Digital Photography Made Easy

OLLI

Six Wednesdays
January 20 through February 24, 2010
10:00 to 11:30 am at the Lenox Library

By Members of the
Berkshire Museum Camera Club

Digital Photography Made Easy

- January 20: How You and Your Camera Make a Photograph by Steve Blanchard
- January 27: Making the Most of Your Point-and-Shoot Digital Camera by Arthur Gordon
- February 3: Critique Day with a Panel of BMCC Members
- February 10: Photographing People by Cesar Silva
- February 17: Travel Photography by Jill Jillson
- February 24: What Do I Do With All of These Photos? by Sharon Lips

Digital Photography Made Easy

Wednesday, January 20, 2010

How You and Your Camera Make a Photograph

Steve Blanchard

How You and Your Camera Make a Photograph

- The Basics
- What Happens Inside the Camera
- Focus
- Exposure
  - Aperture
  - Shutter Speed
  - ISO
- Flash

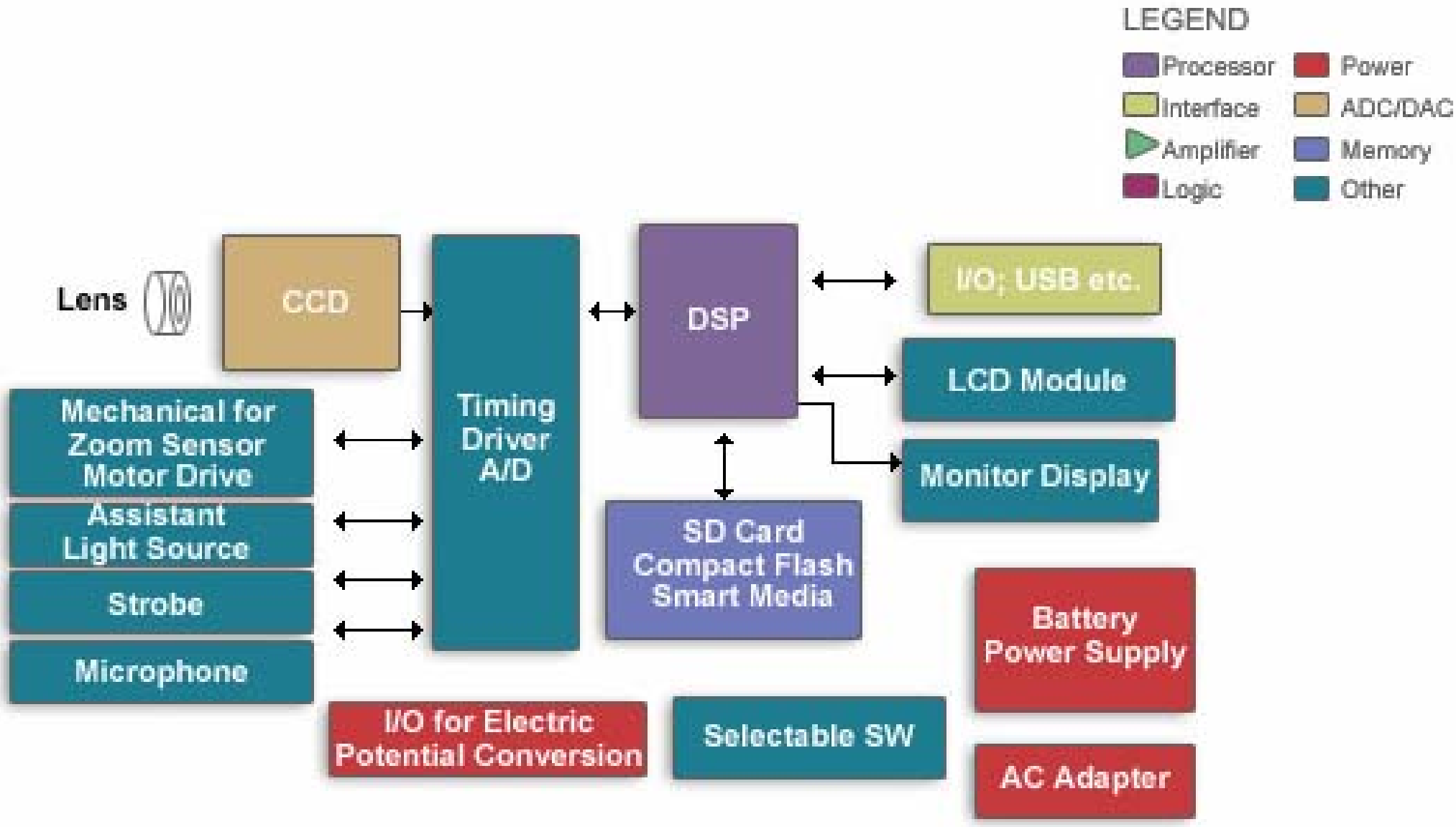
How You and Your Camera Make a Photograph
The Basics

- Point at Your Subject
- Compose the Shot or Position For Focus
- Button Halfway Down to Focus
- Recompose if Necessary
- Button All the Way Down to Take the Picture
- View the Results

How You and Your Camera Make a Photograph
What Happens Inside the Camera

- Half Way Down:
  - Camera Adjusts Lens for Best Focus
  - Gives Indication of Success
- All the Way down:
  - Shutter Opens Briefly and Light Hits the Sensor
  - Computer Reads Sensor and Processes Image
  - Computer Stores Image, then Displays It

What is in a Camera

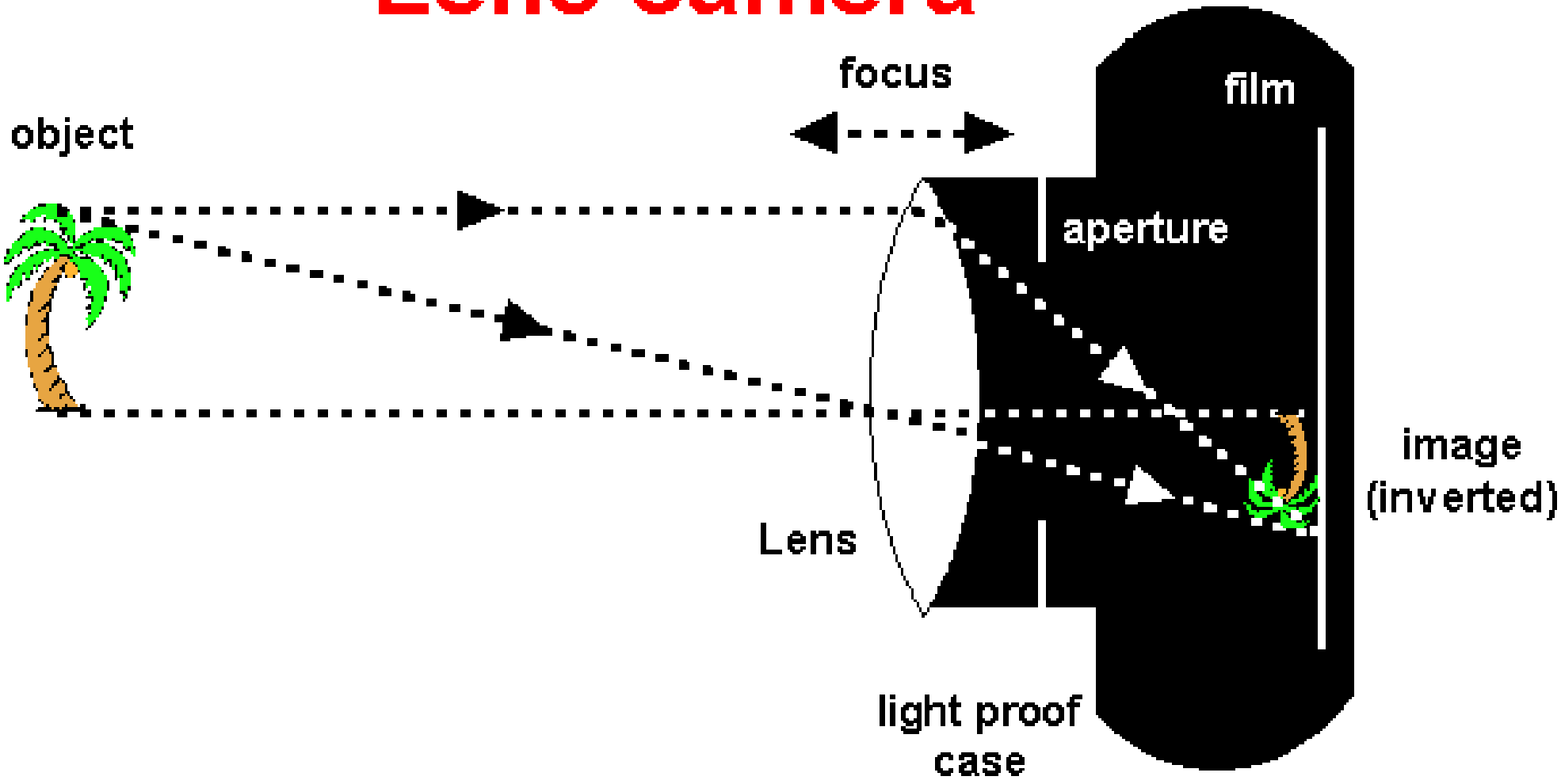


Focus

- Focus is similar in cameras, binoculars, and telescopes
- The lens is moved until the image is sharp
  - Auto focus – lens is moved by a motor
  - Manual focus – you do it by hand
- Digital Single Lens Reflex (DSLR) cameras focus quickly
- Point and Shoot cameras are slower

