



Beginning Photography: Picking a Camera and Lens

With Keith and John

Homework (Last Week)

- Take a photo of something in motion...moving quickly:
 - Water / waves
 - Running animal
 - Sports

Share it on Twitter or Instagram
#COASummerCamp

Or email it to us!
jhilliard@nextjump.com

We'll show some of the images in our next class



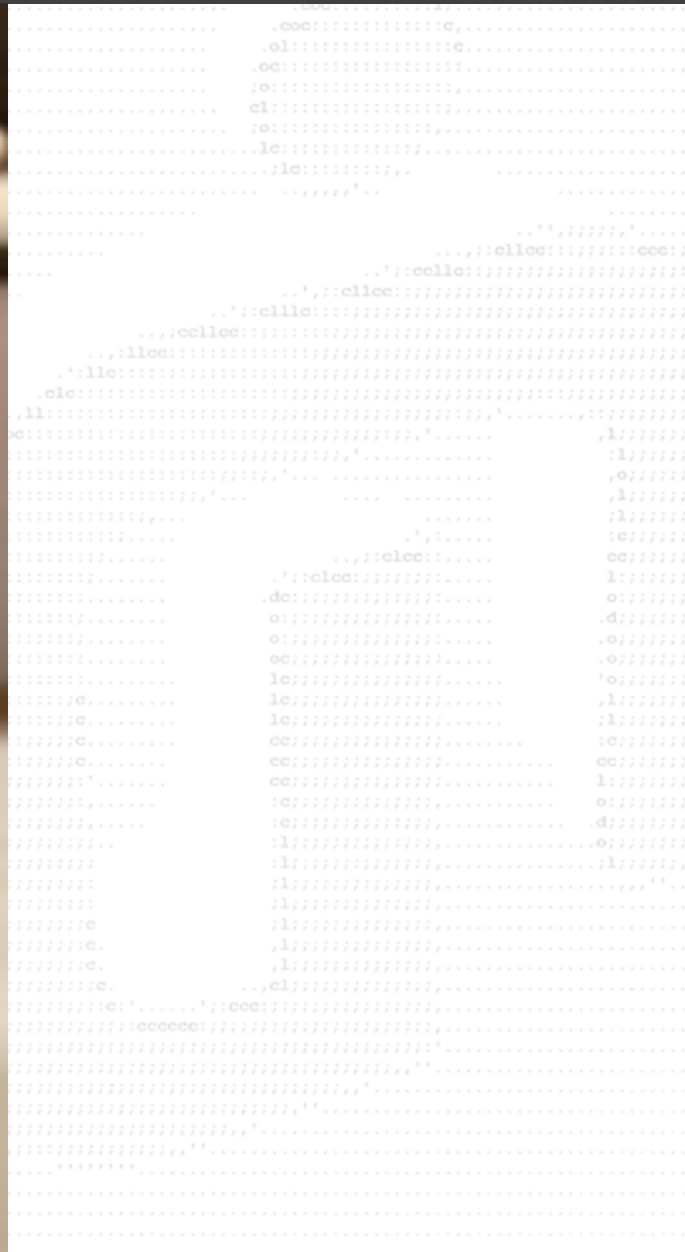
Deekshita



David



Tammy



Georgia



Steve



Sahana



Prevents_robo



2020 COA Summer CAMP

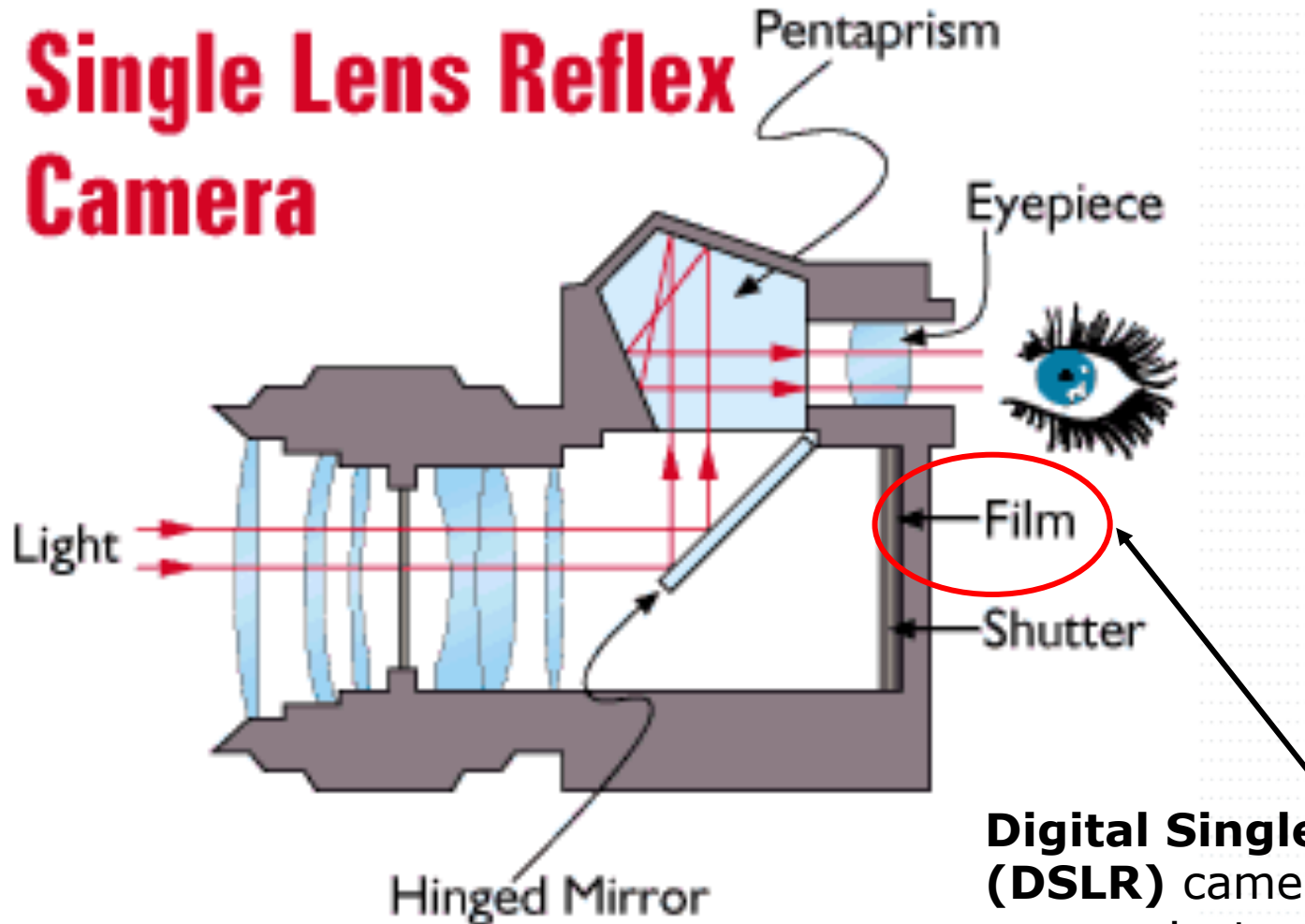


Zahara

How a Picture is Taken

3 Main Components:

- **Lens** (optical)
- **Camera body** (mechanical)
- **Film/sensor** (chemical)

