed, electronic viewfinder, faster frame rate up to 120fps, lighter, quieter, latest tech



Keys to taking great photos

- Exposure triangle and camera settings
- Lenses
- Composition
- Time of day/weather
- Research!

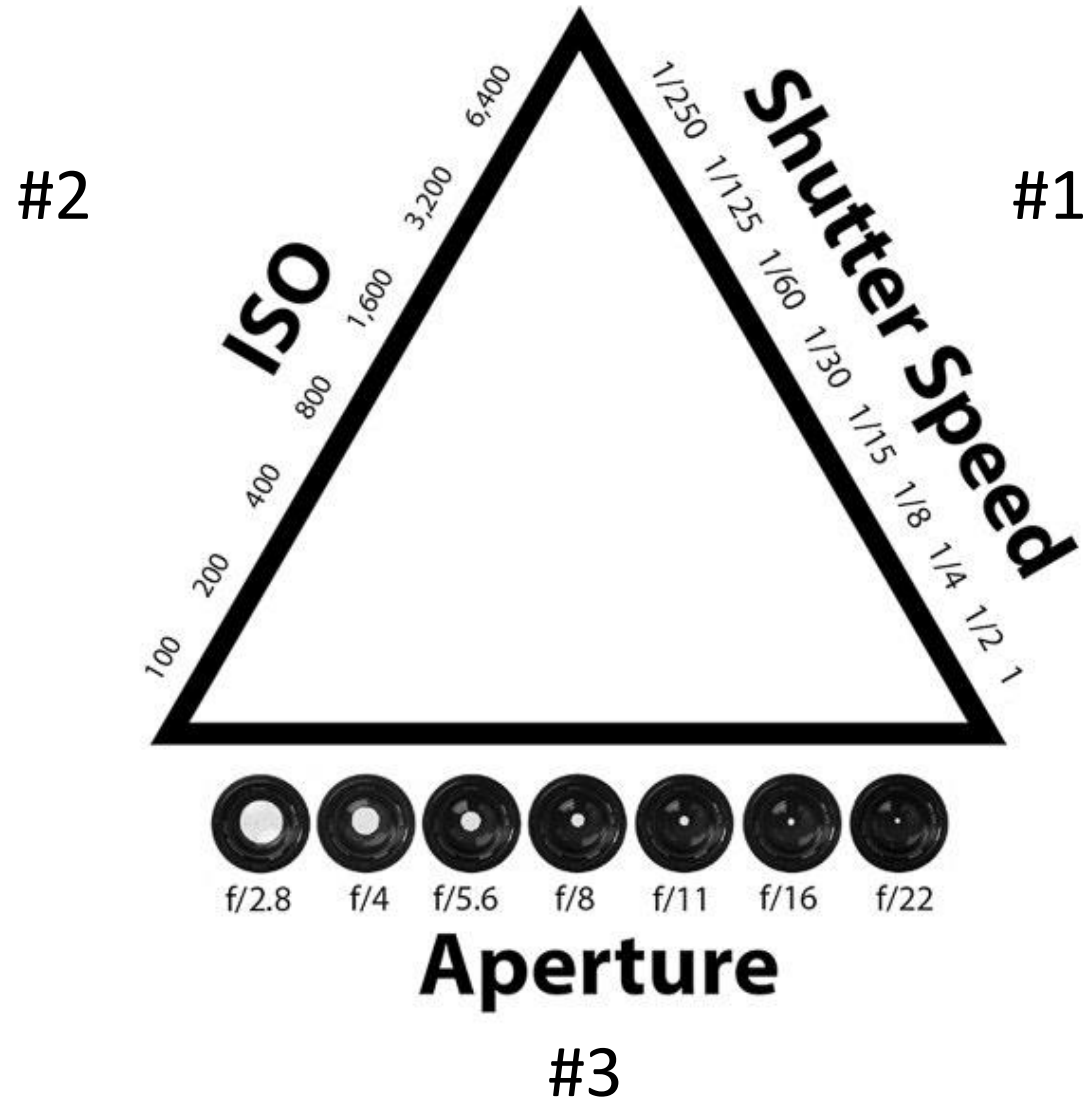


Manual vs automatic shooting modes

- Auto – Camera selects all settings based on scene
 - No time to adjust settings
- Manual (M) – User selects all
- Aperture priority (Av), Shutter priority (Tv), Program (P, user can override) – Camera selects/user selects

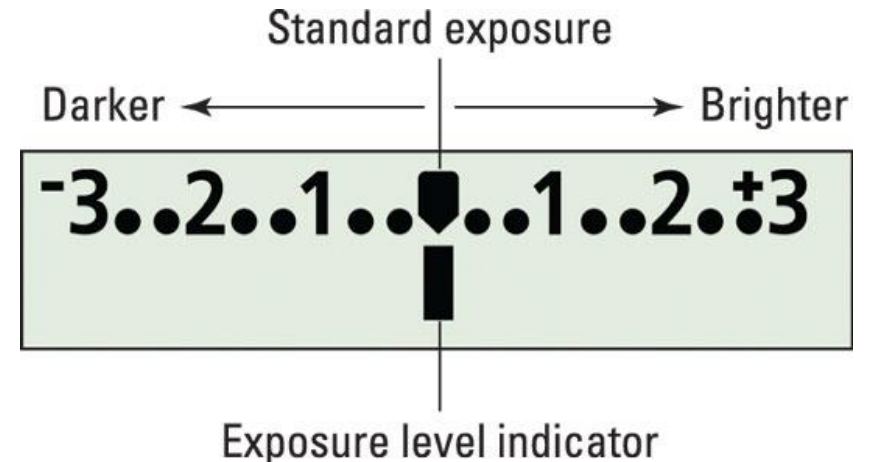
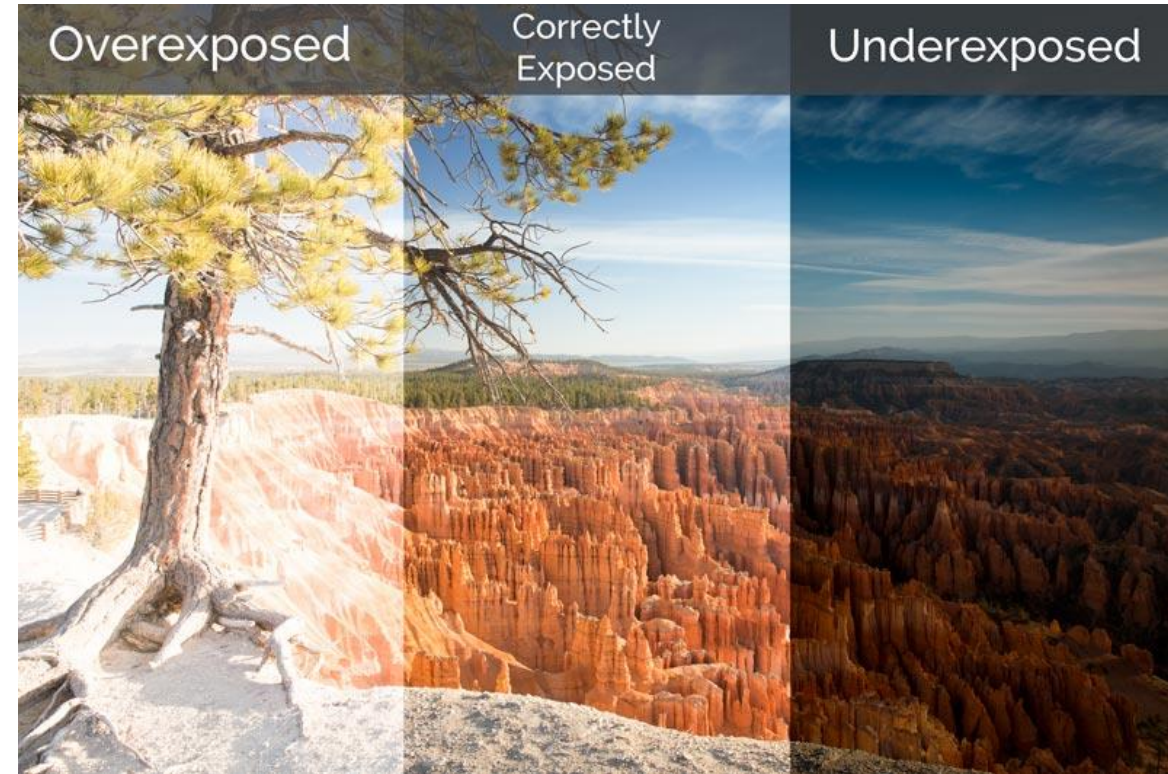