Focus

Lens camera



Focus

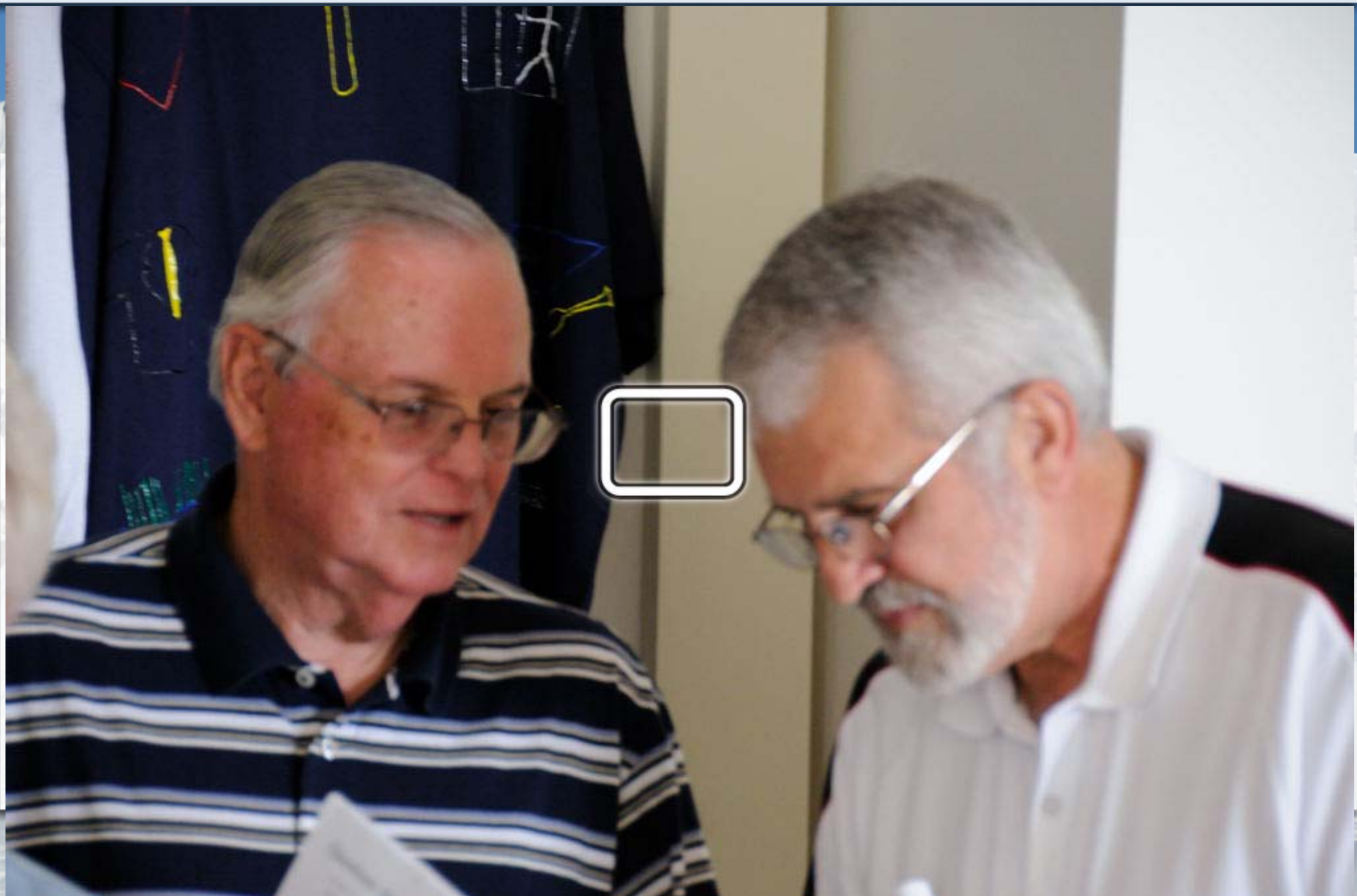
Focus

Focus

- A small part of the image area is used for focusing
- That spot is fixed in some cameras and dynamic in others
- Newer cameras find faces and focus on the closest one

