



EXPOSURE

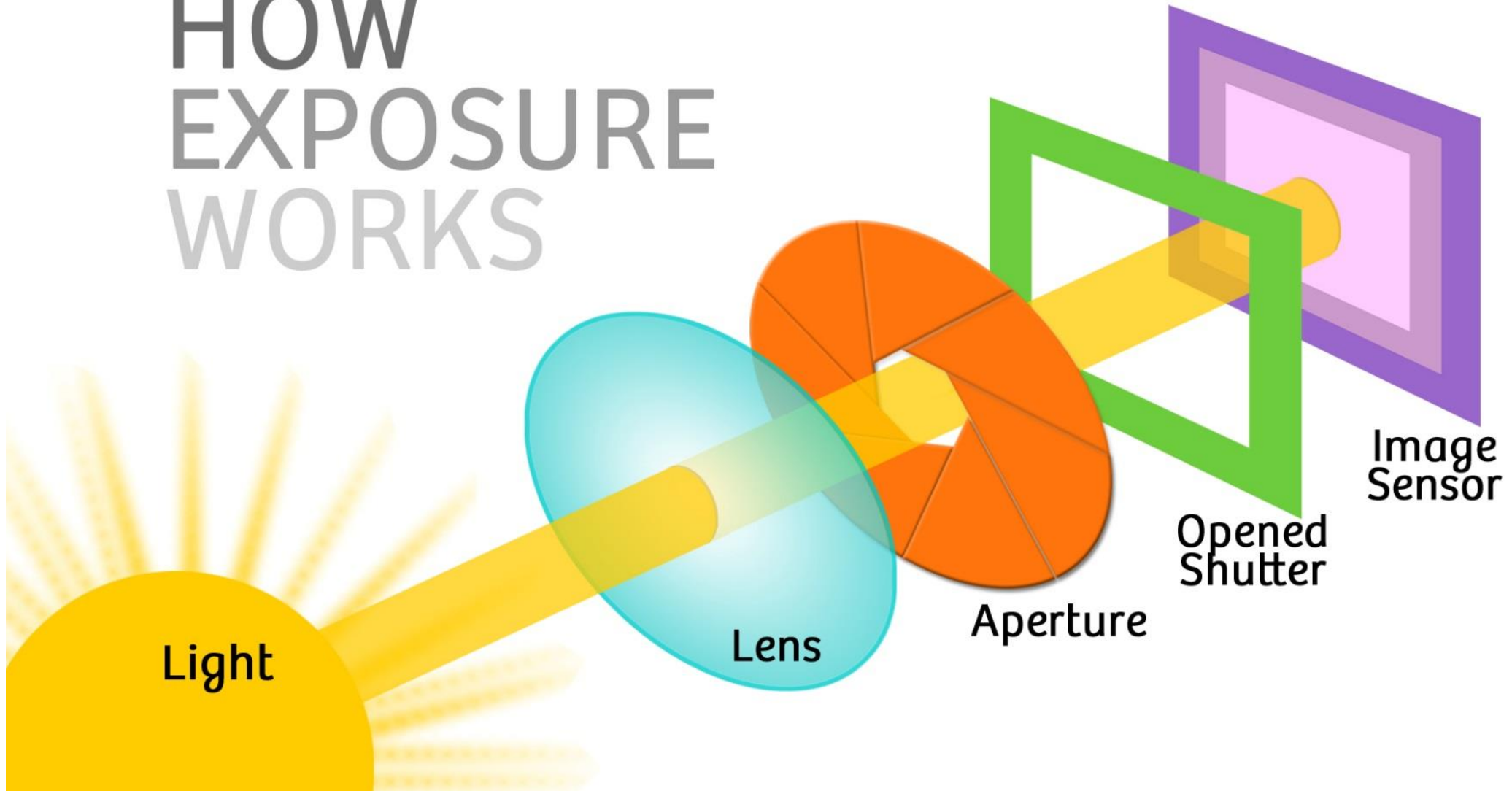


# Exposure

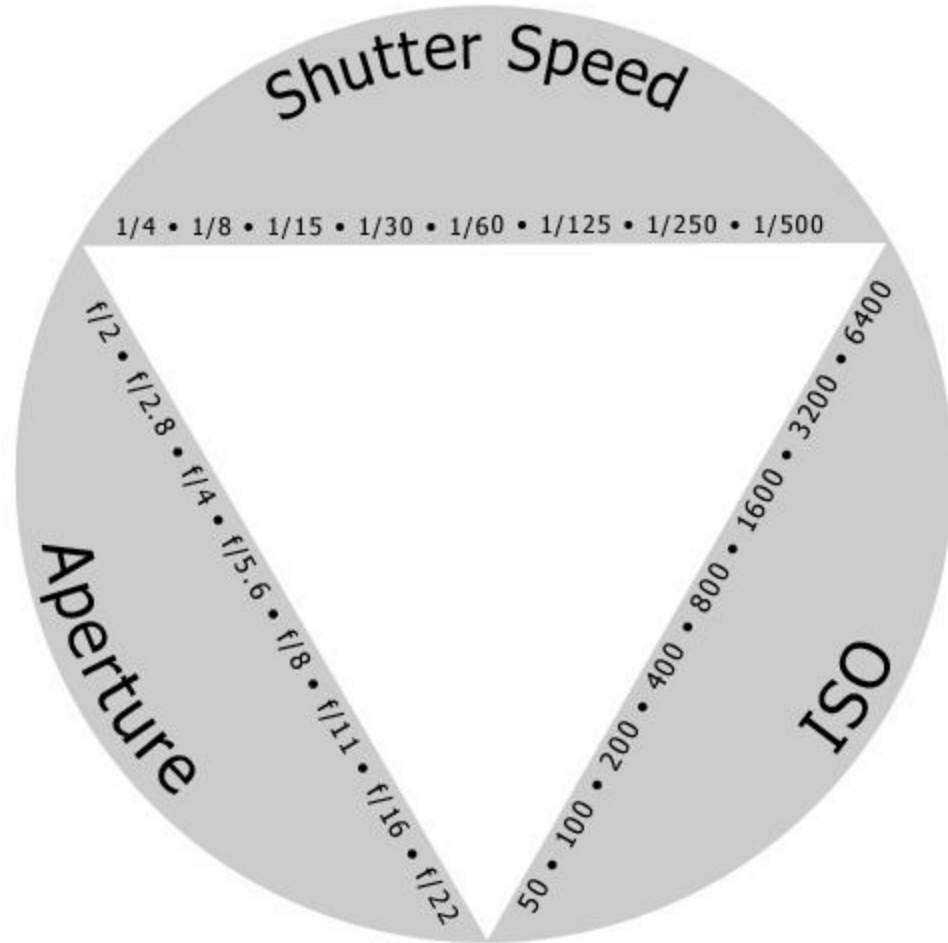
- **Exposure** is the amount of light collected by the sensor in your camera during a single picture.