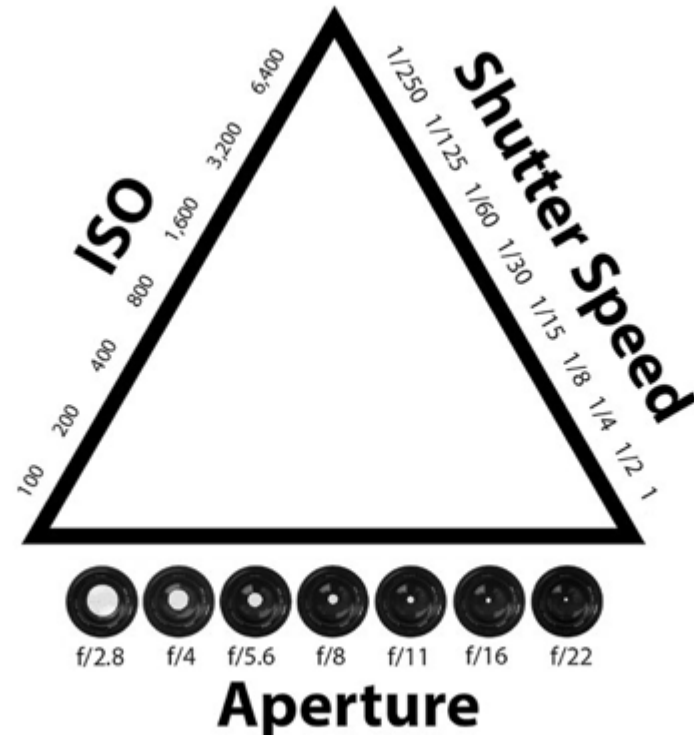


Digital Single Lens Reflex (DSLR) cameras use a ***sensor*** instead of film

How Does a Camera Control Exposure?

3 elements of the "Exposure Triangle"

- Aperture
- Shutter Speed
- ISO



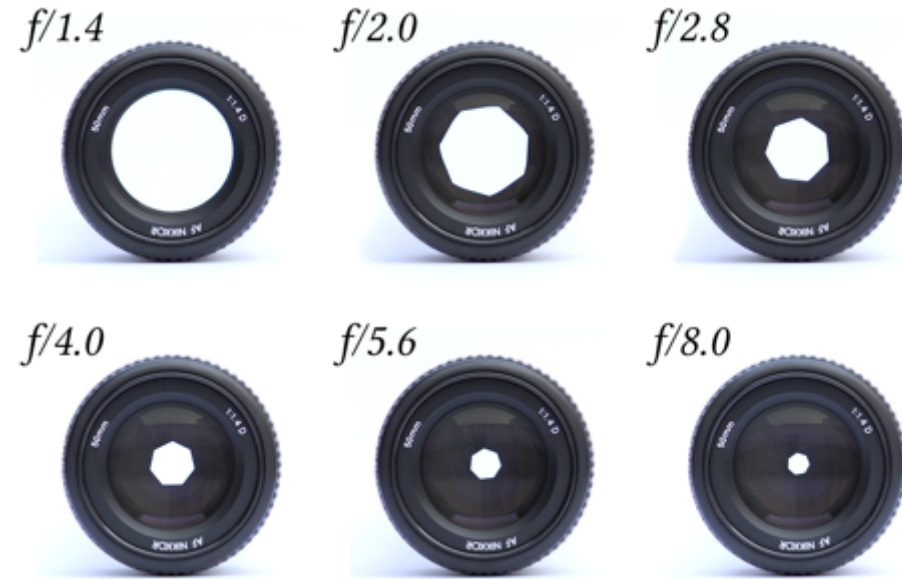
Aperture

The hole inside of the lens.

Measured in "f-stops" (fractions). A lower number means a wider hole and stronger "bokeh" (blur).

Wide aperture = more light, "shallow" depth of field (ex. f/1.4)

Narrow aperture = less light, "deep" depth of field (ex. f/8.0)



