

From Snapshots to Great Shots

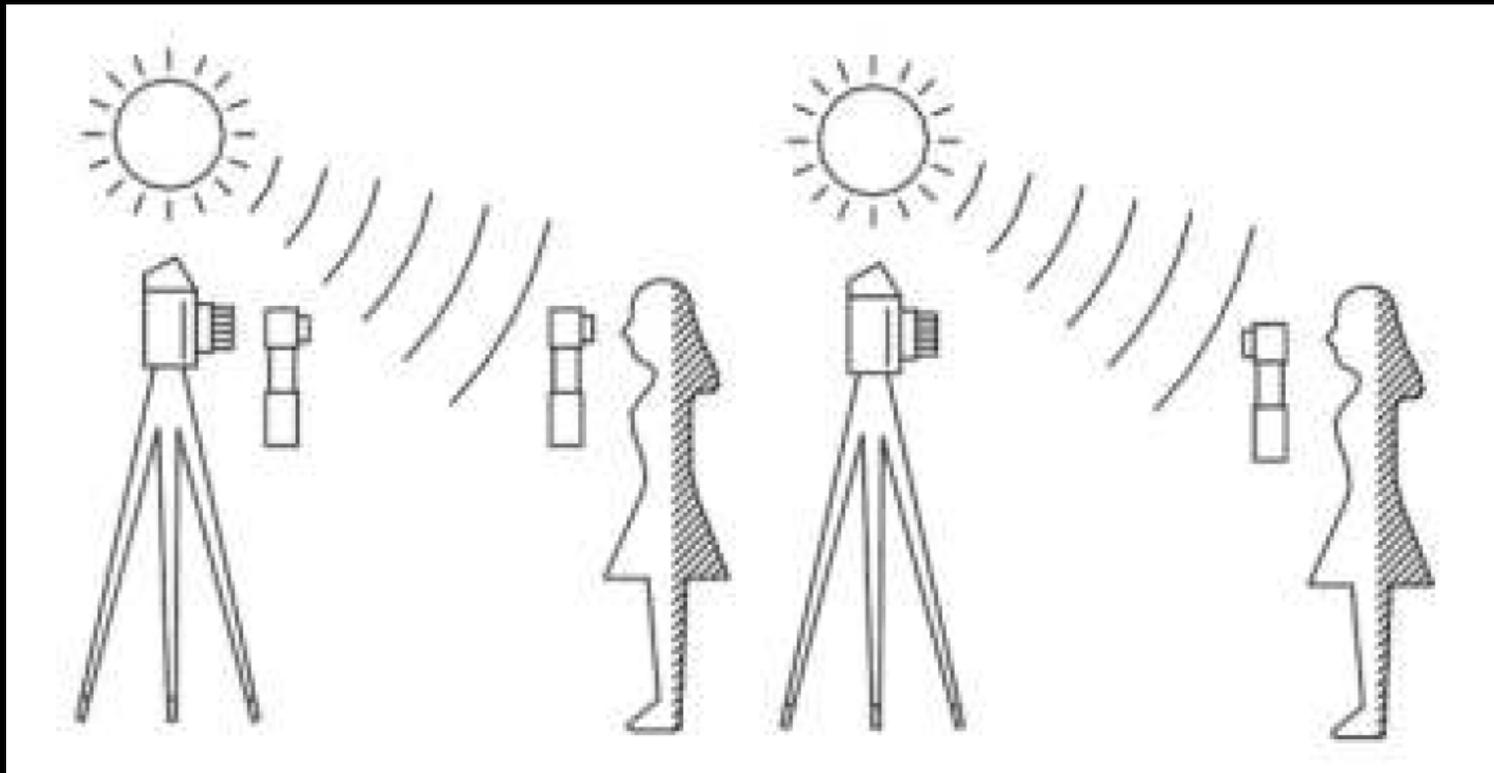
Exposure

Exposure: What is it and why do we care?