Exposure triangle



Exposure

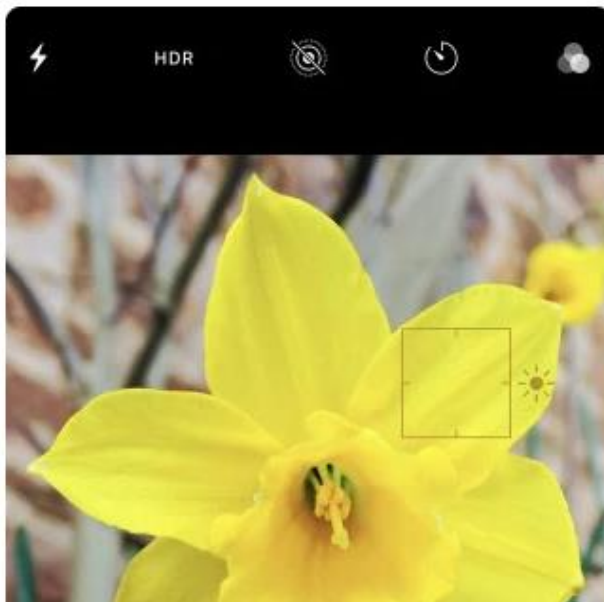
- Meter that shows you if image will be too light or dark
- Negative numbers are underexposed: -2 -1
- “Perfect” / standard exposure 0
- Overexposed: +1 +2
- Preserve highlights
- Exposure simulation





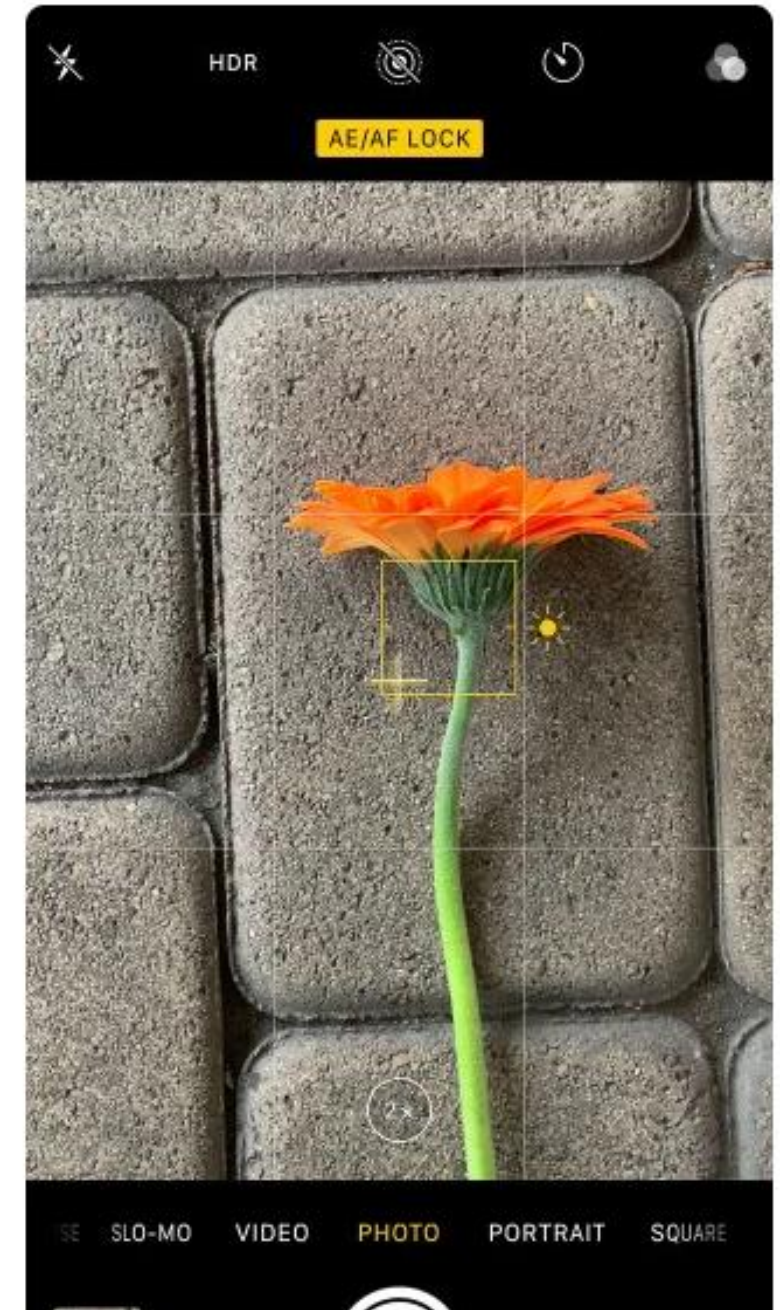
Focus & Exposure iPhone

- To set your focal point, tap the area on the screen that you'd like in sharp focus (yellow square appears)
- Once you set focus, you can set exposure
- Swipe up (bright) or down (dark) on screen



Focus & Exposure iPhone

- To lock focus and exposure, tap and hold screen where you want to focus
- A yellow box with AE/AF Lock will appear
- To unlock focus and exposure, tap anywhere on the screen



1. Shutter speed

- Length of time your shutter is open and exposing the sensor to light
- More light, brighter image = faster shutter
- Less light, darker image = slower shutter
- Blur or freeze motion
- Examples:
 - Photographing flying birds in daylight, 1/2000 sec
 - Photographing slow moving bear 1/50 sec
 - Photographing waterfall at dusk, 5 sec





Shutter speed

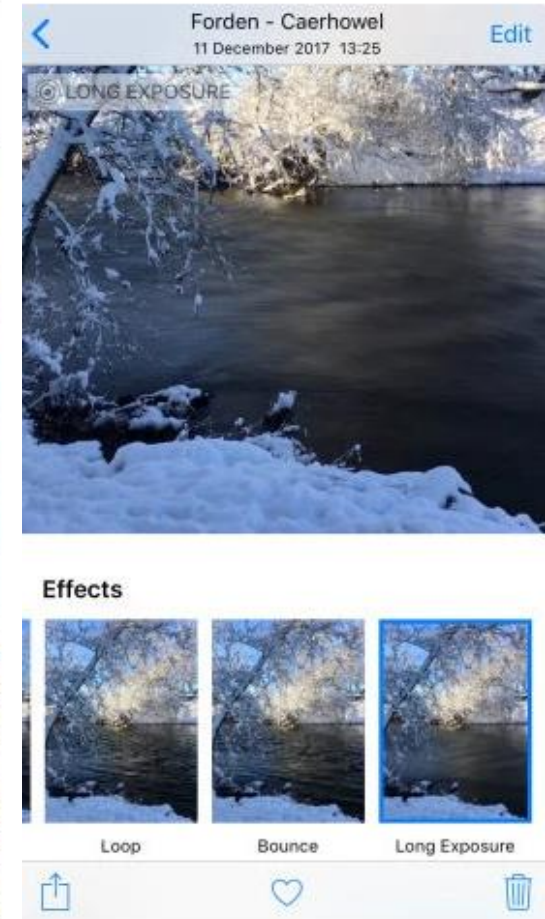


no worries				be careful		use tripod						
1/2000 s	1/1000 s	1/500 s	1/250 s	1/125 s	1/60 s	1/30 s	1/15 s	1/8 s	1/4 s	1/2 s	1/3 s	30 seconds (and beyond)
				■	■	■	■	■	■	■	■	■
bright outdoors				outdoor/indoor			indoor/night					camera+ extended range