Focus

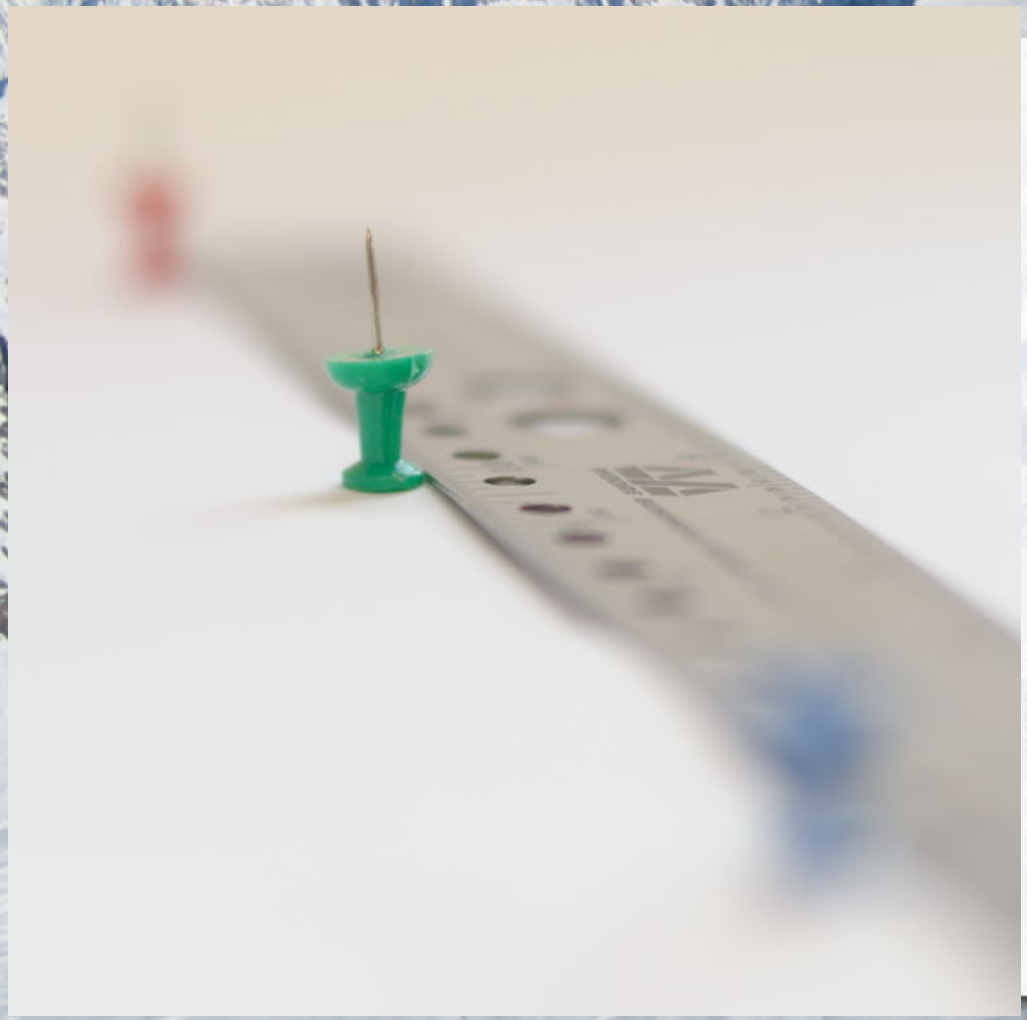
Focus

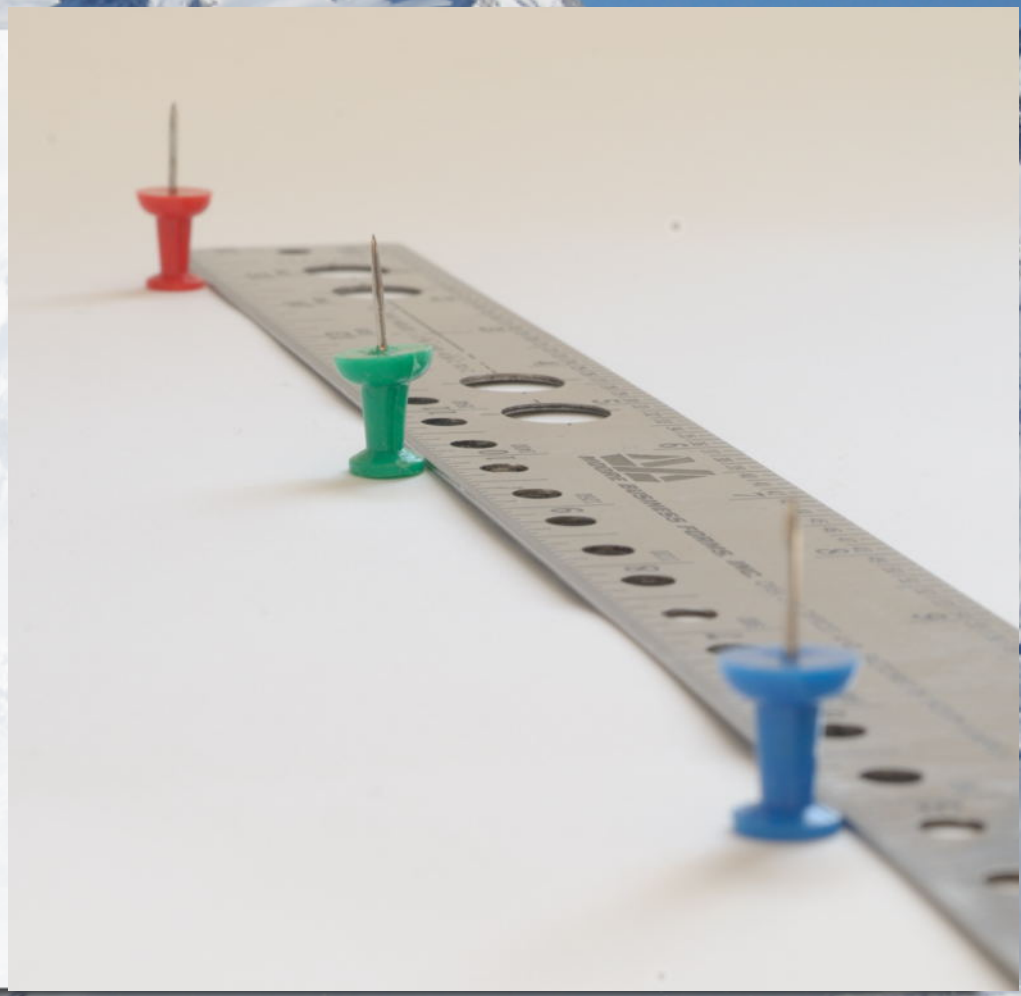


Focus

- Only part of the photo will be in focus
- Camera indicates where the focus point is
- The plane including the focus point is sharp
- Items in front of and behind the focus plane are out of focus.
- This can be controlled by the aperture
- Called Depth of Field (DOF)

Depth of field

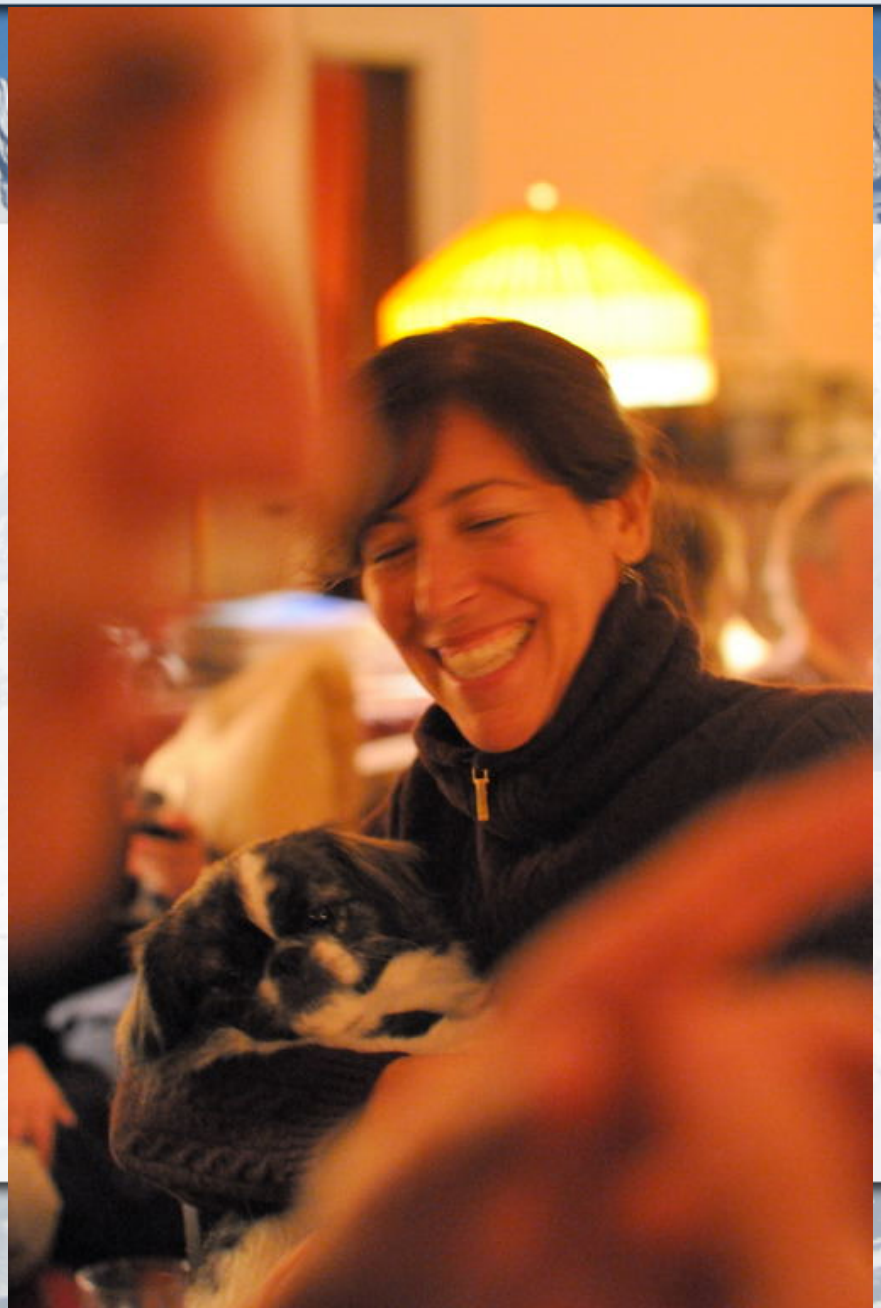




Shallow Depth of Field

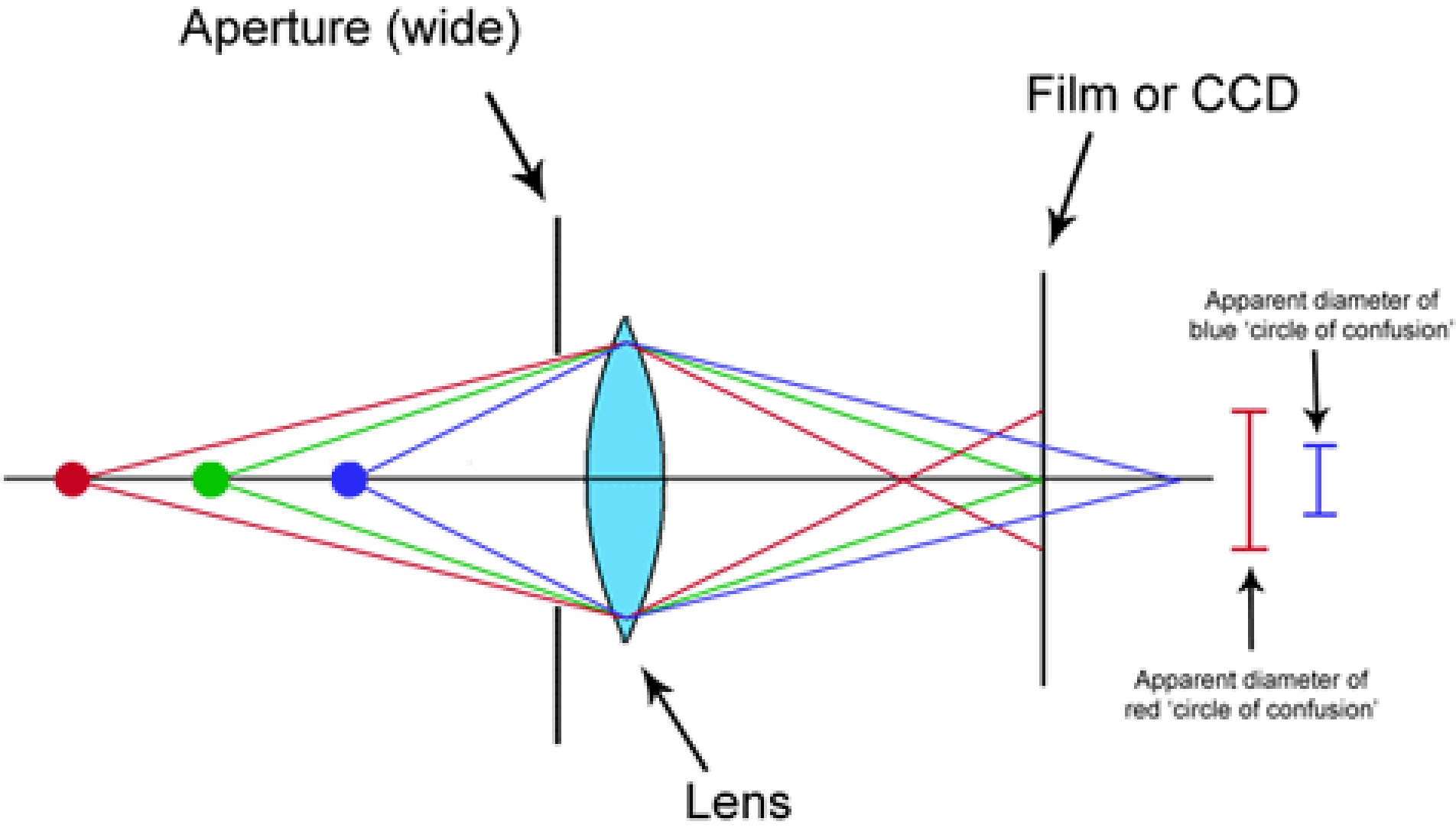
- A shallow depth of field can isolate your subject
- Large aperture required
  - (Large aperture = smaller f number)
  - F number? We will get to that soon
- Telephoto lenses have a shallow depth of field
- Close-up photography has shallow depth of field

