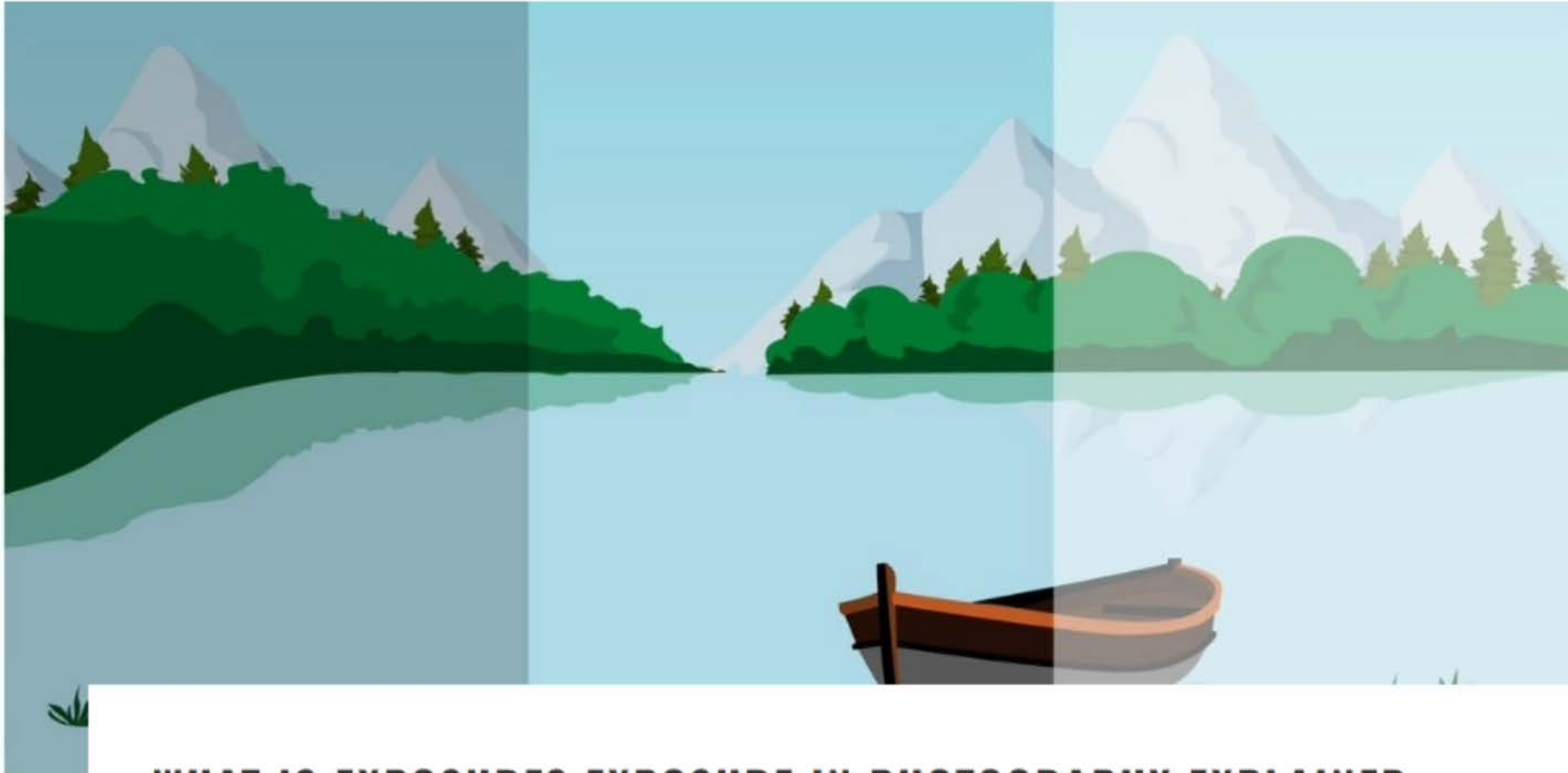




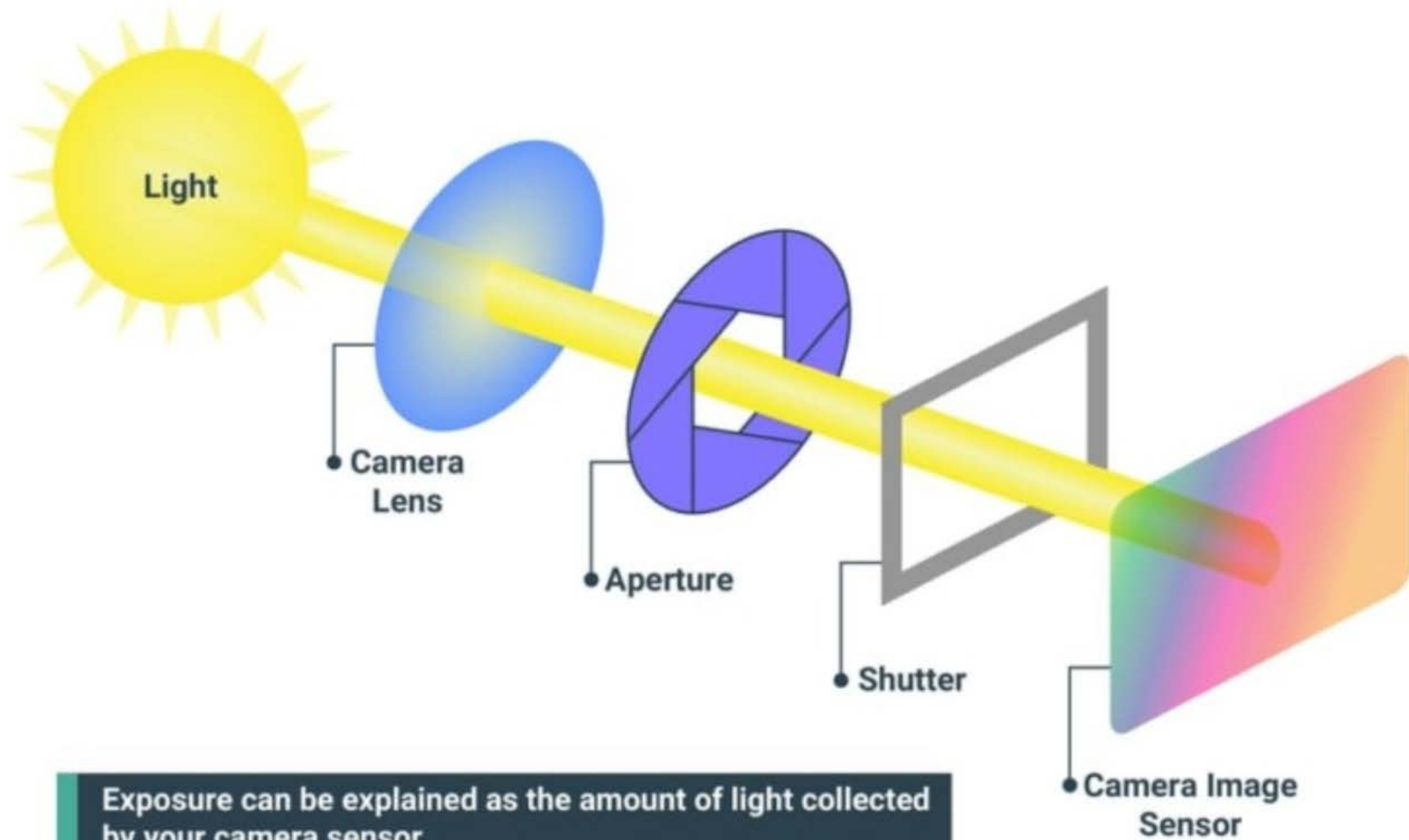
EXPOSURE



WHAT IS EXPOSURE? EXPOSURE IN PHOTOGRAPHY EXPLAINED

Exposure in photography can be easily explained as the amount of light collected by your camera