Aperture Adjustment Sequence - DOF

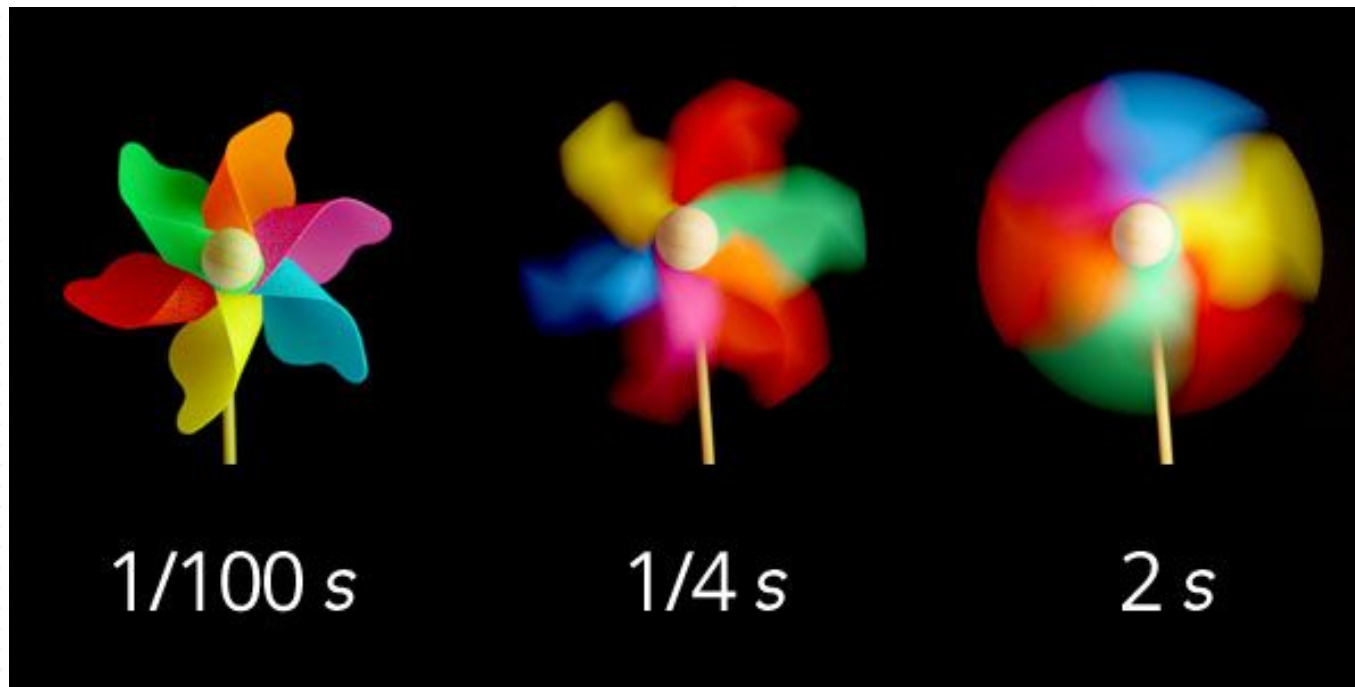


Shutter Speed

The length of time the film/sensor is exposed to light, measured in fractions of a second.

Fast shutter speed = frozen motion, less light (ex. $1/500$ sec)

Slow shutter speed = blurred motion, more light (ex. $\frac{1}{4}$ sec)