Shallow Depth of Field

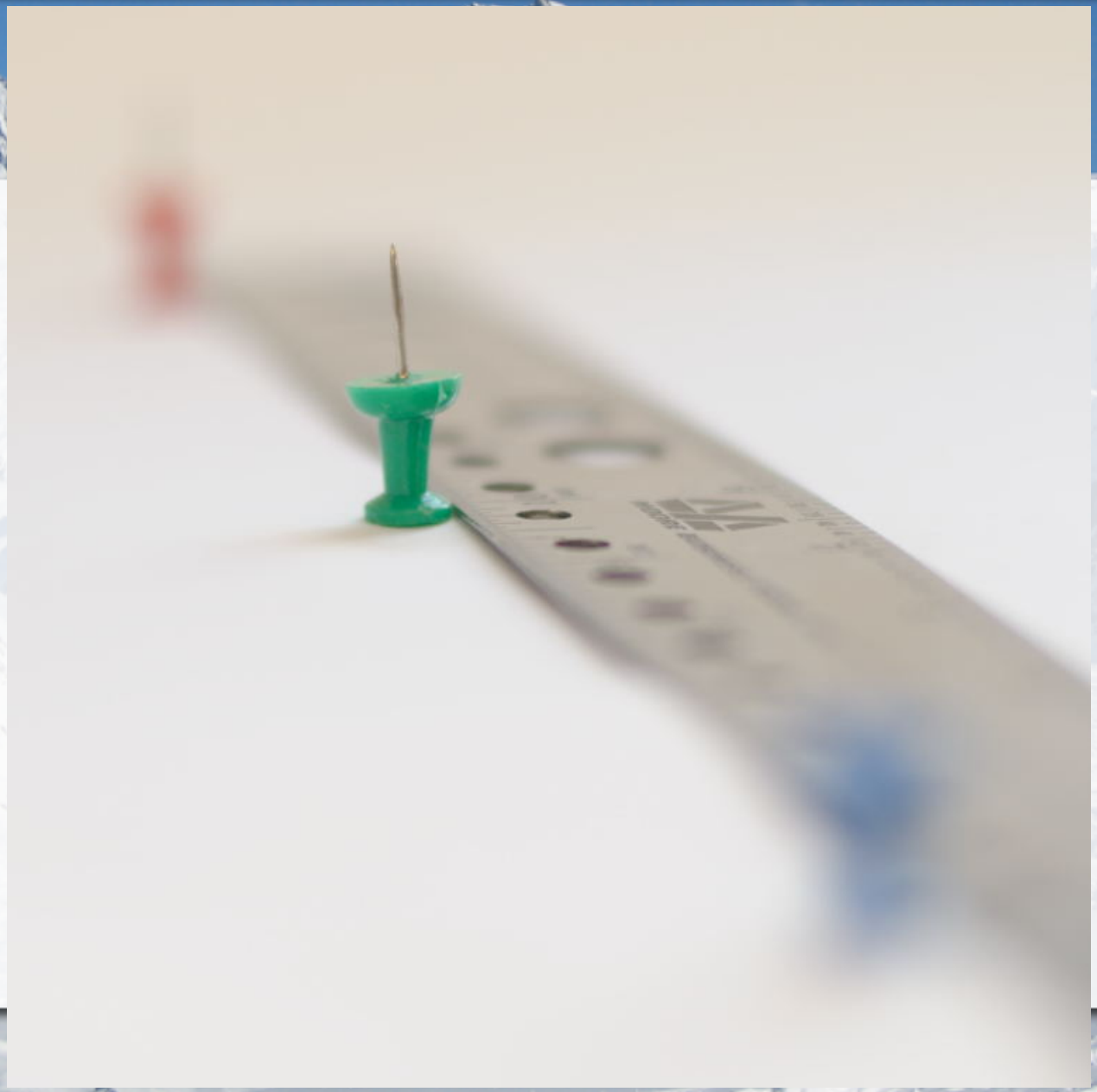


Shallow Depth of field

Shallow Depth of Field



Shallow Depth of Field

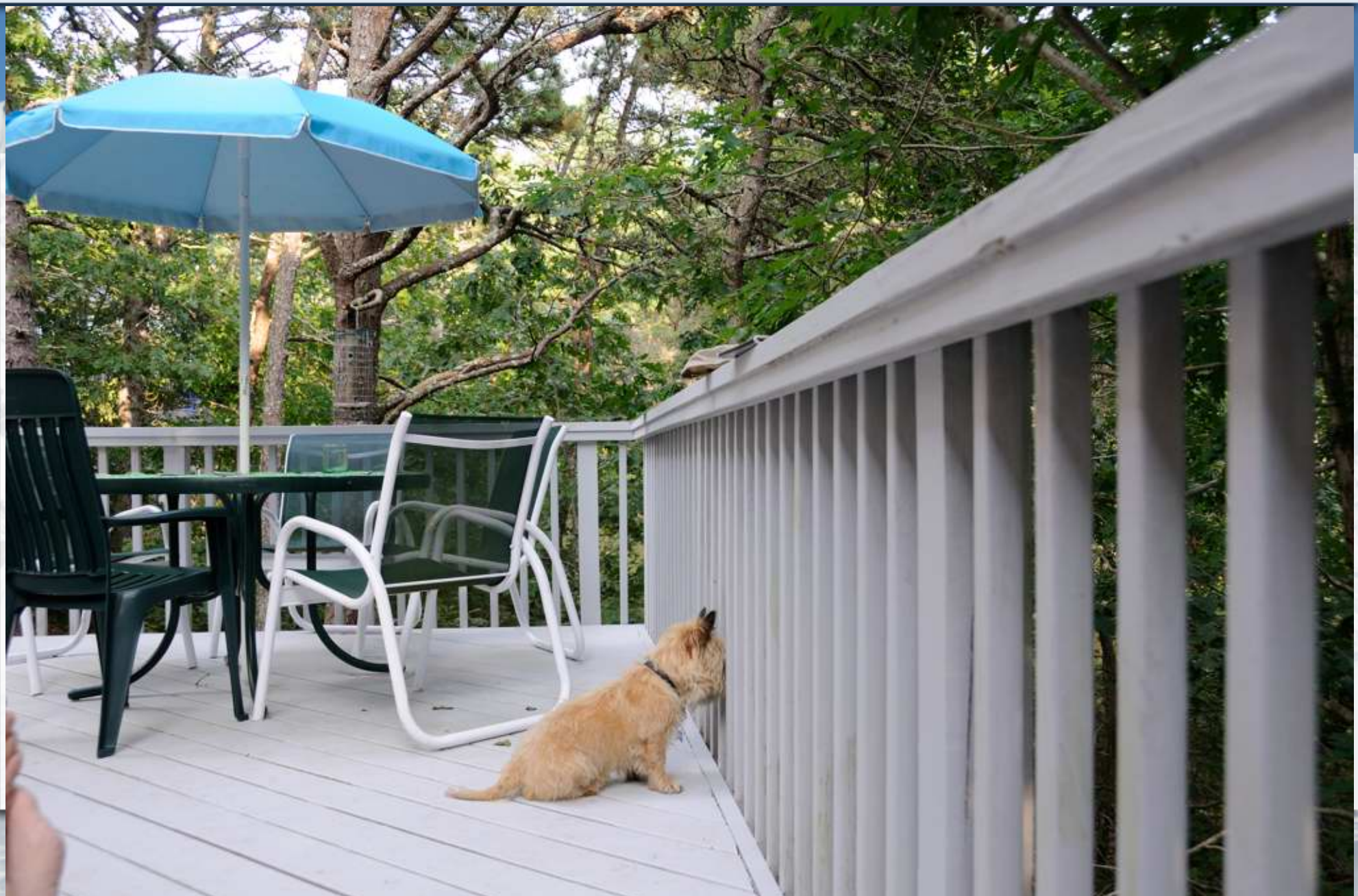


Large Depth of Field

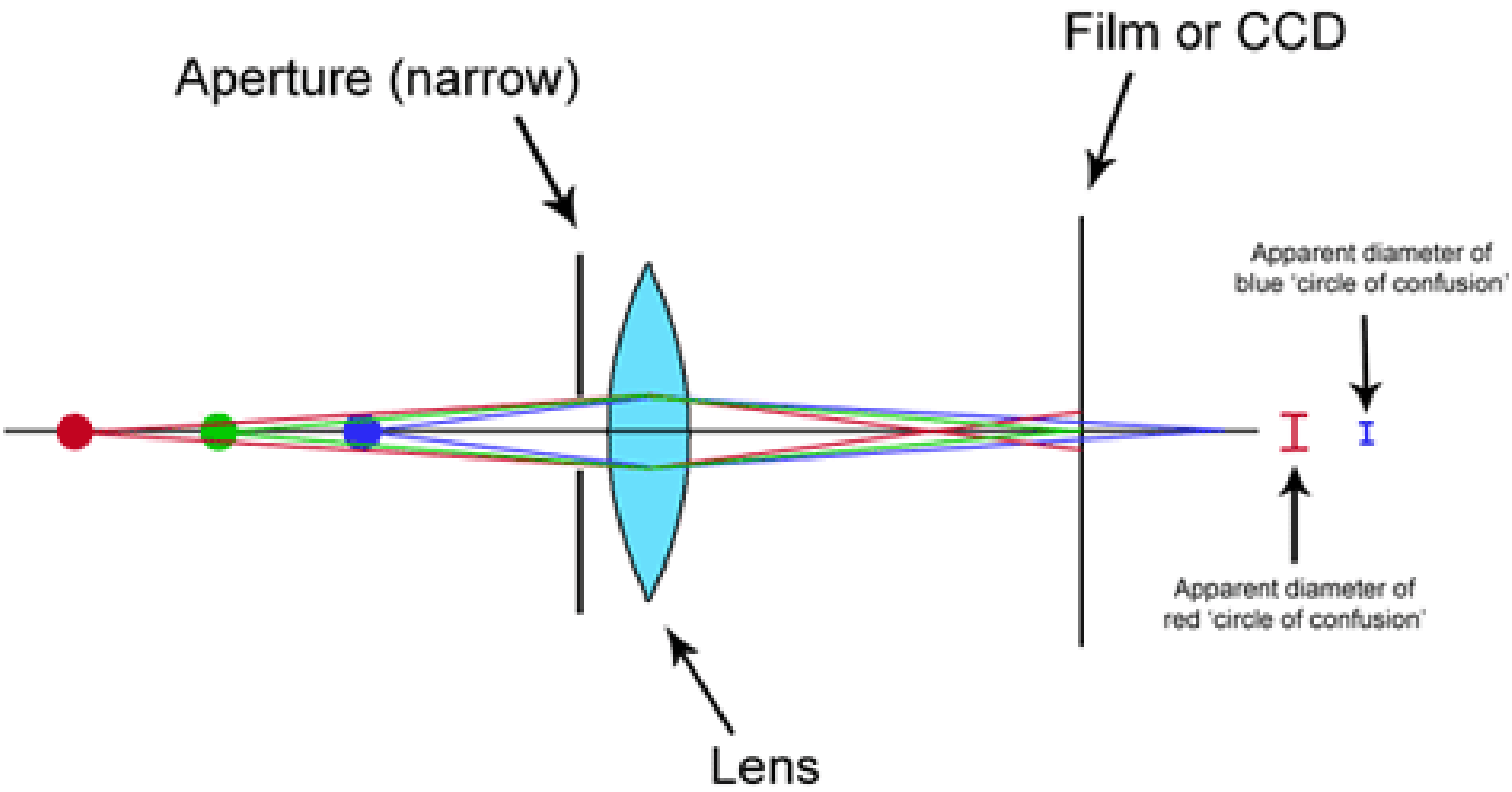
- Use large depth of field to include both foreground and background as subjects
- Small aperture required
  - (Small aperture = large f number)
- Wide angle lenses have a large depth of field

