

# Through The Lens

*A guide to digital photography for computer enthusiasts.  
After the click of your camera, you're only half done!*

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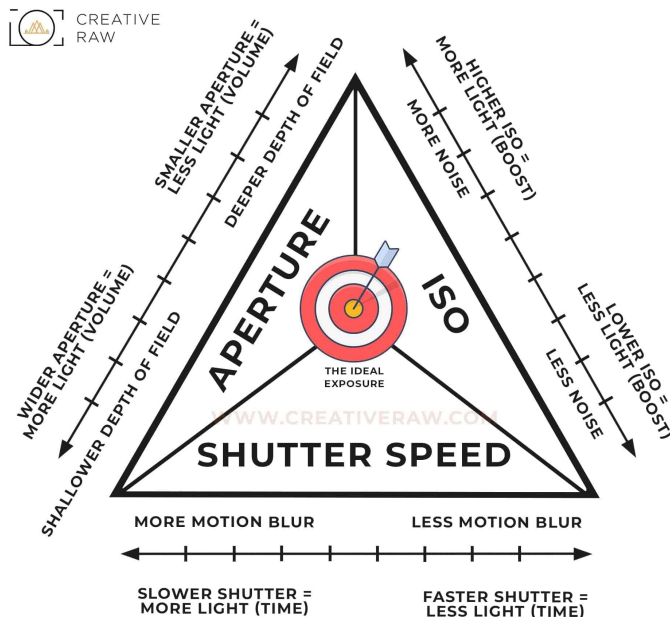
## The Exposure Triangle

by Lynda Buske

The camera exposure triangle consists of aperture, shutter speed and ISO. The aperture is simply the size of the hole through which the light passes into your camera. A larger aperture lets in more light and has the effect of decreasing the depth of field, i.e. the amount of the image that is considered in sharp focus. It can vary depending on what you (or the camera) decide is appropriate for the photo you are trying to take.

Shutter speed is pretty self-explanatory and simply represents the amount of time the sensor (or film) will be exposed to the light before the shutter mechanism closes. It has the effect of changing the amount of motion there is in an image.

The ISO refers to the sensitivity of the camera sensor. While you can't actually change the sensitivity of the sensor, a digital camera can increase the gain of the signal coming from the sensor. In effect this appears to increase sensitivity by making dim objects appear brighter, but at the cost of signal noise being introduced, causing speckles to appear in otherwise smooth tones.



Source: <https://creativeraw.com/>

Each choice you make for any one parameter (aperture, shutter speed, and ISO) will have implications for one or both of the other two parameters in order to maintain a proper exposure. For example, if you make the shutter speed faster in order to stop the motion of a bird's wings, this lowers the amount of light hitting the sensor and you must compensate for that by either changing the aperture to a larger opening, increasing the ISO, or both.

***Situation 1:*** You want to capture a bird in flight. A wide aperture will let in the most light and give you the fastest speed. The depth of field will be small which can be an advantage as the bird will stand out against a nicely blurred background. If at the widest aperture, you still don't have enough speed for a flying bird (perhaps as fast as 1/1500 sec), your remaining option is to manually bump the ISO higher. While a high ISO gives you more light and therefore faster speed, it can create "noise" or graininess in your image. However, if you were shooting a puffin in flight, you might be quite willing to accept some noise to nail a fast-moving nature shot which might otherwise have too much motion blur. You can either reduce the noise in post processing or assume all eyes will be on the puffin anyway!

***Situation 2:*** You are inside a cathedral and have a low light situation. You use a small aperture to achieve a long depth of field so everything is in focus from the closest foreground objects to the most distant objects. Unfortunately, this increases the exposure time and you find you cannot hold the camera steadily enough. You can bump the ISO to increase sensitivity as well as prop your camera on a pew to minimize the camera movement during a long exposure. The same situation could occur outdoors if it was a rainy day and you wanted a long depth of field. Solution would be the same, i.e. bump up the ISO or use a tripod to steady the camera during a longer exposure.

***Situation 3:*** You have your tripod and want to take a picture of a waterfall with an exposure of half a second to make the water appear silky smooth. If you set your shutter speed to half a second, even with the smallest aperture you may find too much light comes in and your photo will be overexposed. In this situation, you can lower the light levels by setting the ISO to its lowest value, thus decreasing sensitivity of the sensor. If you reach the lower limit of ISO and there is still too much light for a proper exposure, you can turn to neutral density filters which cut down on the light entering the camera.

Make the triangle work for you!