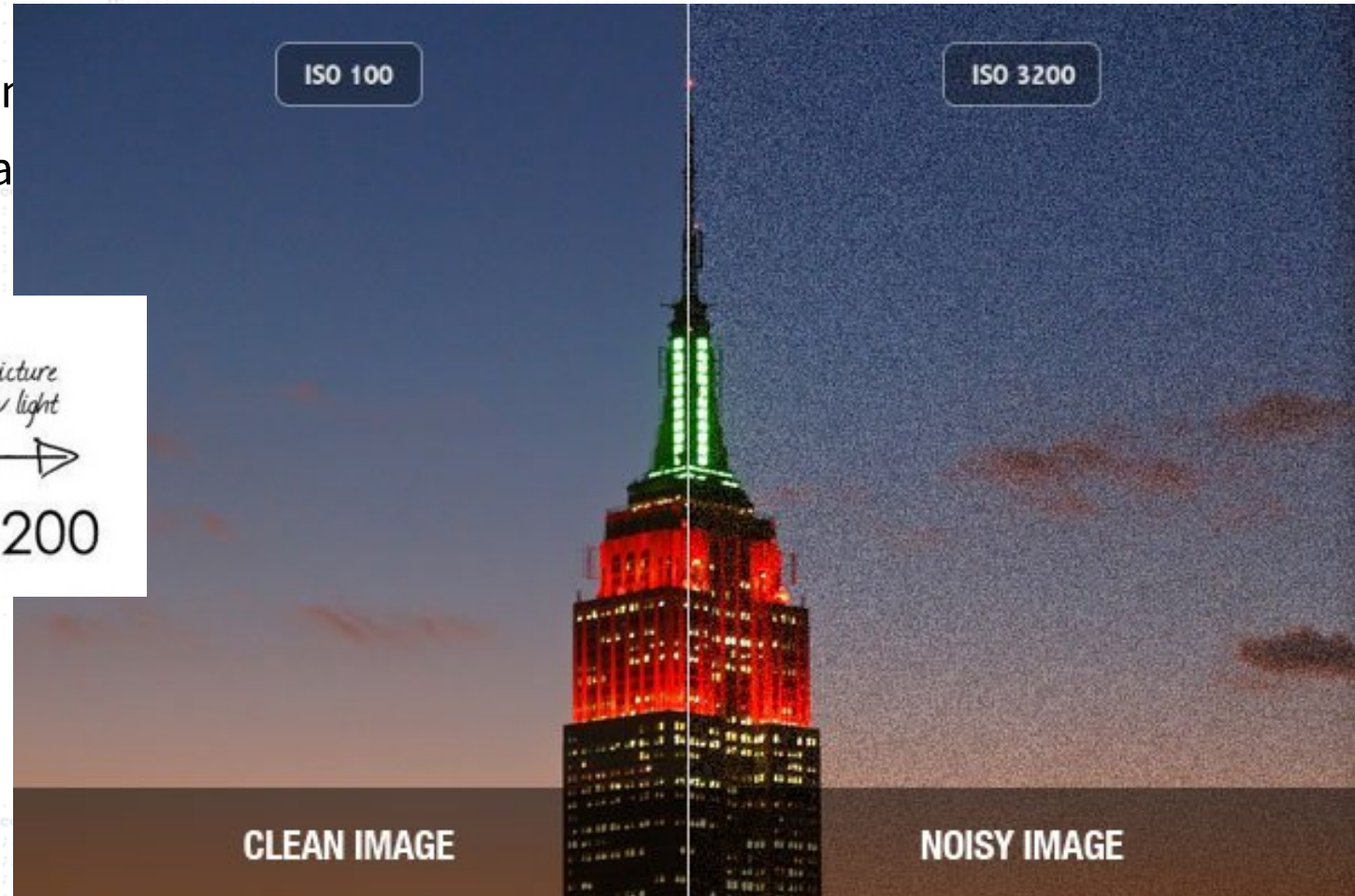


ISO

Sensitivity of the film/sensor to light, measured in ISO speeds.