Large Depth of Field

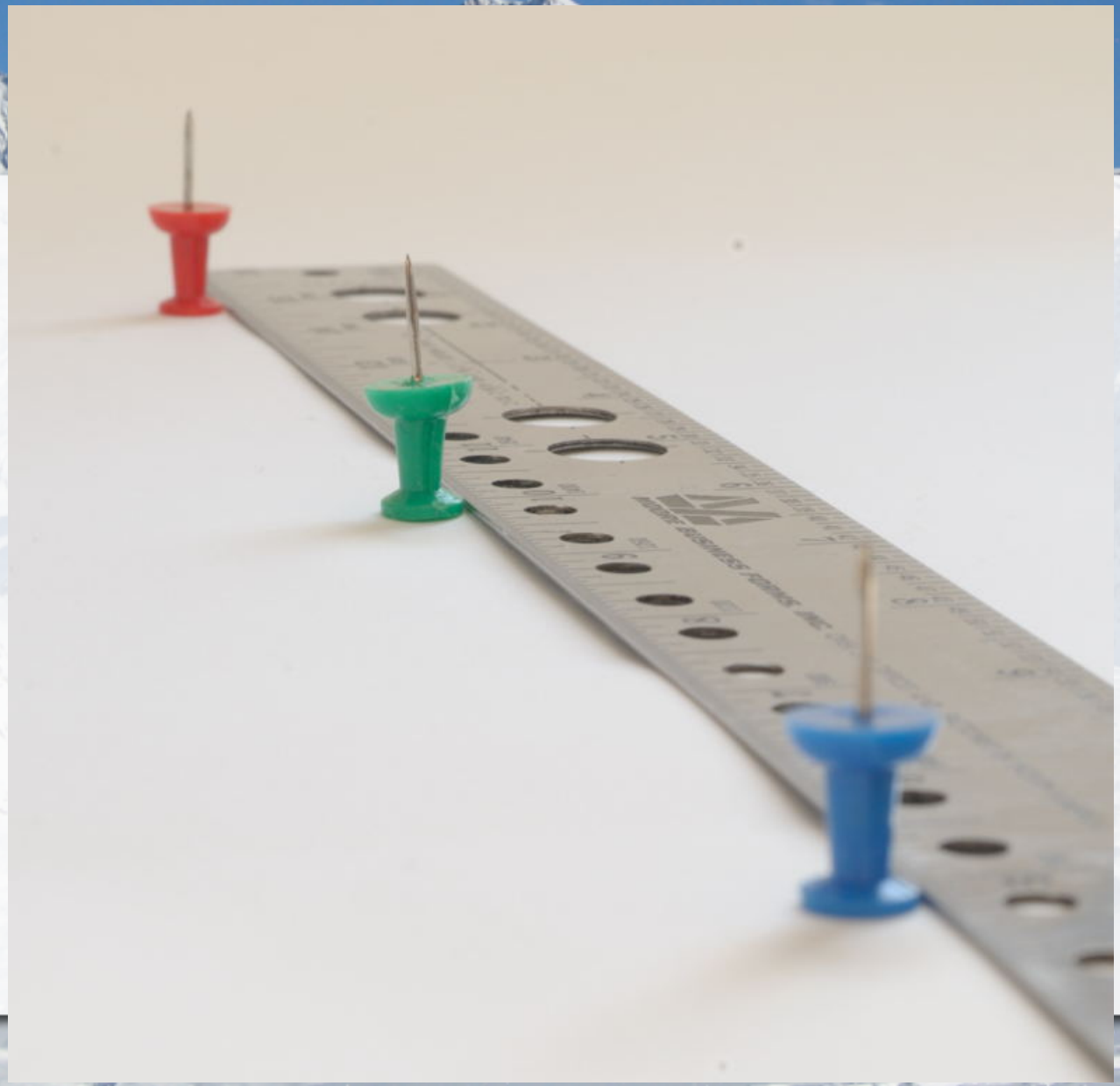
Large Depth of Field



Large Depth of Field



Large Depth of Field



Focus - Close-Up

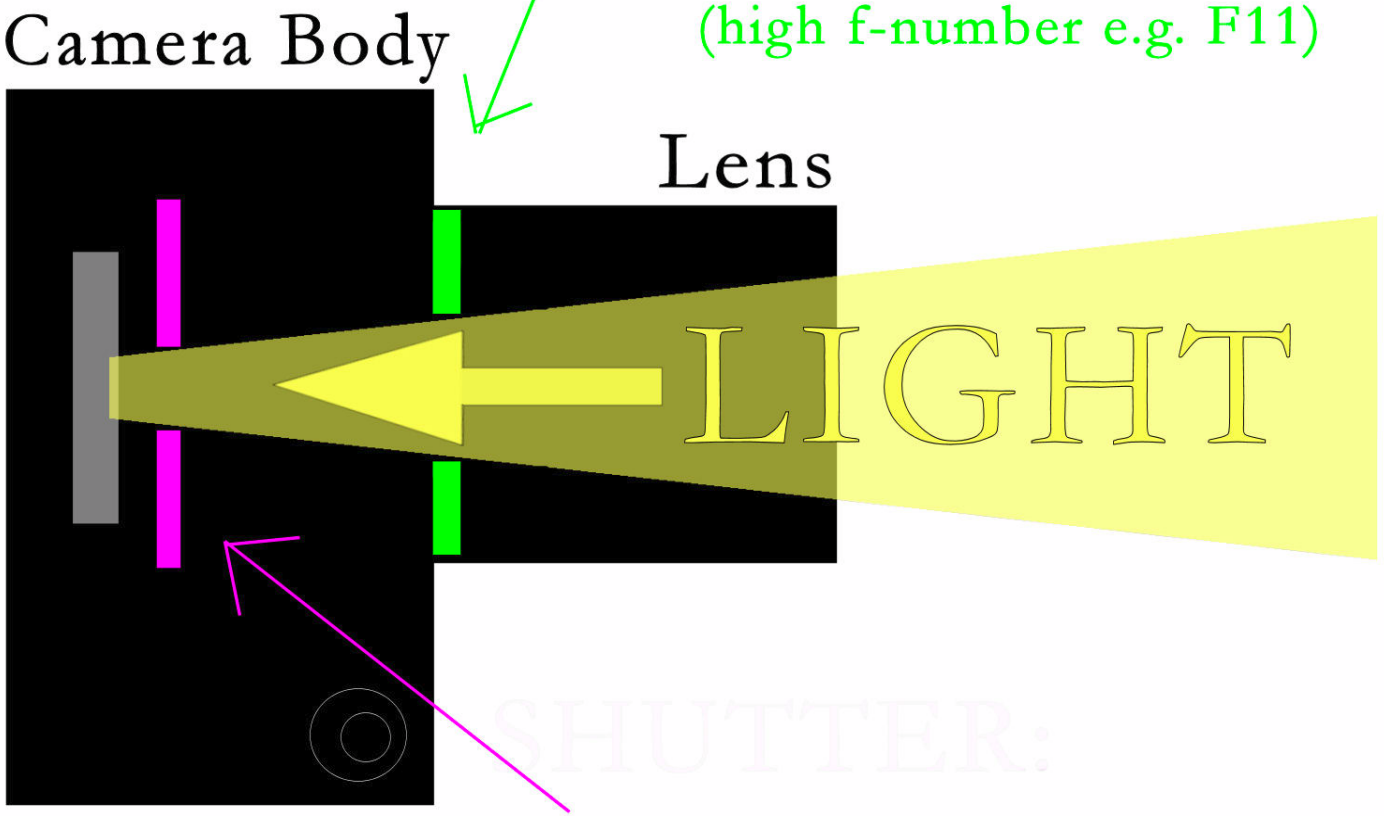
- A lens that can focus on a subject very close is called a macro lens
- Can add close-up filters to get close, too
- Small Depth of Field for close-up shots
- Point and Shoot cameras often have a macro setting:

Focus - Close-Up

Exposure

- Three Factors Involved in Exposure
  - Aperture – how much light is allowed in
  - Shutter Speed – how long sensor is exposed
  - ISO – how much light is needed
    - (ISO = International Standards Organization)
- These are inter-related
  - Sunny day = f/16 with shutter speed = 1/ISO
- Flash complicates things a bit
  - We will discuss this later

APERTURE: Wide opening = more light
(low f-number e.g. F3.2)
Narrow opening = less light
(high f-number e.g. F11)



SHUTTER: Open longer time
= more light (e.g. 1/30 second)
Open shorter time
= less light (e.g. 1/400)

Exposure

- f/16
- 1/10 second
- ISO 100

Exposure

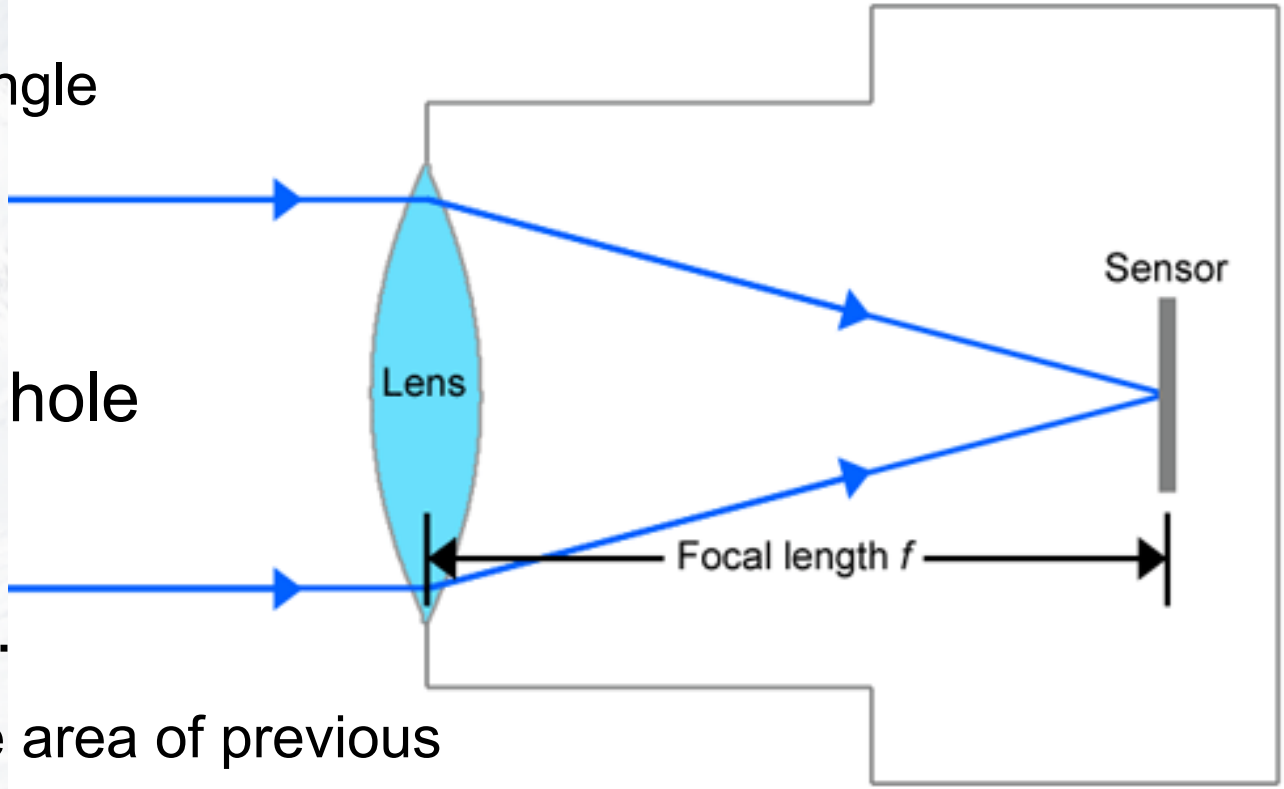
- f/4
- 1/50 second
- ISO 100

Exposure

- f/4
- 1/50 second
- ISO 400

Focal Length and f/stop

- f = Focal Length
  - Small = wide angle
  - Big = telephoto
- Aperture = f/stop
- f/stop = diameter of hole
- f/3.5 lens
- f/4, f/5.6, f/8, f/11, …
  - Each is half the area of previous
  - Therefore each lets in half the light of the previous



