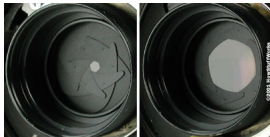


Technically a Good Picture Requires

- Proper Exposure
 - You can see the details you should see.
 - High-key – snow in sunlight
 - Low-key – black velvet in candlelight
- Proper Focus
 - Nothing is blurred that shouldn't be.

Aperture

- The size of the hole letting light through the lens. Usually controlled by an iris mechanism. f1.4 is wide. f22 is narrow.



Proper Exposure Involves

- Fast enough shutter to stop movement, overcome jiggle
- Slow enough shutter to allow just enough light in
- Big enough aperture for 20% average pixel brightness level (average number only – you may want more or less)
- Small enough aperture for adequate depth-of-field (all the things you want to be in focus to be so)

Exposure

- **Amount of light striking the imaging sensor**
- A combination of
 - Intensity of light - **Aperture**
 - Duration of light - **Shutter Speed**
 - **ISO** - Sensitivity of imaging sensor/computer program
- **“Auto” exposure** = about 18-20% average brightness. Produces a pretty good tonal range.
- **Best exposure** shows detail in the image where the photographer *wants* to show detail.
 - It might be much darker (low key) or lighter (high key).

Shutter Speed

- How long the aperture hole is open
- Less than 1/30 sec requires a very steady camera. (Image stabilizer helps)
- 1/60 sec, raindrops are 3/4” long
- 1/500 sec stops most action
- Typical cameras have a range from 30+ seconds to 1/1000 sec

ISO

- Formerly the sensitivity of the film:
 - 50 slow, needs lots of light; 400 fast
- Now relates to the software algorithm used to analyze the CCD output.
 - ISO 50 usually means *ideal* light for sensor range
 - ISO 400 or more means you will see some *noise* (speckling or “artifacts”)
 - Typical ranges 50, 100, 200, 400, 800, ++

Getting Exposure Right

- Getting an acceptable tonal range Lots of information captured in shadows, mids and highlights. (“dynamic range” “luminosity range”)
 - Use the automatic options? (*Modes*)
 - When to *under-expose* or *over-expose*?
 - Using adjustable exposure windows (center, corners, top, bottom)
 - Lens filters can improve focus, eliminate glare, enhance contrast

Camera Qualities

- Lens quality
 - sharpness, color correction, constant aperture
- Optical zoom range
- Aperture limit
 - F 2.0 is good for low light F2.8 not as good
- Battery life with LCD on
- Ruggedness
- Options in the built-in software
- Pixel count
 - Only 2-Mpx needed to make a convincing standard print

Digital Camera Drawbacks

- Slow reaction time
 - Slow to focus if something is moving
 - Slow to get ready to take the next picture
- Quick sequence shots may not be easy
- Some resist giving you control
- Some models go through a lot of batteries.
- Will the formats open when you're 64?

Picture Content

- Featuring the subject
 - Lack of distractions, flattering lighting, filling the frame
 - Something interesting for the eye to find
- Composition
 - Arrangement or “layout”
- Quality of light
 - Direction, hard or soft, morning or midday, color temperature, grayness, use of fill-in lighting, etc.
- Framing
 - Use of natural elements to surround, and point to image
 - Inclusion of narrative details

Digital Camera + + +

- Can be excellent in low light *without flash*
- Can do color correction while taking the picture (better data, wider density range)
- Allow you to “stitch” together panoramas
- Some have very clever modes.
- Many obvious advantages in image storage and processing, cost of film, etc.