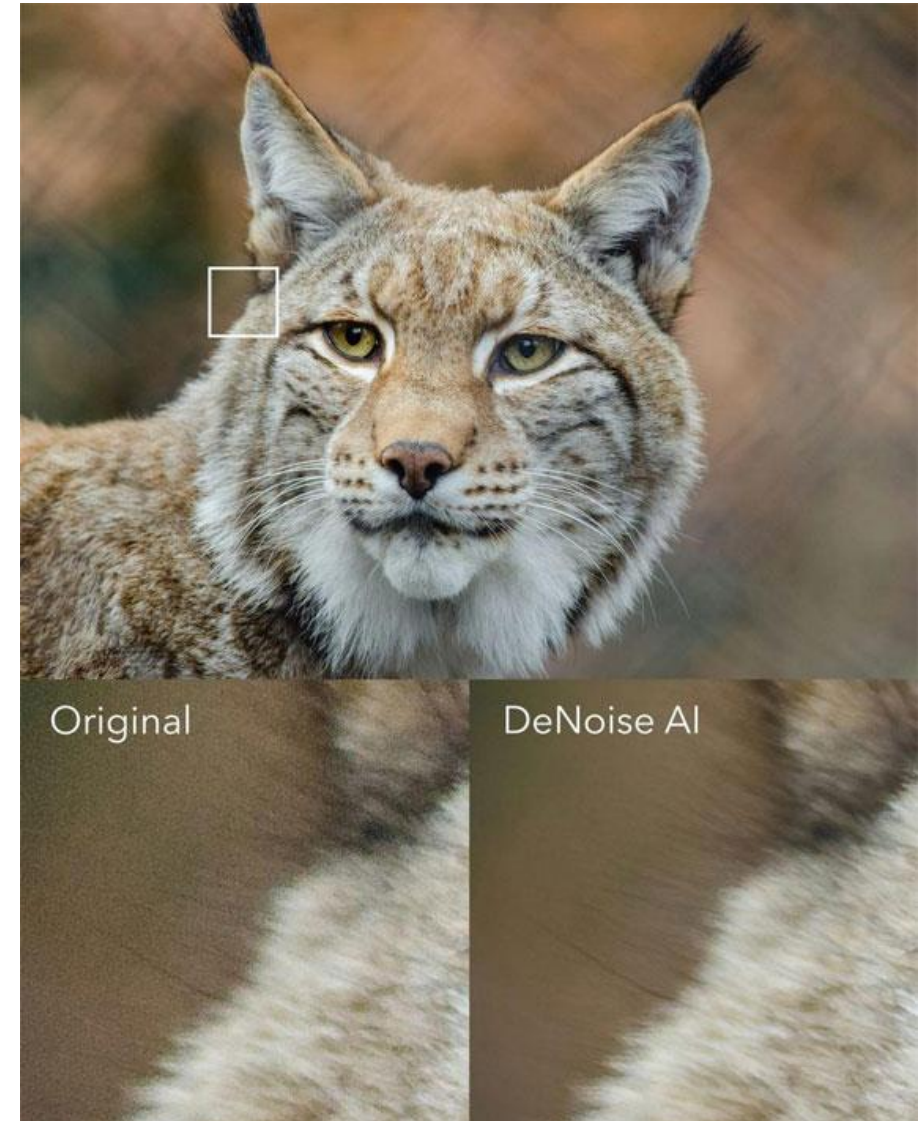
Shutter speed iPhone

- Create a long exposure in the Live Photo feature of the Camera app
- Tap shutter button to record a 3 second live photo
- Swipe up to access Live Photo Effects or Live arrow > Long Exposure
- Any movement = motion blur
- Remember to turn Live off

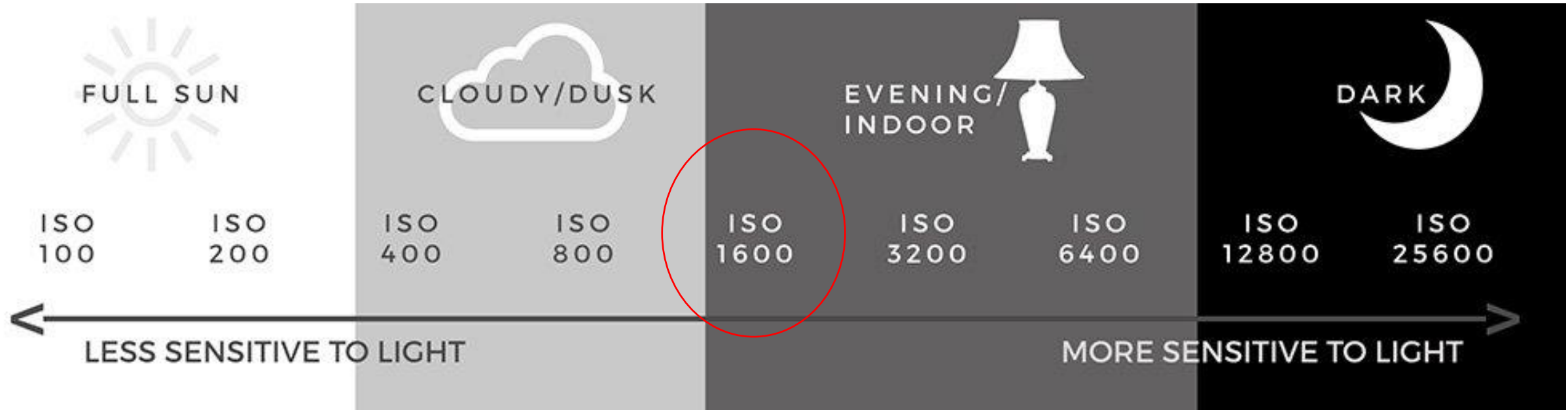


2. ISO

- ISO is the sensitivity of your camera's sensor to light (grainy-ness)
- Lots of light, lower ISO (100) = less noise
- Less light, higher ISO (6400) = more noise
- Know your camera's limits! 1600?
- Can set maximum sensitivity
- Exception: night photography
- Topaz DeNoise, Photoshop CS