- A photograph records the light falling on a subject
- The recording medium (e.g., film or a digital sensor) requires a fixed amount of light to make the image look like the subject:
 - If too much light is recorded, the subject looks too bright
 - If too little light is recorded, the subject looks too dark
- Exposure comprises the settings you make on your camera to account for the amount of light falling on the subject and, hence, reaching the recording medium:
 - Aperture
 - Shutter Speed
 - ISO

How is the light measured so the exposure can be set?

- Two methods:
 - Reflected light meter
 - Incident light meter



Difference Between Incident and Reflected Light Meters

- An incident light meter measures the light falling on a subject
 - The subject color or tonality is irrelevant
 - The measurement just depends on the light source and is reported in absolute terms (Light Value)
 - LV 15: clear, sunny day near noon
 - LV 12: California bright overcast
 - LV 10: Dark, dreary overcast day in Boston, London or Paris
 - LV 7: typical indoor lighting
 - LV 0: defined as the light level that requires a 1 second exposure at f/1 with ISO/ASA100 speed film
 - LV -5: light from the full moon
 - LV -8: the Milky Way

Difference Between Incident and Reflected Light Meters

- A reflected light meter measures the light reflected from a subject
 - White subjects reflect more light than mid-toned subjects, which reflect more light than dark subjects
 - The measurement depends on both the light source and the subject tonality
 - The reported value assumes a mid-toned subject
 - It will have to be adjusted up or down if the subject is brighter or darker than a mid-tone

Cameras Use Reflected Light Meters

- To automate the adjustment for subject tonality, cameras use several different approaches (metering modes)
 - Center weighted metering
 - Matrix metering
- Alternatively, the photographer can take complete control with spot metering
 - Mid-tone = meter reading
 - White = meter reading + 2 or 3 stops
 - Black = meter reading – 2 or 3 stops

Reflected Meter Examples



Spot metering on black card, f/5.6 1/60 second
Black came out gray, scene is Overexposed



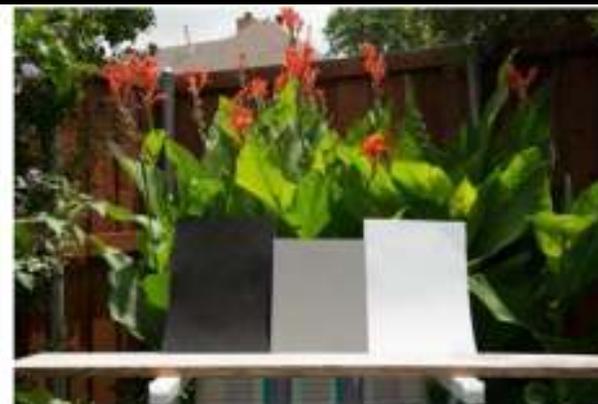
Spot metering on gray card, f/5.6 1/400 second
Gray came out gray, about right



Spot metering on white card, f/5.6 1/1250 second
White came out gray, scene is Underexposed



Matrix metering, f/5.6 1/400 second
(influenced some by bright sky at frame edge)



Center Weighted metering, f/5.6 1/320 second
(watches center, not much influenced by the edge)

What is the Correct Exposure?

- It depends on the artistic intent
 - Sometimes you want a dark image (low-key) and sometimes you want a bright image (high-key)



How Does This Affect Prints?

- Photo printing machines have to make an exposure just like cameras
 - Too little exposure, and the print is dark
 - Too much exposure, and the print is bright
- These machines use their own automated exposure techniques to guess the right exposure
 - Usually, they are pretty good
 - But if you want to make a low- or high-key print, they will almost certainly get it wrong

Example (Thanks, Lestlie Prokosch!)



The Costco 8x10 Print Was Washed Out

- Since the subject is dark, the automatic exposure adjustments tried to brighten it to a mid-tone



- The solution: turn off auto-adjustments