EXPOSURE IN PHOTOGRAPHY EXPLAINED



Exposure can be explained as the amount of light collected by your camera sensor

EXPOSURE EFFECT IN PHOTOGRAPHY

UNDEREXPOSED



If the image is underexposed, we are missing information in the darkest pixels of the image. If we increase the exposure in post-processing, we might find luminance and color digital noise

CORRECTLY EXPOSED



The sensor captures all the information in the histogram from the darks/shadows to the whites/highlights

OVEREXPOSED

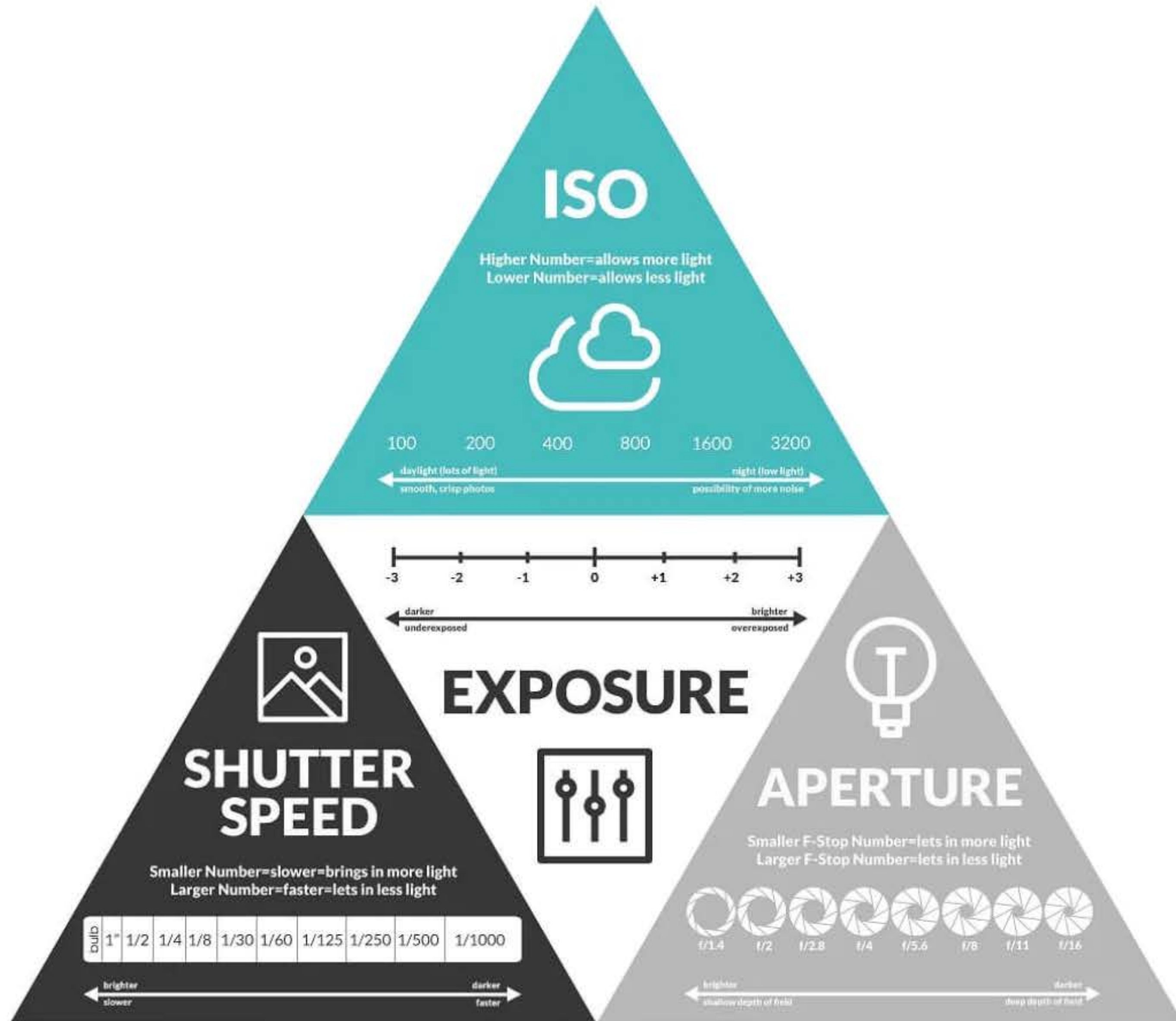


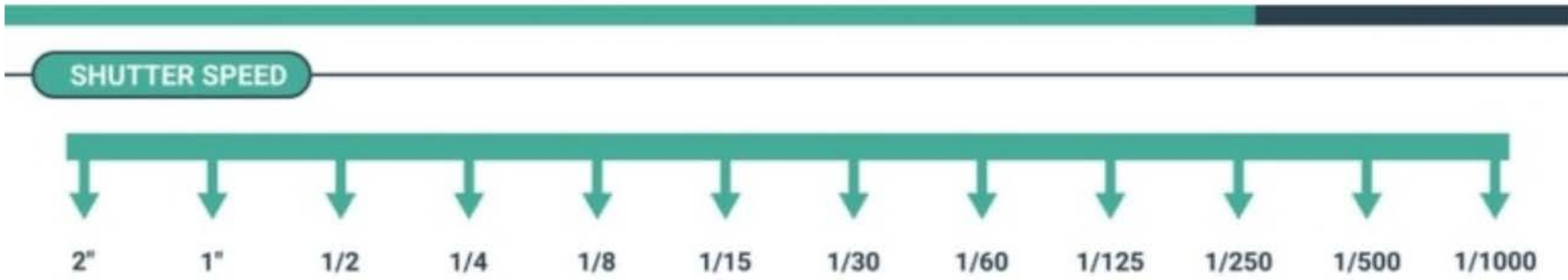