ISO



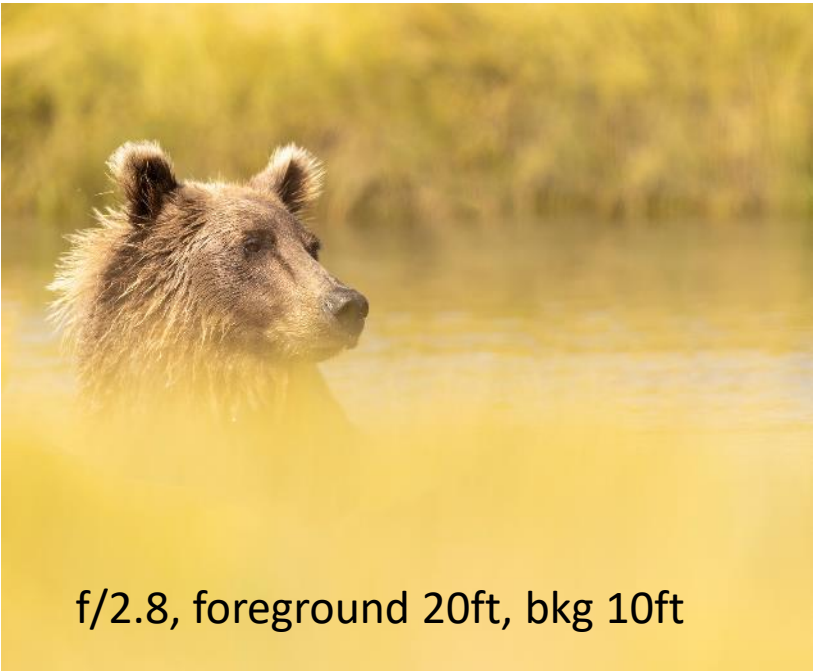
ISO iPhone

- You need to download a special app to adjust ISO on your camera phone: Camera+ 2 (subscription)
- Select Manual shooting mode, tap shutter speed, adjust ISO slider

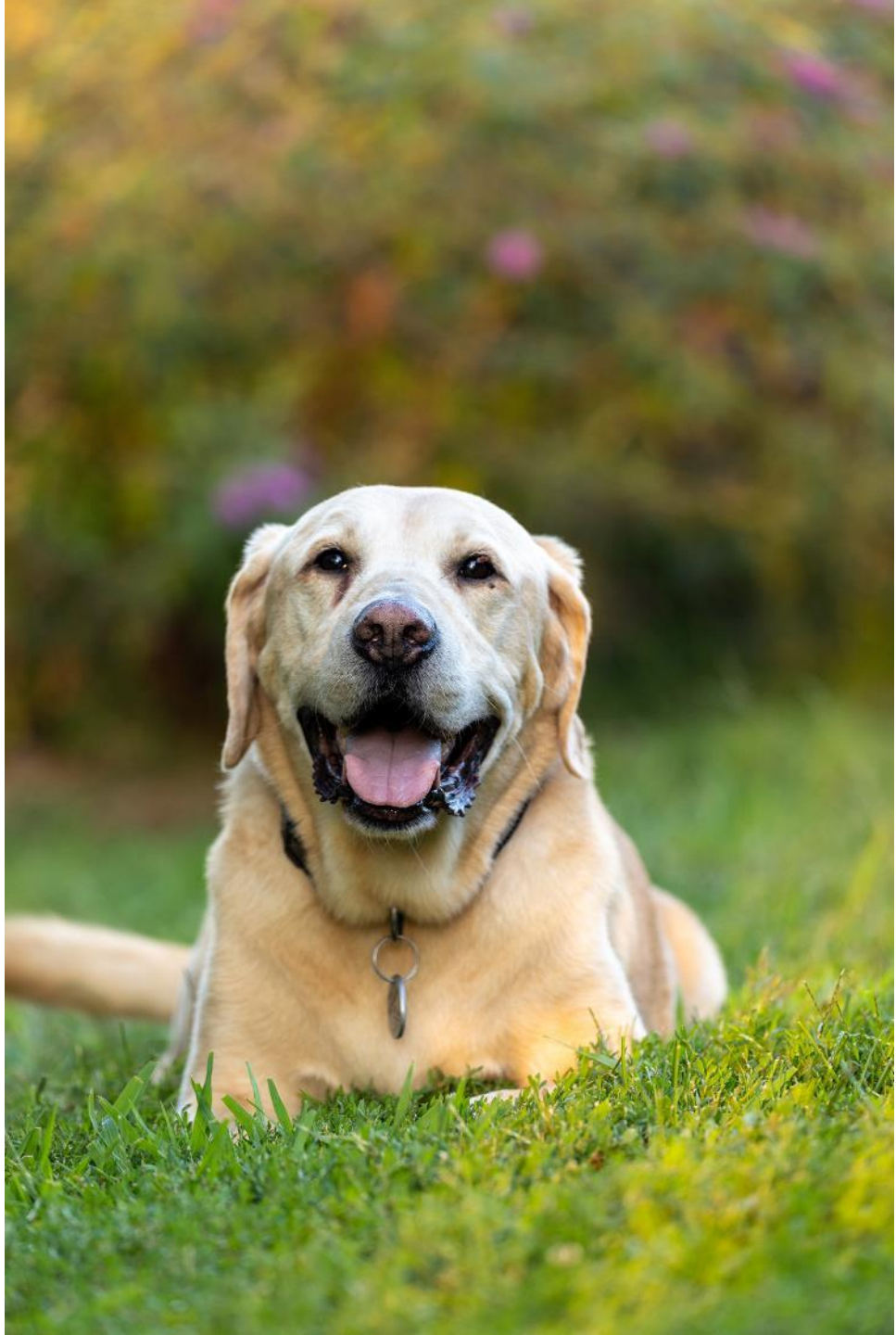
3. Aperture

- Opening in a lens through which light passes to enter camera (human iris, pupil of camera)
- Depth of field: how blurry or in focus the background is
- This number is called an f-stop or f-number
- $f/1.4$ lowest (shallow DOF) and $f/22$ highest (deep DOF)
- For landscapes, want deep DOF
- For portraits, want shallow DOF (iPhone portrait mode), bokeh lights
- For wildlife, either!