Wide Angle Lens

- 24mm
- f/2.8
- 0.58 pounds

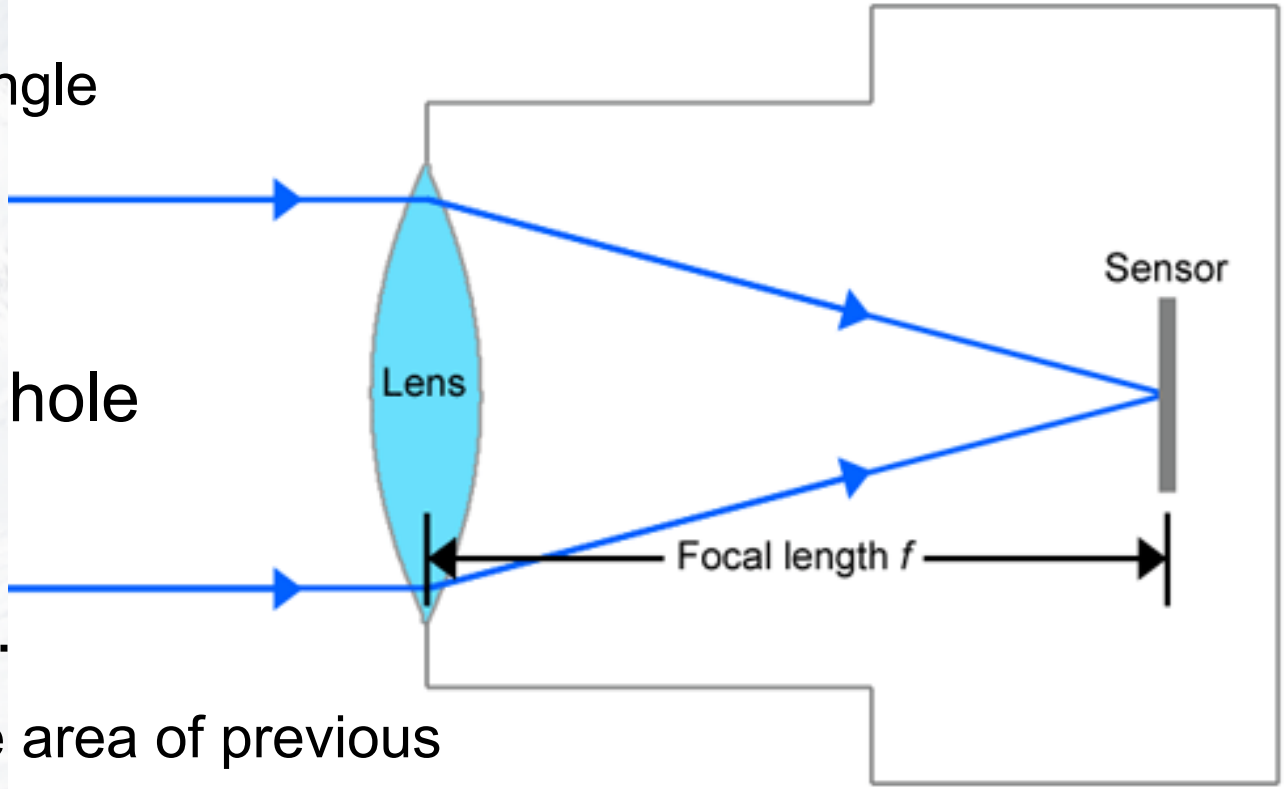
Telephoto Lens

- 200mm
- f/2.0
- 6.4 pounds

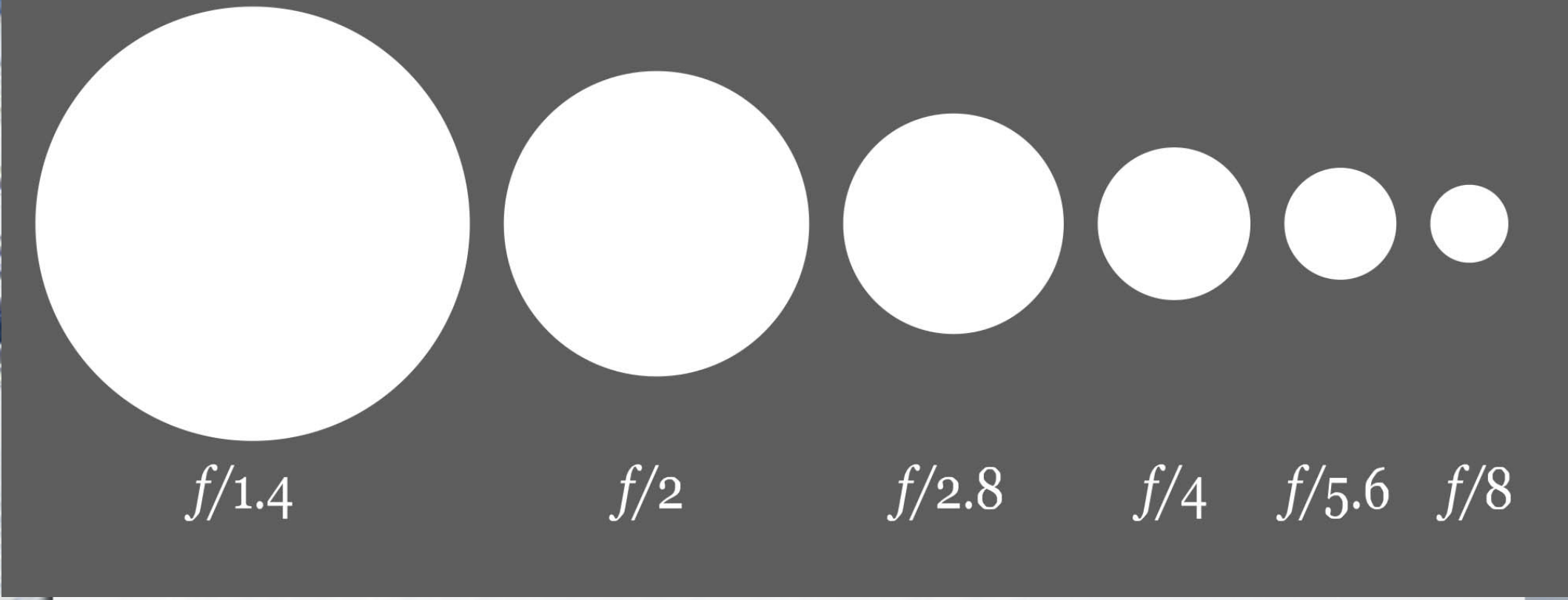
- Big Guns

Focal Length and f/stop

- f = Focal Length
  - Small = wide angle
  - Big = telephoto
- Aperture = f/stop
- f/stop = diameter of hole
- f/3.5 lens
- f/4, f/5.6, f/8, f/11, …
  - Each is half the area of previous
  - Therefore each lets in half the light of the previous



Different Apertures (f/stops)



Aperture

- Focal length = 50mm
- f/1.4 means aperture = 50/1.4 mm = 35.7 mm

Aperture

- Focal length = 50mm
- f/16 means aperture = 50/16 = 3.125 mm

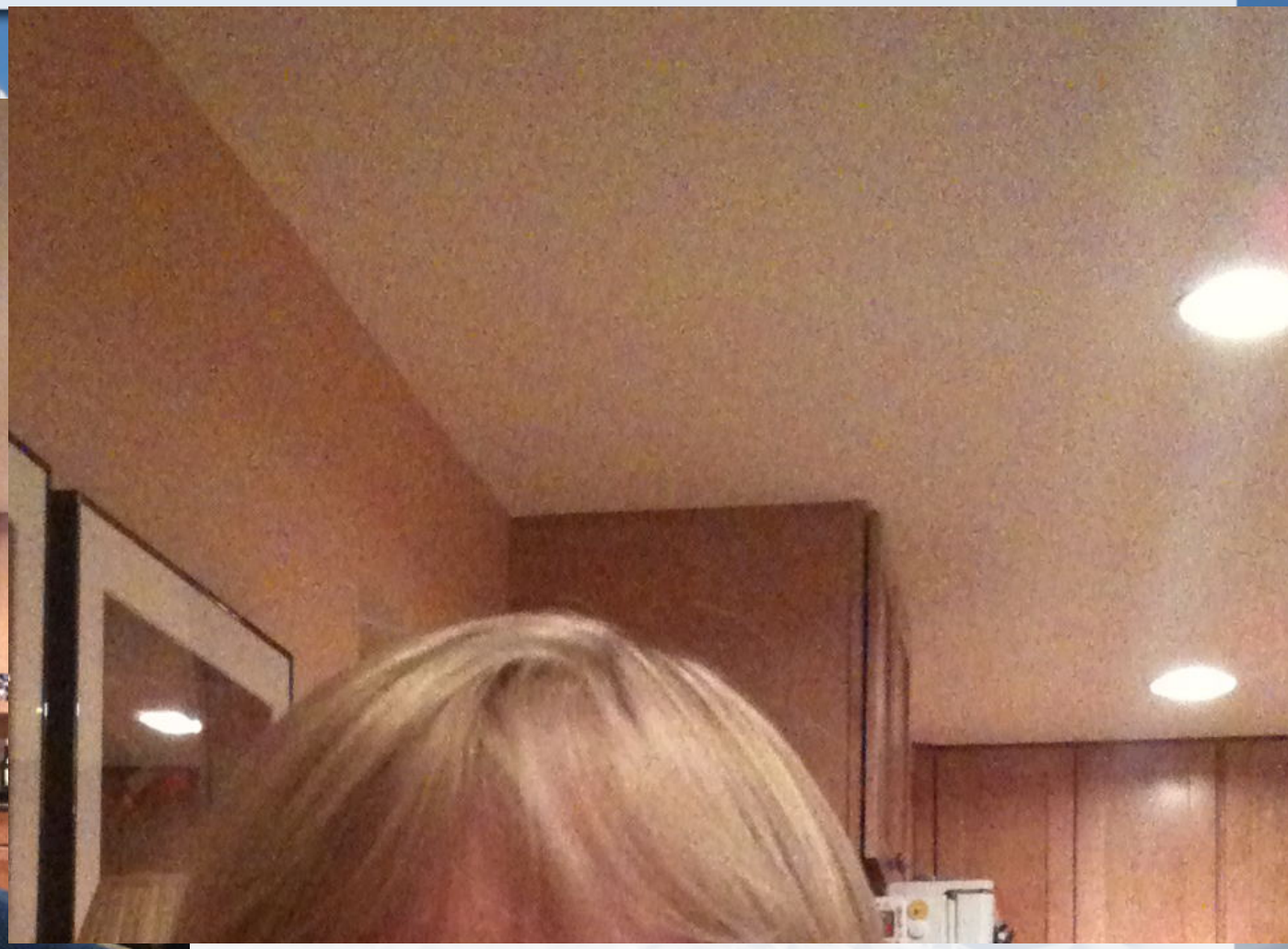
Equivalent exposures

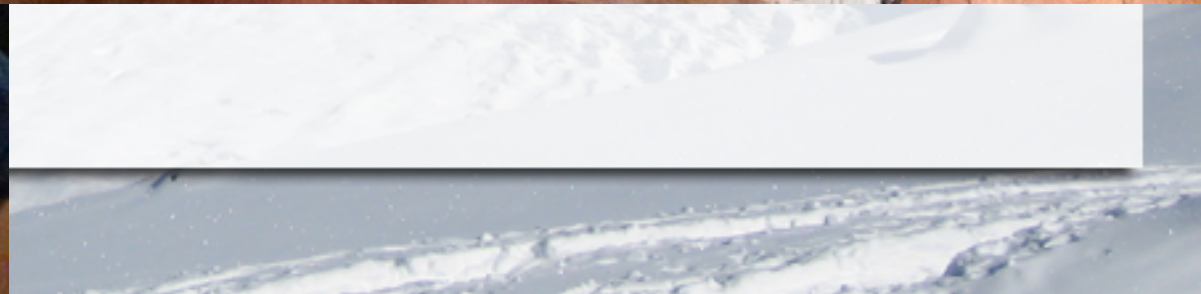
- 1/1000 second at f/2.8
- 1/500 second at f/4
- 1/250 second at f/5.6
- 1/100 second at f/8
- 1/50 second at f/11
- 1/25 second at f/16
- 1/10 second at f/22
- 1/5 second at f/32

ISO

- ISO indicates the sensitivity of the sensor
- Same number was used to indicate speed of film
- Small numbers (50, 100, 200)
  - Need more light
  - Better quality image
- Large numbers (400, 800, 1600, 3200, …)
  - Need less light
  - Often poor image quality (noise)