If the image is overexposed, we are missing information in the brightest pixels of the image. If we decrease the exposure, recovering the details in the highlights might be not possible since all the information could be burned-out

Exposure value is the result of the interaction of the three main exposure basics:

aperture, shutter speed, & ISO.

THE EXPOSURE TRIANGLE





Shutter speed is the length of time that the shutter of the camera remains open, collecting light.

It is measured in seconds, or fractions of a second.

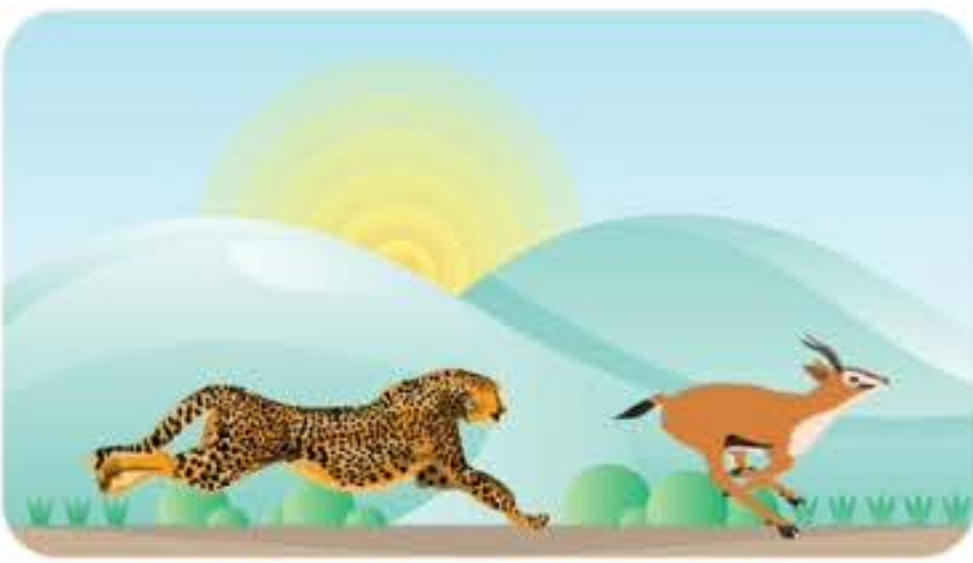


SHUTTER SPEED



MOTION

Shutter Speed and Motion



The second and most important effect of shutter speed on photography is motion.

