

~ Take Control Of Your Exposure ~ Understanding ISO, Shutter Speed And Aperture

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ISO Rating

Speed which digital sensor or film records light

SLOW 100 200 400 800 1600 FAST

Works in Stops. Stop = doubling or halving of any value.

Slow ISO = long exposures, slow shutter speeds and/or large apertures

Fast ISO = short exposures, fast shutter speeds and/or small apertures

ISO controls digital noise or film grain and color saturation

Use the slowest ISO that gives you the result you want!

Shutter Speed

Length of time shutter is open - think fractions of a second

SLOW 1/8 1/15 1/30 1/60 1/125 1/250 1/500 FAST

Works in Stops. Stop = doubling or halving of any value

Fast Shutter Speed = stop motion (Guide - birds flying minimum 1/1000 sec. or faster)

Slow Shutter Speed = blur (Guide - waterfall veils 1/15 sec. or slower)

Shutter speed controls how motion records, including camera shake.

Use the shutter speed that gives you the result you want!

Aperture or F/Stop (Focal Ratio)

Size of opening in a lens in relation to the length of that lens (think fractions)

Small opening SLOW f/22 f/16 f/11 f/8 f/5.6 f/4 f/2.8 Large Opening FAST
[Think Fractions 1/22 1/16 1/11 1/8 1/5.6 1/4 1/2.8 1/22 is smaller than 1/4]

Great Depth of Field ----- Shallow Depth of Field

Works in Stops. Stop = doubling or halving of any value

Common Terminology: Open Up = change to larger lens opening, let more light in

Common Terminology: Close Down = change to smaller opening, let less light in

Aperture controls depth of field.

Depth of Field = distance from foreground to background that appears to be in focus in your photo

Small openings = great depth of field, Large openings = shallow depth of field

Use the aperture that gives you the result you want!

Exposures are reciprocal.

If you meter your subject using any given ISO setting at f/4 @ 1/250 sec., then these other settings will give you the correct exposure at that same ISO setting:

f/5.6 @ 1/125 sec. = f/8 @ 1/60 sec. = f/11 @ 1/30 sec. = f/16 @ 1/15 sec.

The difference will be depth of field and how motion/camera blur is recorded.

If you can not reach the shutter speed or depth of field YOU want, change your ISO.

REMEMBER

Think of all exposure settings as a trade off.

- If freezing action is important to you, and you need 1/1000 sec. shutter speed, then by opening up your aperture to gain more light, you will lose depth of field.
- If great depth of field is important to you, and you need f/22, by using a slower shutter speed to gain more light, you will risk camera movement/subject blur.
- If you can't achieve the Depth of Field you want, or the shutter speed you want, THEN change your ISO setting. Remember, the higher the ISO, the more noise you'll get.

And if you think this is hard in digital, you should try it on film!