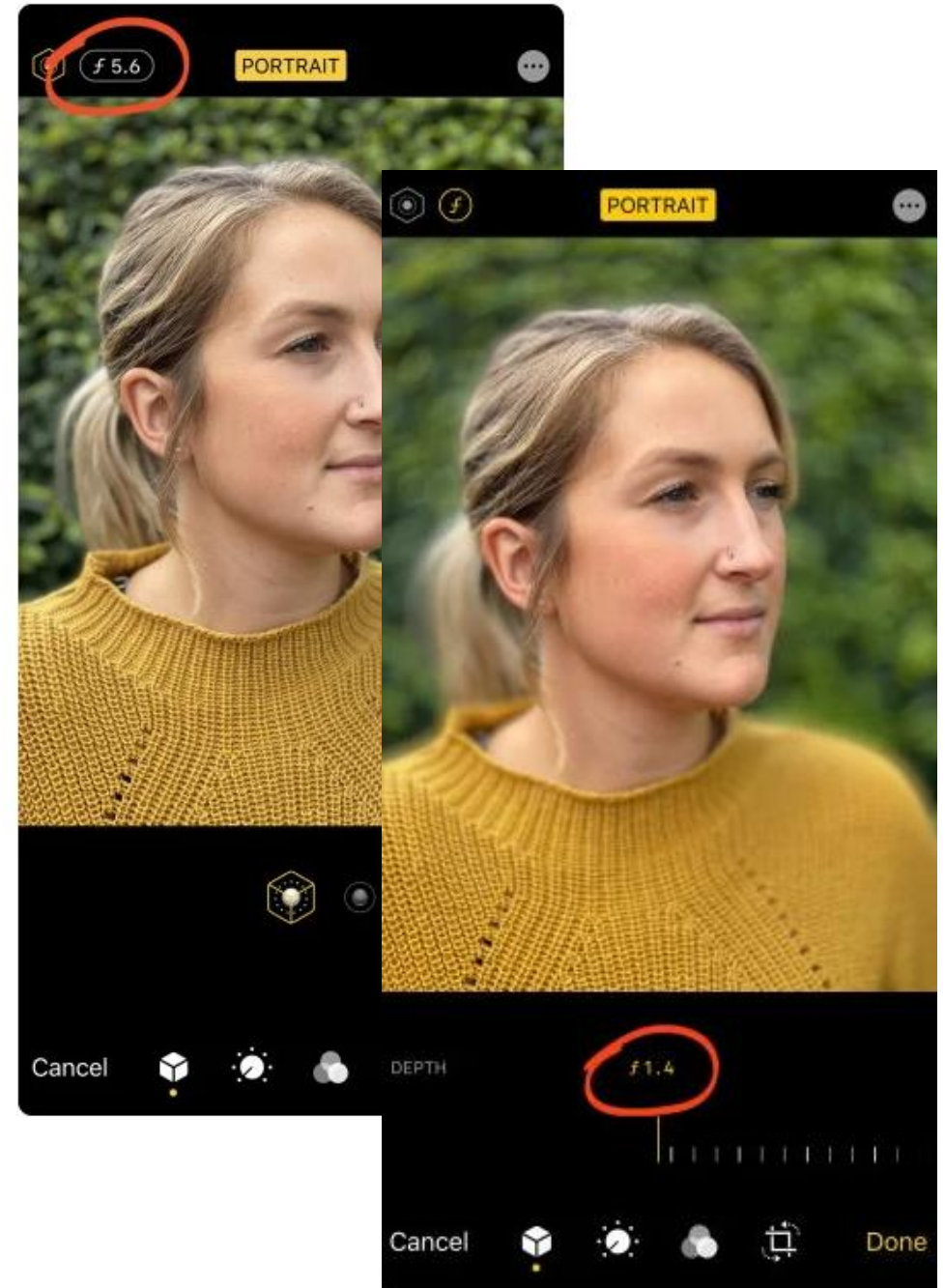


f/1.4	f/2.8	f/5.6	f/11	f/22
Very Large Aperture	Large Aperture	Medium Aperture	Small Aperture	Very Small Aperture
Very Small Depth of Field	Small Depth of Field	Medium Depth of Field	Large Depth of Field	Very Large Depth of Field
Almost Nothing In Focus	Little In Focus	Some In Focus	Much in Focus	Almost All In Focus
Brightest	Bright	Medium	Dark	Darkest



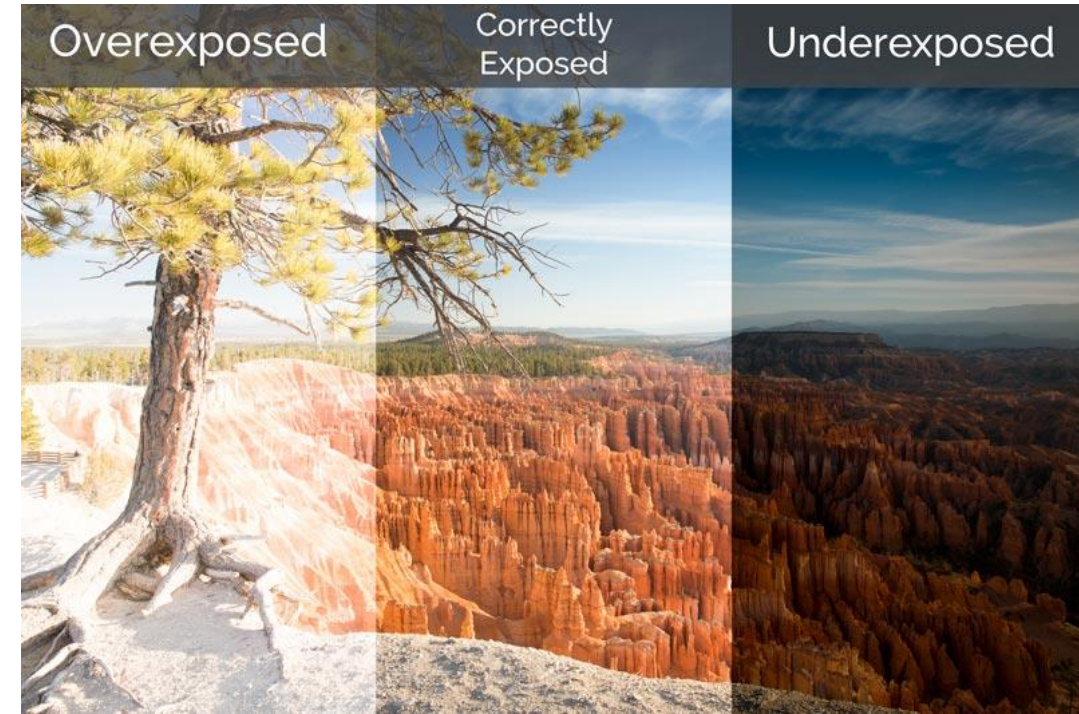
Aperture iPhone

- Portrait mode uses depth-effect software to blur backgrounds
- Make sure subject is 2-8ft from camera (or receive warning message)
- Tap to focus on subject, take photo
- To adjust blur strength, open portrait photo in Photos app, tap edit, tap f/ number to get the depth of field slider



Scenarios

- If photo is too dark
 - Decrease shutter speed
 - Select lower f stop (aperture)
 - Increase ISO (be aware of more noise)
- If it's too light
 - Increase shutter speed
 - Select higher f stop (aperture)
 - Decrease ISO
- As a general rule, I care most about freezing motion, sharp focus point, limited noise, no blowing highlights (overexposure)



Lenses and Focus

- Focus auto or manual
- Lower the mm, wider the lens (14 mm)
 - Bends angle, exaggerates circles, distortion
- Larger the mm, telephoto/zoom (600mm)
 - Straight lines, compression, can be \$\$\$





Lenses and Focus

- Always want eyes to be in focus!
 - What if there's more than 1 subject (e.g. group of people)?
 - Bird/animal/human eye detection
 - Eye tracking
- If photographing plants/macro, might want to select the focus point manually





Tripod

- Travel tripod
 - Lbs matter! Carbon fiber vs aluminum
 - Price
 - Temp
 - Size/weight
 - Double lens + camera weight
 - Convert to monopod?
 - Pack in luggage or personal item
- No tripod needed?
 - Wildlife, pets, obedient kids(?)
 - Low to ground?



Composition

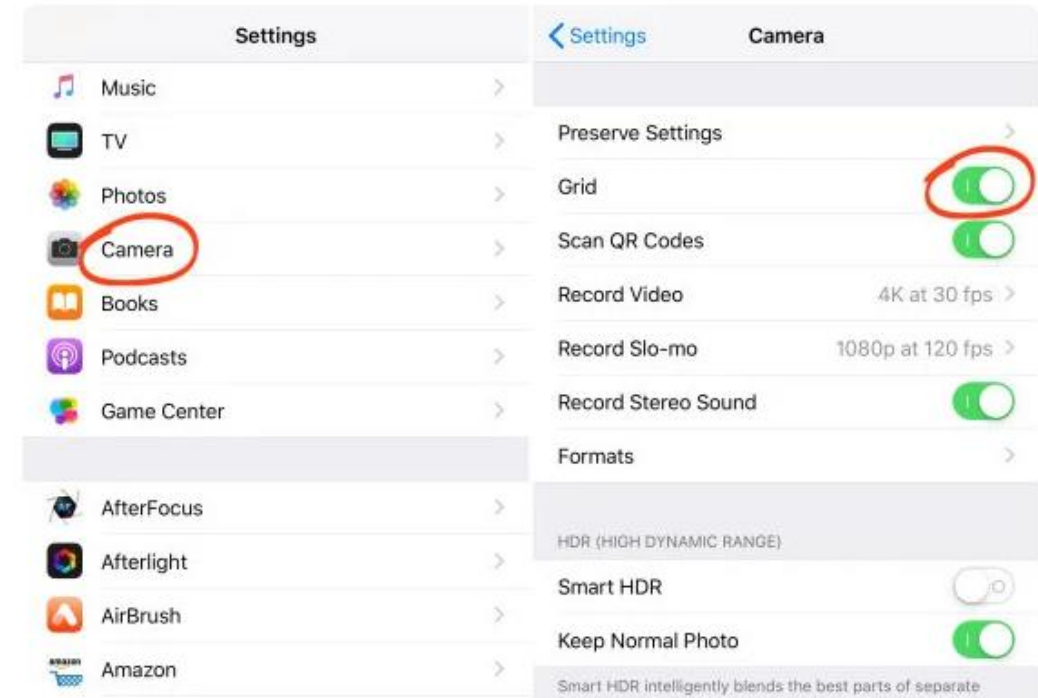
- The way the various elements in a scene are arranged within the frame
- Many compositions have been used in art for thousands of years
- Not “rules” but guidelines
- Most popular: rule of thirds

The idea is to place the important element(s) of the scene along one or more of the lines or where the lines intersect.