By using a slower or faster shutter speed, you'll be able to capture a more static or dynamic image, something that is also known as motion in photography.



slow shutter speeds
motion blur





fast shutter speeds

freeze motion

Aperture is the opening in the lens that determines how much light passes through the camera lens to the sensor.

If you use a wider aperture, the camera lens will allow more light to reach the camera, and the image will be brighter (more exposed).

If you close down your aperture and block the amount of light that passes through the lens, the image will be darker (less exposed).



APERTURE

F/1.4

F/2.0

F/2.8

F/4.0

F/5.6

F/8.0

F/11

F/16



DEPTH OF FIELD

Shallower
Depth
of field



f/2.8

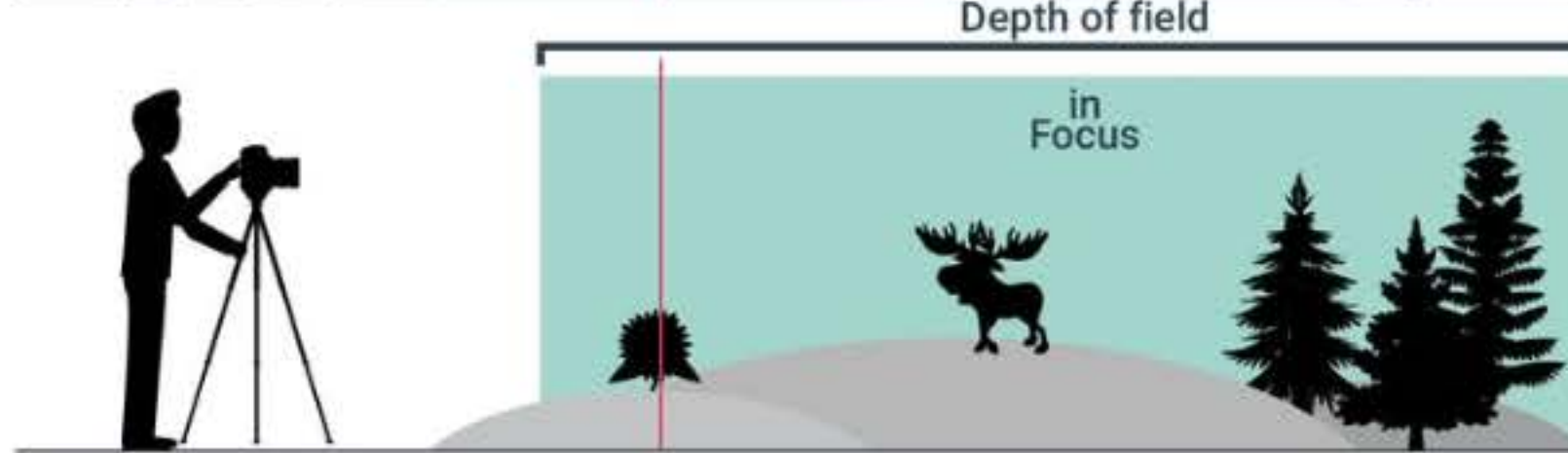
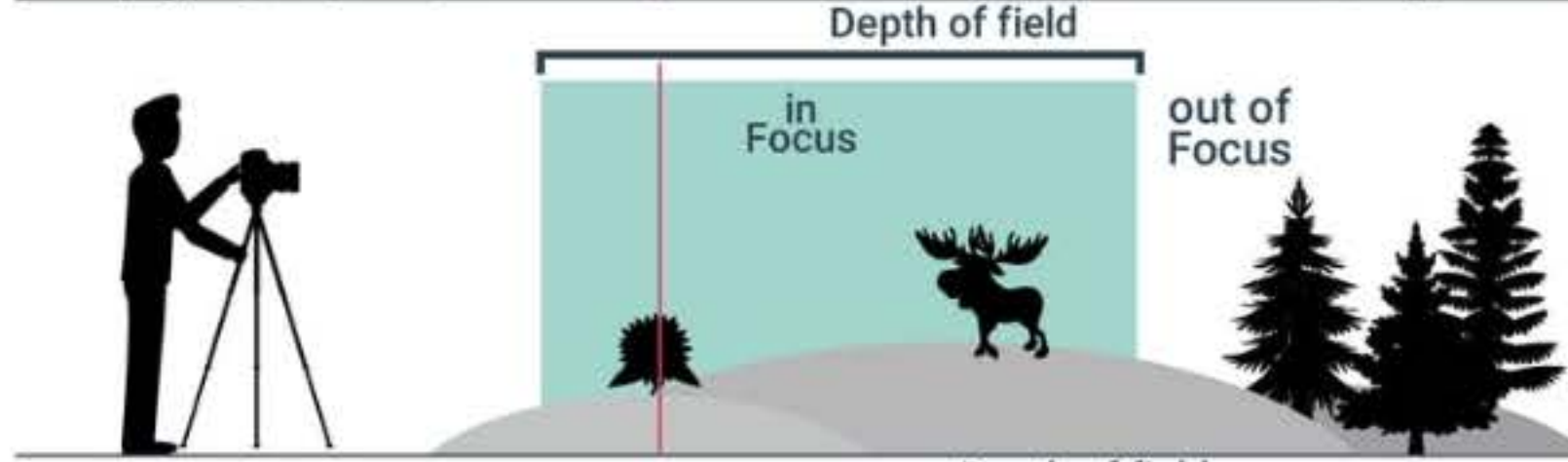
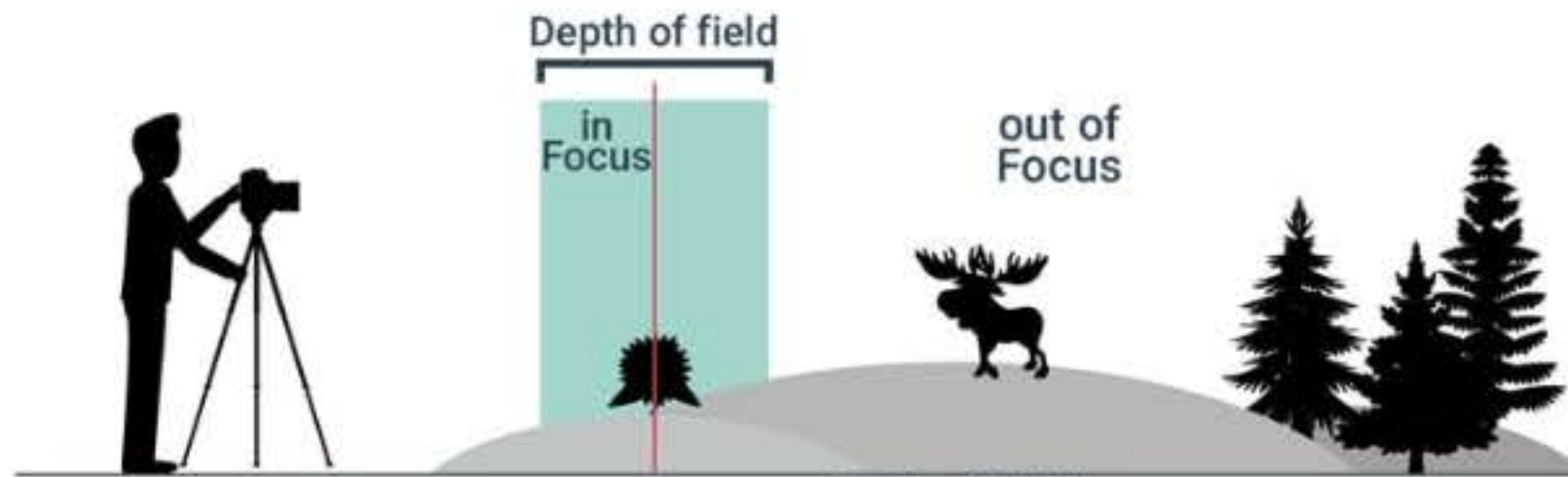


