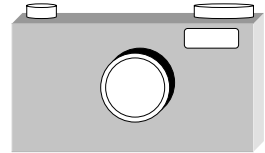


## Camera Controls

The Lens

## Basic Camera Parts

- Light tight box
- Viewfinder
- Lens opening
- Shutter
- Shutter release
- Film advance
- Film rewind



## The Lens

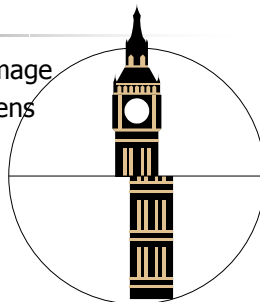
- Function
  - passes light to film when shutter is open
- Types
  - Fixed
    - point & shoot, rangefinder, twinlens
  - Interchangeable
    - SLR, view

## The Lens

- Controls
  - Focus
  - Quantity of light reaching the film
  - Image Area
  - Depth of field

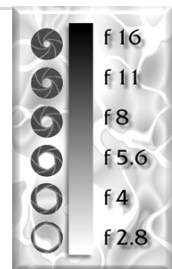
## Focus

- Sharpness of the image
- Focus ring on the lens
- Focusing types
  - fuzzy/sharp
  - split image
  - double image
    - rangefinders



## Quantity of light

- Terms
  - Lens opening, aperture, f/stop
  - The opening of the lens
- Large opening, small number
- Memorize!!!!

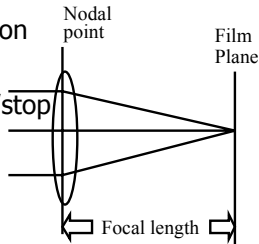


## F/stops

- Size determination

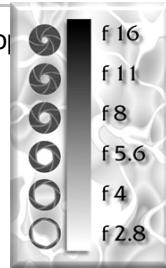
$$\frac{\text{focal length}}{\text{opening dia.}} = f/\text{stop}$$

$$\frac{50}{25} = f/2$$



## F/stops

- Change of one stop
  - Doubles opening
  - Halves opening
- Partial stops
- Terminology
  - Opening up
  - Stopping down



## F/stops

- Maximum aperture while viewing subject
- Shutter release pressed
  - F/stop moves to adjusted setting
  - Returns to full open

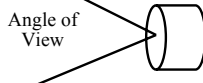
## Lens Ratings

- Smaller number, larger opening
- F/1.4 - fast lens
  - Faster exposure than smaller aperture
  - Light pass faster
- Larger aperture, higher price

## Image Area/Angle of View

- Determined by focal length

- Normal lens
  - 50mm, 46 degree angle of view
- Wide angle
  - 35mm, 64 degree
  - 28mm, 84 degree
  - Uses and problems
    - close quarters, landscape, architecture
    - distance distortion



## Image Area/Angle of View

- Telephoto

- 135mm, 18 degree
- 200mm, 12 degree
- Closeup portraits, sports action
- Distance and image distortion
- Weight
- Teleconverter
  - Fits between lens and camera body
  - 2X doubles lens focal length

## Zoom Lenses

- Multiple focal lengths - same lens
- Convenient, compact, economical
- Maximum aperture -  $f/3.5$

## Depth of Field

- Zone of focus or distance between closest and furthest point in focus
- Factors
  - Lens opening
  - Distance, subject to camera
    - greater depth as distance increases
  - Lens focal length
    - wide angle - greater; telephoto - less

## Depth of Field Ratio

- 1 to 2
- Focus at 10'
  - 2' in front and 4' in back



## Previsualizing Depth

- Depth of field preview button
  - On some cameras
- Depth of field scale
  - Distance scale on lens barrel
  - Depth of field scale
  - Line up focused distance with  $f/stops$

## Hyperfocal Distance

- Depth of field preview
- Distance of the nearest object in a scene that is acceptably sharp when the lens is focused on infinity
- Set the  $f/stop$
- Set infinity opposite the  $f/stop$  on the  $d/f$  scale
- Hyperfocal distance is opposite  $f/stop$