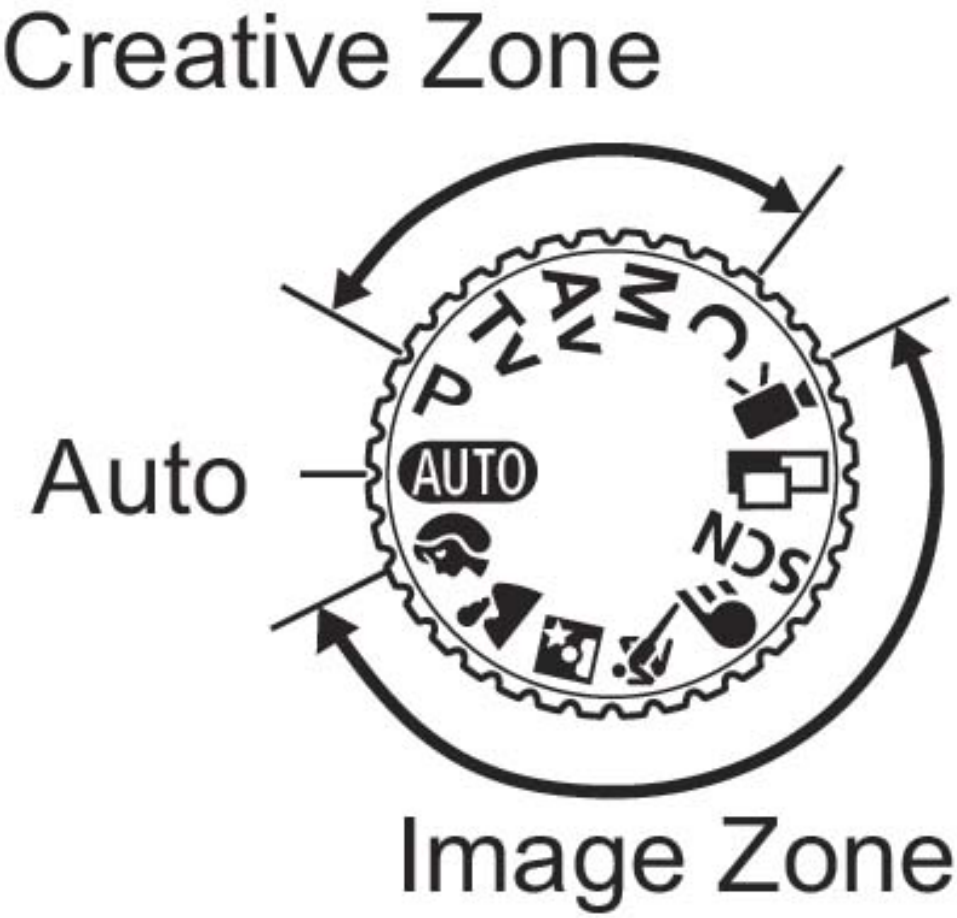
High ISO Noise





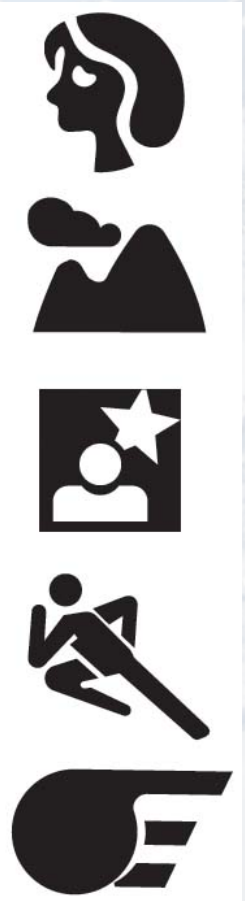
Exposure – Point and Shoot

- Auto: Automatic
- P: Programmed
- Tv or S: You set Time (Shutter)
- Av or A: You set Aperture
- M: Manual You set both



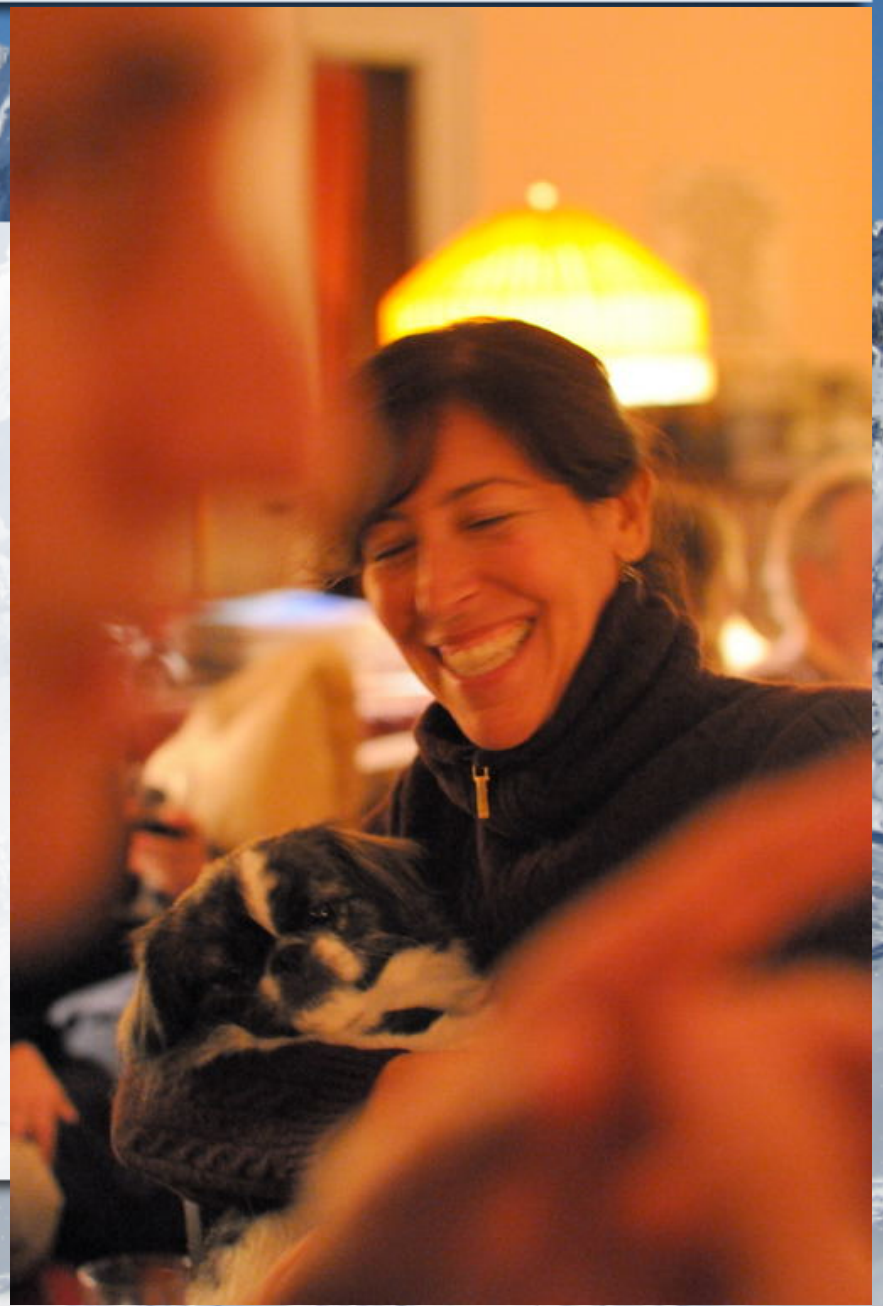
Exposure – Point and Shoot

- Portrait = small DOF
- Landscape = large DOF
- Night Scene = long exposure w/flash
- Fast Shutter to stop action
- Slow Shutter to blur action



Exposure for Shallow Depth of Field

- 1/25 second
- f/2.5
- ISO 3200



Exposure for Shallow Depth of Field

- 1/5000 sec
- f/2.8
- ISO 200

Exposure for Large Depth of Field

- 1/400
- f/10
- ISO 200

Exposure for Blur - Panning

- 1/6 sec
- f/4
- ISO 800

Flash

- Flash is a very short burst of light
  - Typically 1/1000 second or shorter
  - Camera will adjust duration as necessary
- Shutter speed is not important for exposure of the subject, only aperture and ISO
- Shutter speed will determine exposure of background
  - Use slow shutter speed or higher ISO to increase brightness of background
- Flash also produces red-eye
- Bounce off ceiling if possible

Flash - Bad

Flash - Good

- 1/30
- f/7.1
- ISO 800
- Bounced

Summary

- Focus
- Depth of Field
- Exposure
  - Aperture
  - Shutter Speed
  - ISO
- Flash

Berkshire Museum Camera Club

- The Berkshire Museum Camera Club membership is open to all photographers.
  - There is something for everyone from novice to expert.
  - Guest Speakers
  - Competitions
  - Workshops and Tutorials

Berkshire Museum Camera Club

- Meetings are held on the first and third Tuesdays at 7:00 p.m. at the Berkshire Museum on South Street, Pittsfield, Massachusetts.
- Competitions are open to all members. Visitors are always welcome.
- Membership Dues: Individual $35, Family $40, Student $10.
  - Half year: Individual $20, Family $25, Student $5.
- www.BerkshireCameraClub.org

Berkshire Museum Camera Club

- Competitions
  - Digital
  - Color Prints
  - Black and White Prints
  - Slides
- See www.BerkshireCameraClub.org for competition rules

Berkshire Museum Camera club

- Feb 2: Competition #4: “People at Work”
- Feb 16: Competition #5: “General”
- Mar 2: Kevin Bubriski speaks on Documentary & Narrative Photography
- Mar 16: Competition #6: “Narrative”
- Apr 6: Julie McCarthy will give a presentation of her photos of Edna St. Vincent Millay's Steepletop
- Apr 20: Competition #7 "Fire Stations of the Berkshires and its Environs"

Questions