Rule of thirds on iPhone

- To turn on the grid: open the Settings app, select Camera, make sure grid option is on (green)





Fibonacci Spiral



golden triangles



framing



balance of elements

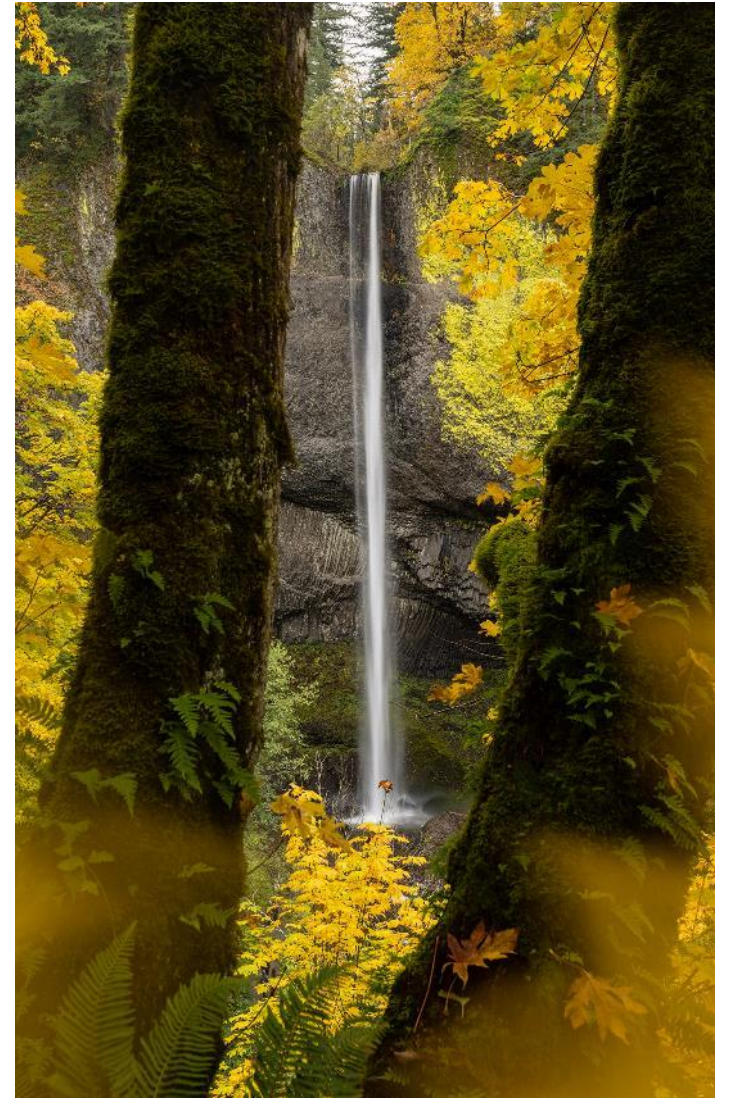
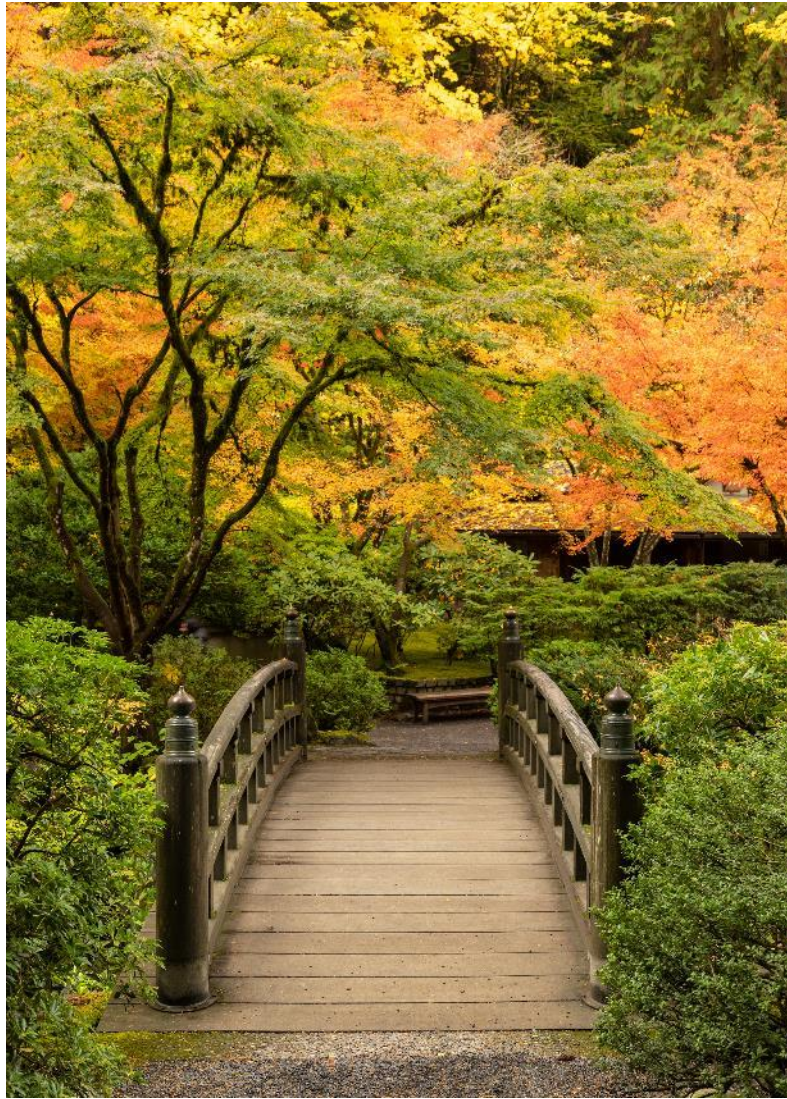