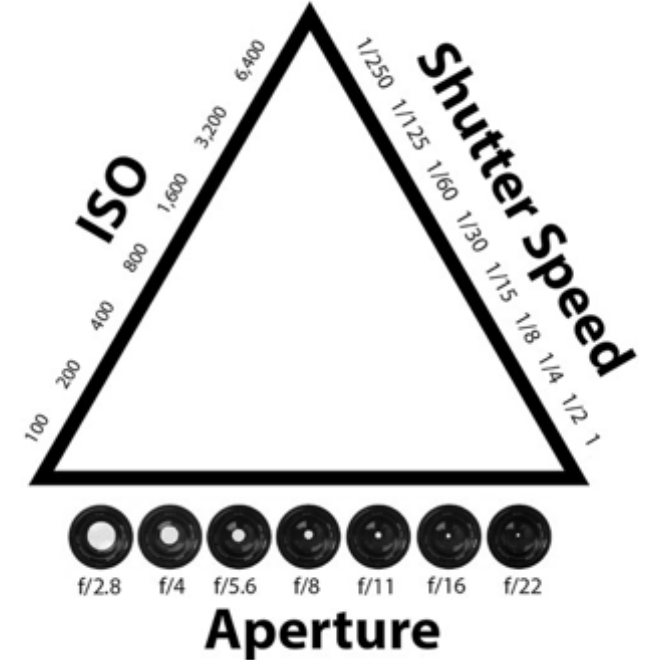
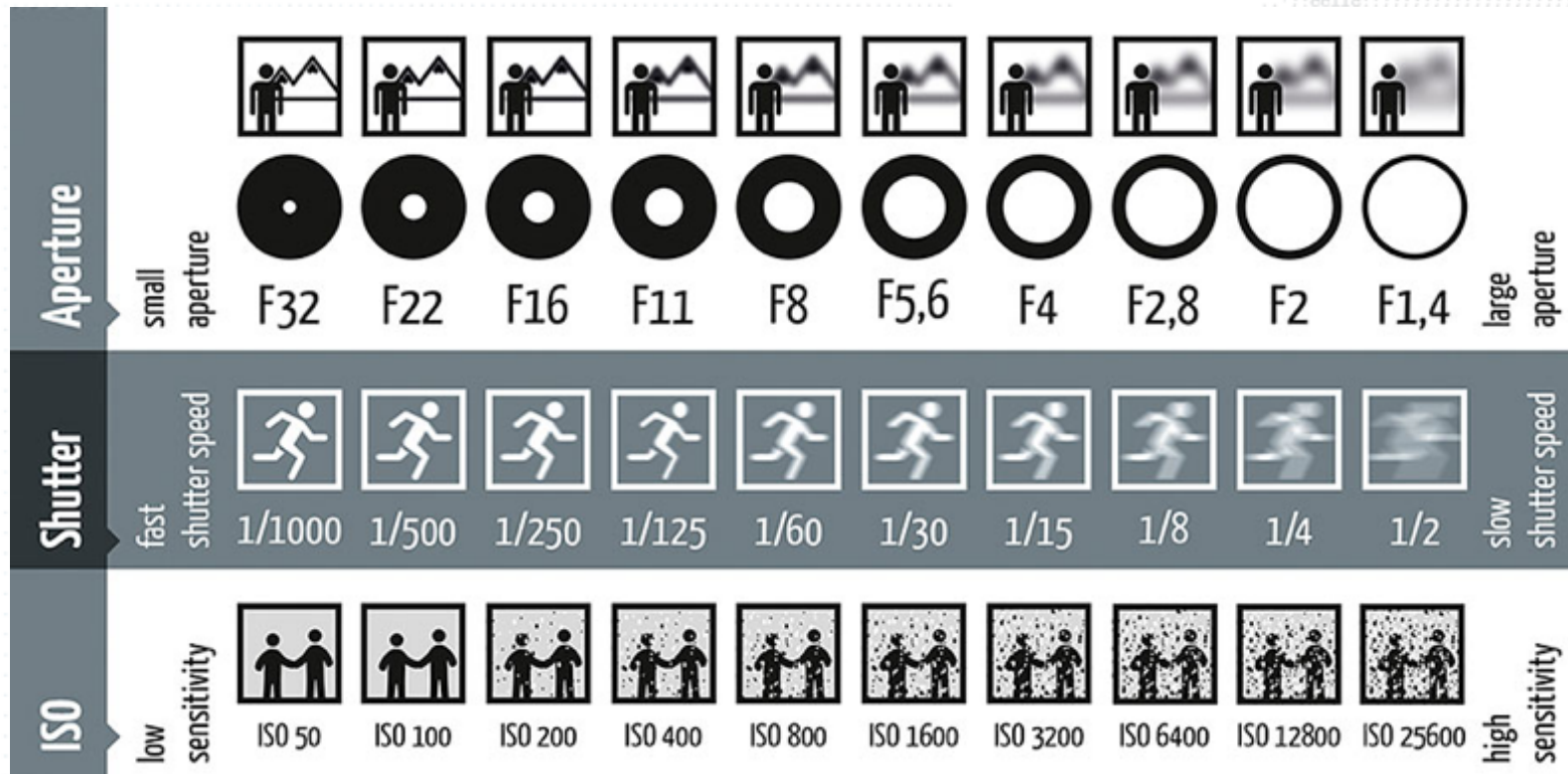
Low ISO = less light, less noise (use during the day)

High ISO = more light, more noise (use at night)



Exposure Triangle: Recap

Exposure is a balancing act between **Aperture**, **Shutter Speed**, and **ISO**.