f/5.6



f/11

More Depth
of field



The second most important aspect is the relation between aperture and depth of field.

The **depth of field** is the proportion of the image that is reasonably sharp and in focus.

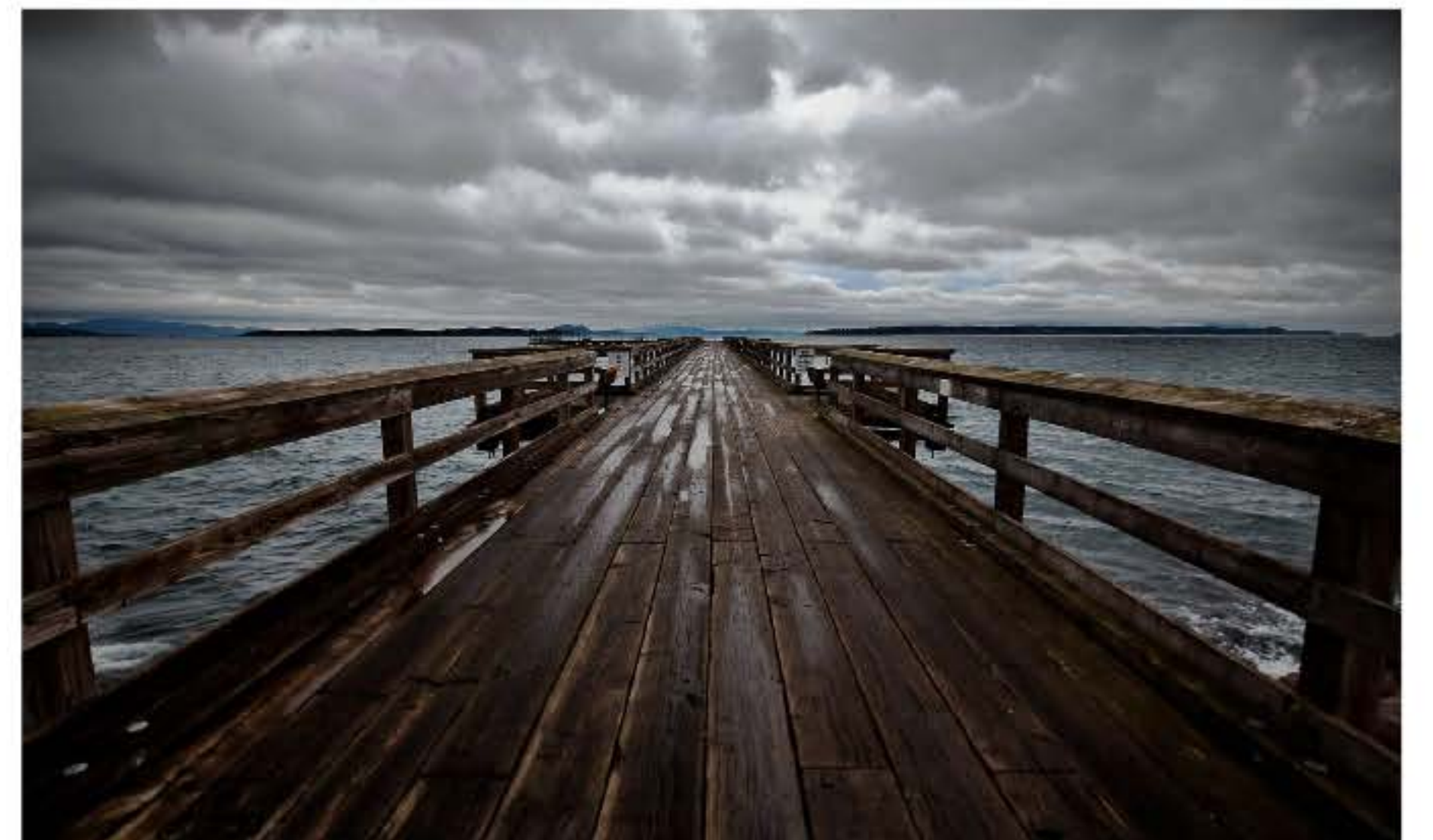


shallow depth of field

narrow zone of focus

deep depth of field

all in focus



ISO

ISO 100 ISO 200 ISO 400 ISO 800 ISO 1600 ISO 3200 ISO 6400

ISO AND EXPOSURE



ISO 100



ISO 200



ISO 400



ISO 800



ISO 1600



ISO 3200

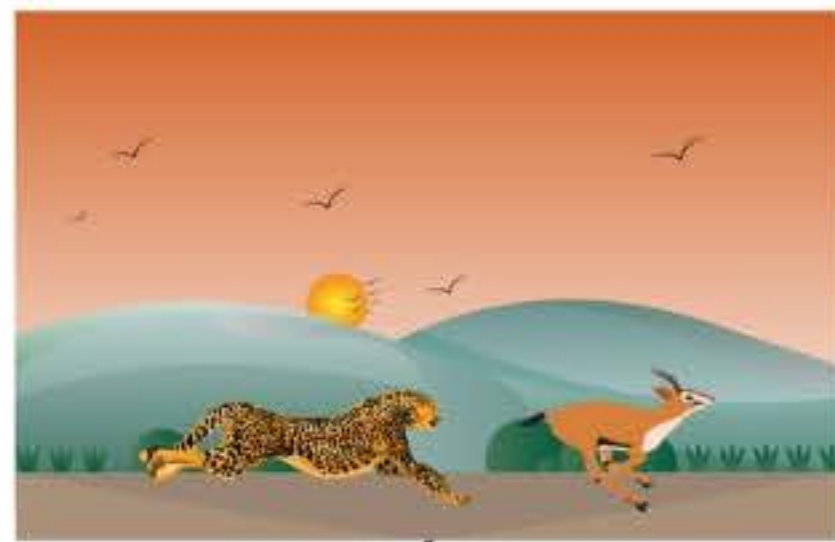
ISO is the amplification of the light captured by the camera sensor.

Putting it simply, the higher the ISO, the brighter (and more exposed) your image will be; the lower the ISO, the darker it will be, if the other settings are fixed.

ISO

ISO 100 ISO 200 ISO 400 ISO 800 ISO 1600 ISO 3200 ISO 6400

ISO AND DIGITAL NOISE



ISO 100



ISO 200



ISO 400



ISO 800



ISO 1600



ISO 3200

To capture quality images, the main goal is to set ISO as low as possible.

As mentioned before, as you start increasing the ISO, you'll progressively push the capacity of your camera sensor to "create" a brighter image, and this will translate into digital noise.

In most cameras, Base ISO is ISO 100.

ISO values like ISO 200 and ISO 400 are also considered low ISO values in photography.

Examples where you should set a low ISO in photography are all scenes with enough light and where you don't need a fast shutter speed.



High ISO values in photography are mostly used in low light conditions or situations where you need a fast shutter speed.

Using a high ISO in night photography is one of the most common situations for using high ISO, since some scenes like photographing the Milky Way will require you to push the limits of your camera to capture a dark scene in a relatively short exposure of time.