diagonals/triangles



fill
the
frame

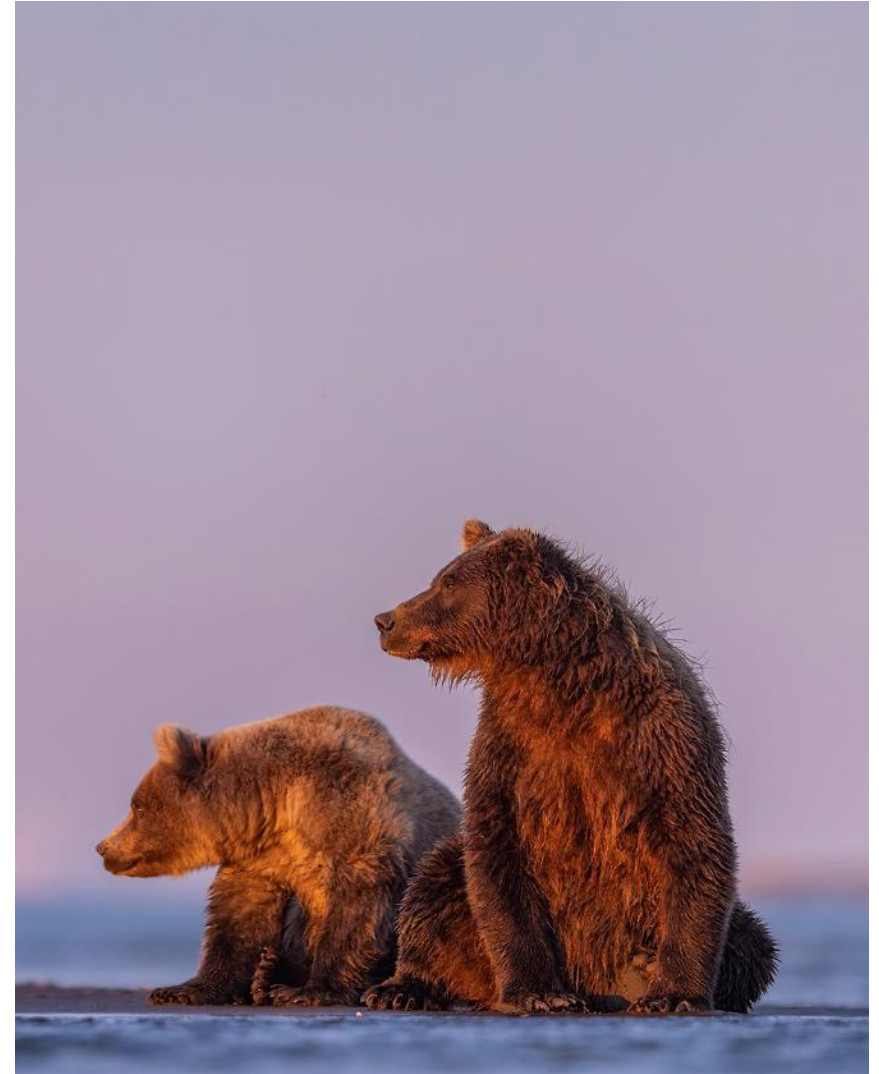
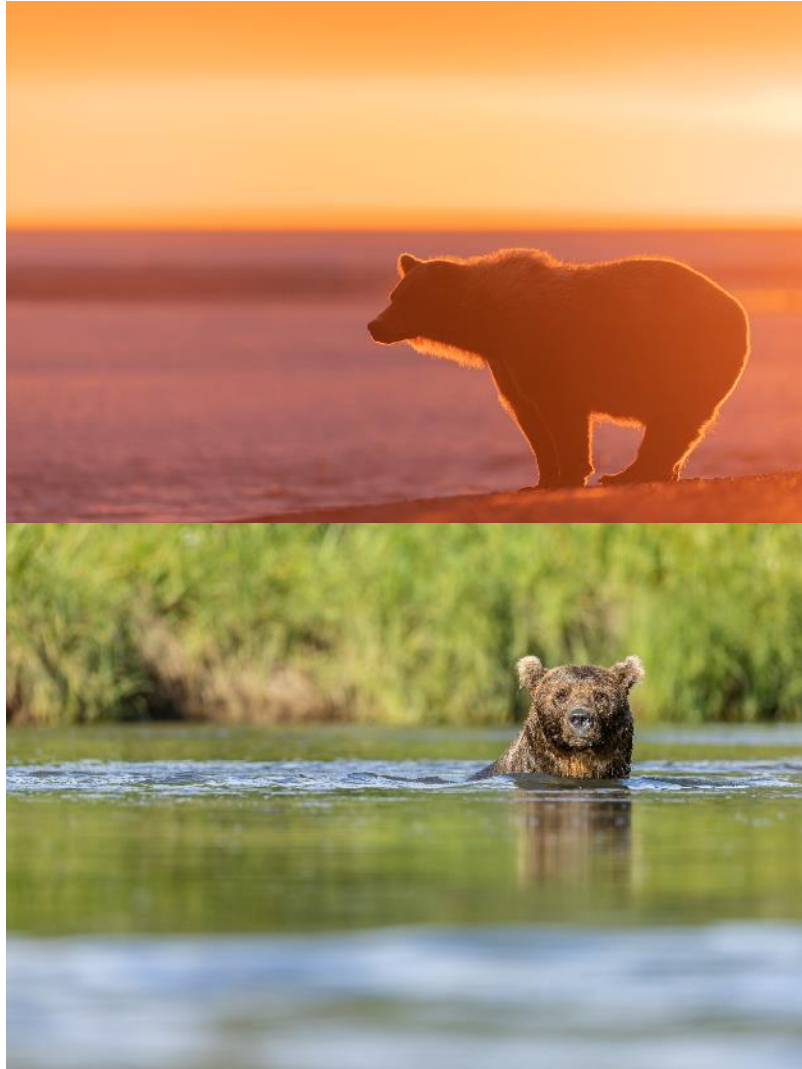
<https://visualeducation.com/photography-course/photography-composition>