Cameras!!



Camera Phones

The most popular type of camera, you need to know how these work!

Advantages:

- Fits in your pocket
- You probably already have one
- They're easy to use
- Sharing photos is easy

Disadvantages:

- Less control over the photo
- Quality sacrifice

When to buy:

If you're not into photography enough to buy and carry a dedicated camera, get a phone with a great camera attached. You'll still be able to take amazing photos.



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<https://commons.wikimedia.org/w/index.php?curid=81550313>

Point and shoot

Before camera phones, everyone had a point and shoot camera! At this point, we **don't recommend** buying a point and shoot

Advantages:

- Better image quality and flash compared to a phone
- Usually good price
- Compact, and can still fit into your pocket

Disadvantages:

- Not great image quality
- Not as easy to share as a camera phone

When to buy:

We don't generally recommend a point and shoot because phones have great cameras. It might be better to upgrade your phone. If you don't have a phone or don't want to use a phone, there are still some great point and shoot cameras on the market



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Action Cameras

If you're active and love taking videos and pictures while going on adventures this could be the perfect camera

Advantages:

- Portable and durable
- Easy water proofing
- Safe for adventures

Disadvantages:

- Can be difficult to use
- Require a lot of accessories that only work with one camera

When to buy:

If you do a lot of hiking, skiing, running, and adventuring and you want to capture it



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DSLR / SLR

A popular choice if you want to get more serious about taking photos!

Advantages:

- Widely accessible with many interchangeable lens choices
- Versatile and great for high quality photos
- Optical viewfinder (no delay b/w what you see and what the lens sees)
- Fast autofocus (traditionally)

Disadvantages:

- Mechanical mirror -> slower continuous shooting speeds
- Bulky body (to accommodate the mirror)

When to buy:

If you're a camera phone user looking to get more serious about taking photos.



Mirrorless

A trending alternative to DSLRs: no mechanical mirror!

Advantages:

- No mirror -> fast continuous shooting speed
- Electronic viewfinder -> preview accuracy
- Smaller and lighter on average than DSLRs
- Versatile and great for high quality photos

Disadvantages:

- Electronic viewfinder -> preview delay
- Fewer lenses available (newer technology)
- Slower autofocus vs. DSLR, but gap is closing as tech advances

When to buy:

- If you're a camera phone user looking to get more **serious** about taking photos
- If you use a DSLR and **prefer electronic viewfinders/need faster continuous shooting** (sports for example)
- If you're **traveling** and need a smaller camera



Professional

Professional-grade cameras that use "medium format" sensors.

Advantages:

- Extremely high picture quality (larger sensor)
- Wider field of view
- Versatile, modular

Disadvantages:

- Bulkier, heavy
- Fewer photos can taken (larger size); generally slower focusing speed/continuous shooting, but tech is closing the gap
- Very expensive

When to buy:

If you're a professional with a studio shooting portraits or a professional landscape photographer, etc.



Polaroid / Instant

This are awesome a fun cameras that let you create a physical picture right away

Advantages:

- Immediately create a real picture
- Just fun to use

Disadvantages:

- Usually no control of the photo
- Bad quality
- Film could get expensive

When to buy:

If you're looking for a fun camera to capture moments and create physical photos, these could be a great option



Disposible / Toy Cameras

If you're want to take photos that look bad these are great!

Advantages:

- Everyone will want to know how your camera works
- They have very unique looks that are hare to copy with a digital camera
- Every photo is unique

Disadvantages:

- Low quality
- The cameras could break
- Processing film is expensive

When to buy:

If you're bored with normal photography and you want to try something totally different.



Other / Experimental

Use a camera like you're in the 1800s!

Advantages:

- Purity... You'll understand everything about light, cameras and photography

Disadvantages:

- Very difficult to get started
- Expensive to process the film

When to buy:

If you're really into art photography and you want to experiment with different formats and techniques



List of Cameras

- https://en.wikipedia.org/wiki/Camera_phone
- https://en.wikipedia.org/wiki/Point-and-shoot_camera
- https://en.wikipedia.org/wiki/Action_camera
- https://en.wikipedia.org/wiki/Digital_single-lens_reflex_camera
- https://en.wikipedia.org/wiki/Mirrorless_interchangeable-lens_camera
- https://en.wikipedia.org/wiki/Instant_camera
- https://en.wikipedia.org/wiki/Toy_camera
- https://en.wikipedia.org/wiki/Disposable_camera
- https://en.wikipedia.org/wiki/Twin-lens_reflex_camera
- https://en.wikipedia.org/wiki/Medium_format
- https://en.wikipedia.org/wiki/Large_format

Camera Reviews

- <https://www.dpreview.com/>

Purpose: How are you going to use it

Price

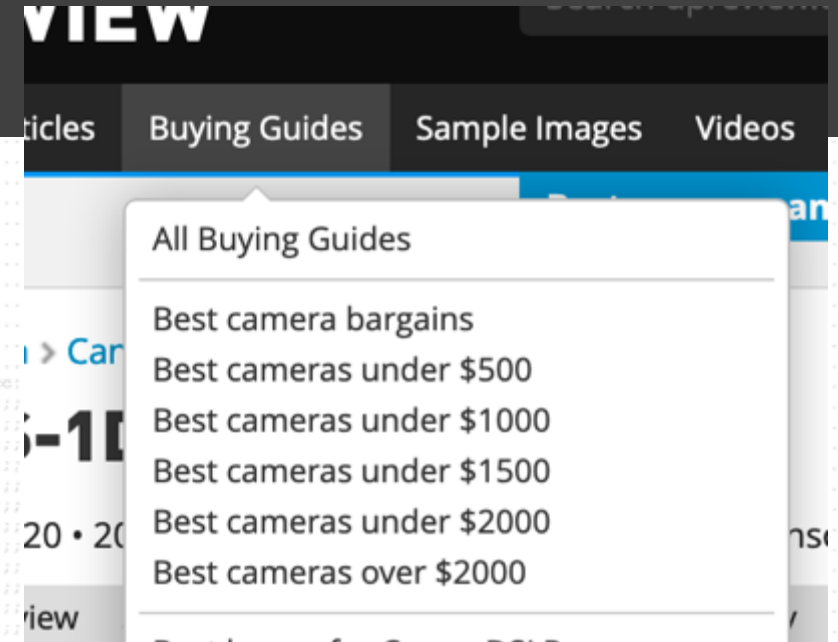
Brand

Megapixel Count (HD / 4K)

Features: Water proof, touch screen, changeable lens, "feel", size

Sensor size

Raw Format



If all of you were going to buy cameras, what advice would we give you?

Photography Challenge Next Week

Fun Social Activities **Kid Edition**

Why are we doing this? We realize a common challenge across our community, especially for the working parents, is that kids are missing the elements of socializing with their friends, have some fun in the middle of COVID-19 pandemic. We as COA team are trying to figure out ways to **provide an unsupervised space for kids to be kids**, and have a good laughter together. As experiments, we are running a few different activities for limited time, and hope to bring some fun to your kids, and allow them to make new friends across the world.

A small ask we have from you is to give the teams run the activities some feedback via feedback app, let the know what works vs not, and how to do better.

1

Photography
challenge

Happening Now

For Kids 10+

CREATORS

Keith Orlando
Shardul Dabholkar



2


Let's watch
& Party!

Happening Now

For Kids 4-6

CREATORS

Annie Zhang
Aaron Liu



3


Gaming
Together

Happening Now

For Kids 8+

CREATORS

Sagar Rane
Richie Sajan



4

Minecraft
Time

Friday 9/5, 2PM EDT

For Kids 8+

CREATORS

Graham Laming
James Hughes



Parting Words

Thank you for being a part of our class

If you want to share photos in the future

jhilliard@nextjump.com

korlando@nextjump.com