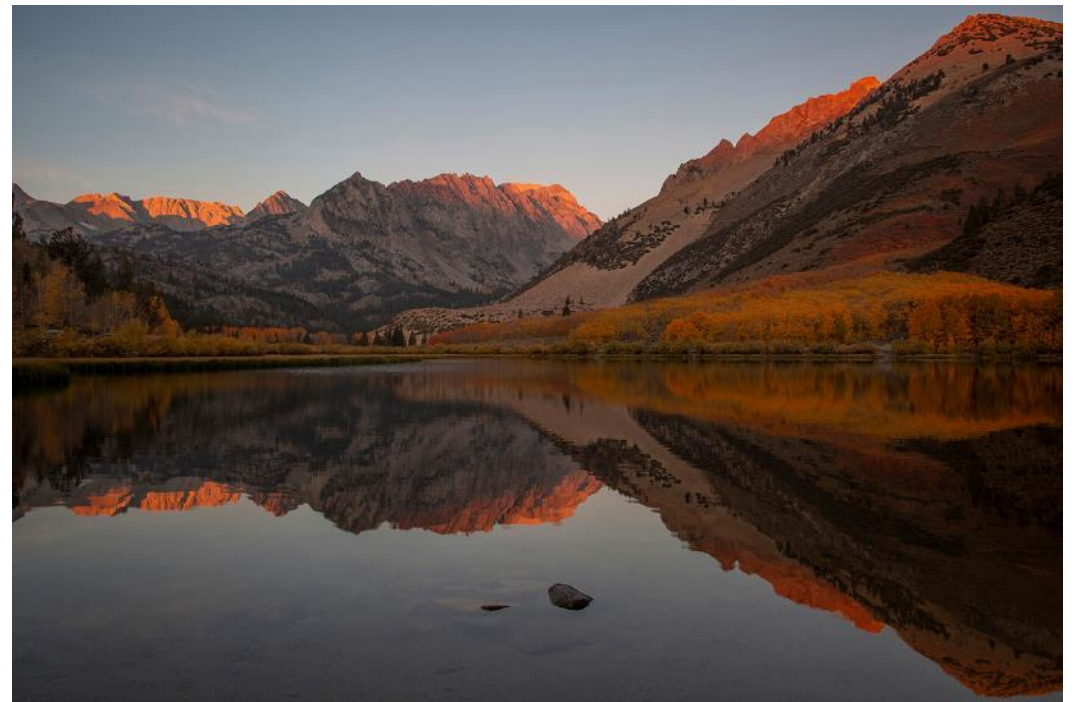
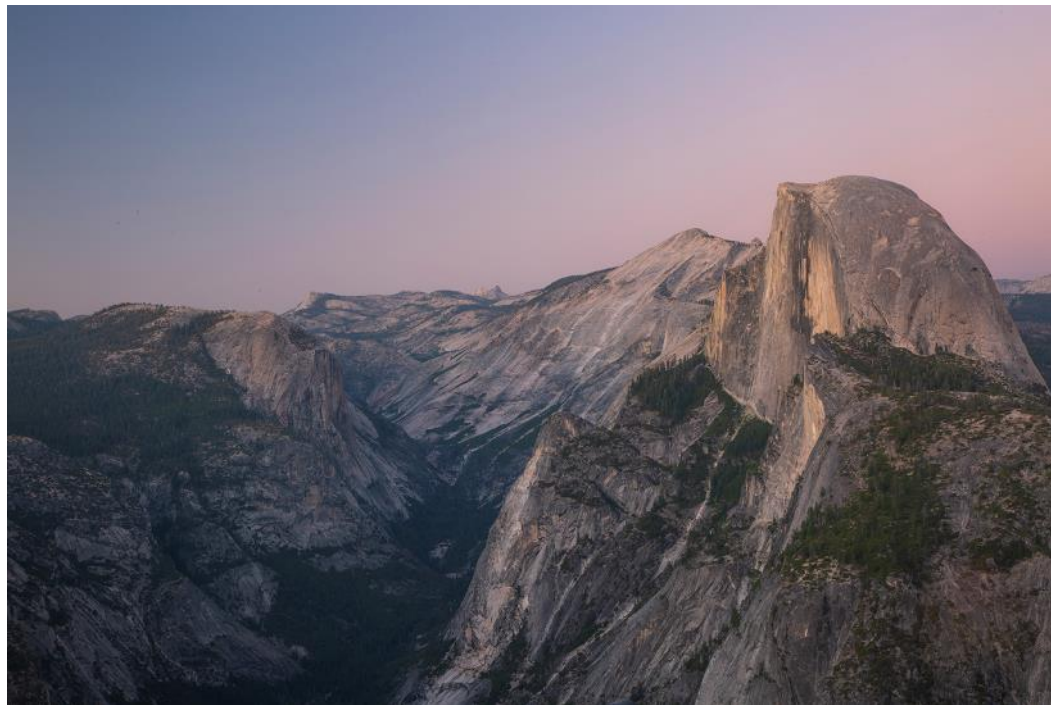
Lighting

- Shadows
- Back lit
- Front lit
- Side lit









Backgrounds



- Black
- Gold
- Other color (unusual?)



Other things to know

- Color temperature, White balance
 - Color casts (warm, cool)
 - Process of removing color casts to create a perfect white
- Presets are your friend!
- RAW vs jpg
- Megapixels
- Rent before you buy
- 4k, 8k video
- Back up x2!



Biggest differentiators

- Time of day
- Weather
- Angle/
positioning
- Depth of field
- Lens
- Composition/
crop
- Previsualization











Research

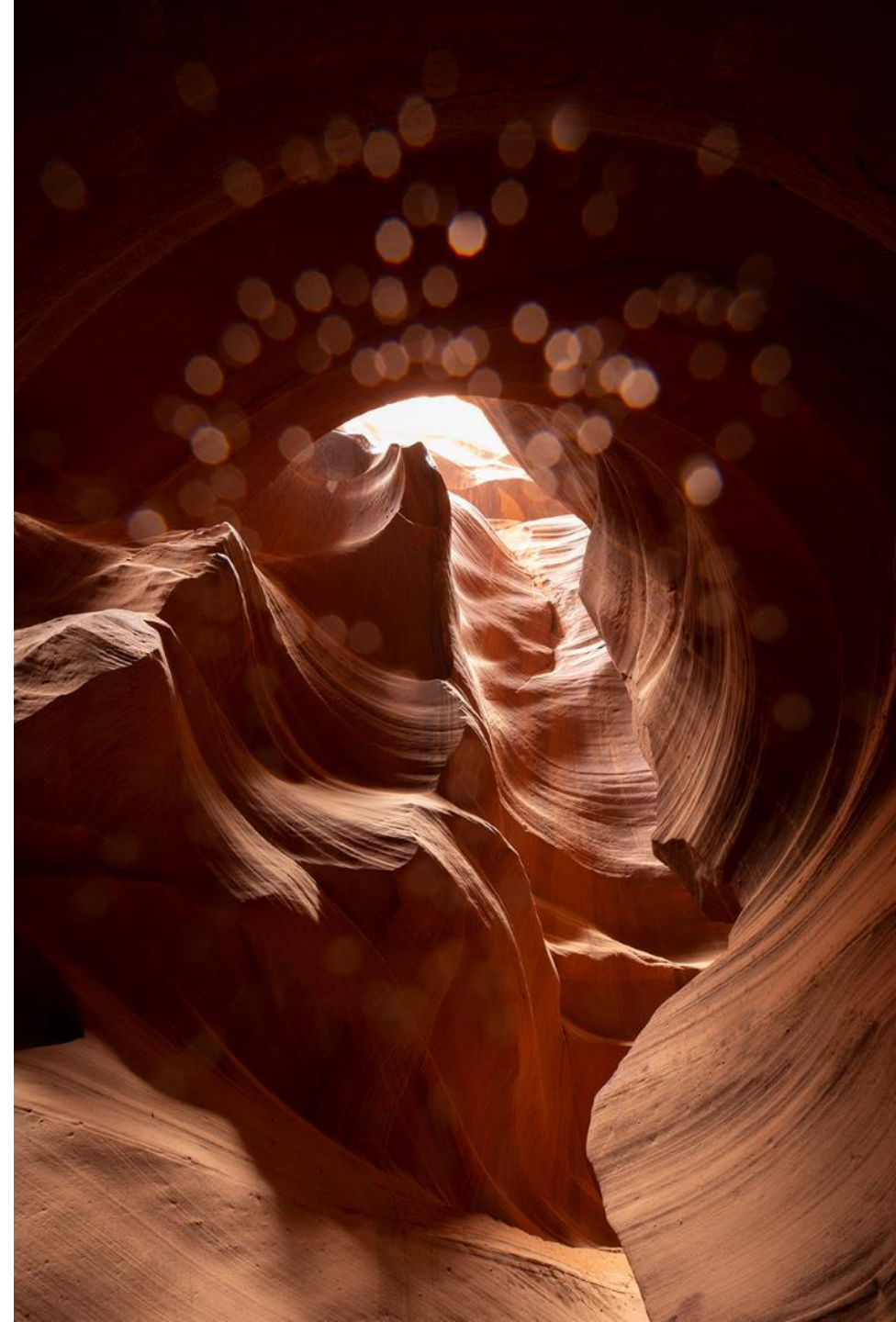
- Follow other photographers, buy or loan their books, mailing lists
- Check groups for subjects you're interested in
 - Ebird-alert (rare bird alert), iNaturalist, wildlife photography Facebook groups, National Park Facebook groups for landscapes
- Check tides, sunrise/sunset, moonrise/moonset, moon phase, avg temperature & rainfall, best time of day/year, cluster



Recap

To take good photos...

- Learn & practice exposure triangle til you know it by heart
 - Manual mode – take control of settings, experiment
- Previsualize
- Lighting and angles
- Freeze motion or intentional blur
- Sharp focus point (eye, stamen, everything etc)
- Avoid noise and blown highlights
- Be prepared!





Any questions?