# HOW EXPOSURE WORKS



# The Exposure Triangle



- **The exposure triangle** is a common way of associating the three variables that determine the exposure of a photograph.

- **The three elements are:**
- **Aperture** – the size of the opening in the lens when a picture is taken, measured in f-stops (f2, f3.8, f22, etc.)
- **Shutter Speed** – the amount of time that the shutter is open, measured in fraction of a second (1/4, 1/8, 1/200, etc.)
- **ISO** – the measure of a digital camera sensor's sensitivity to light, measured in numbers (100, 200, 400, etc.)

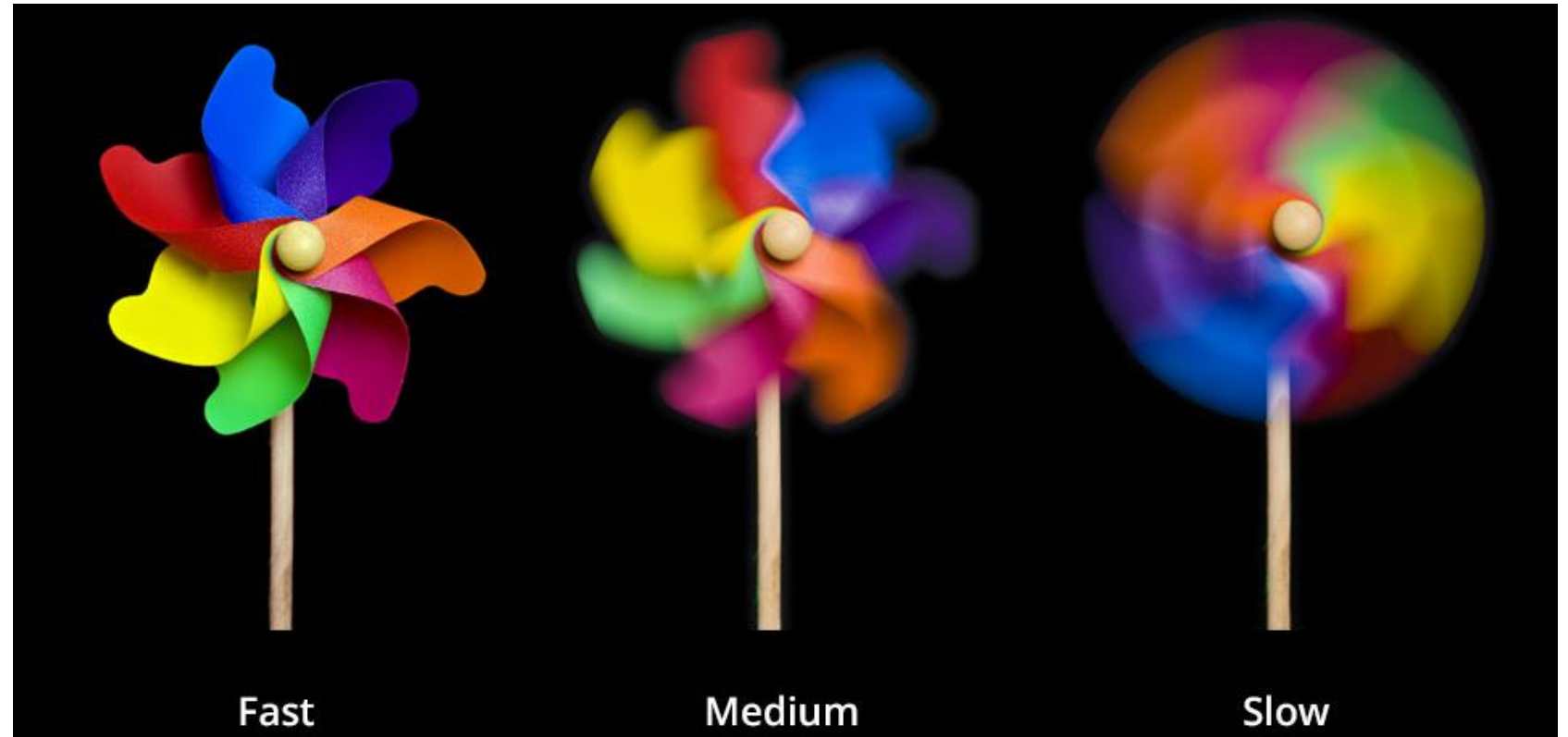


# Shutter Speed



**Shutter speed is the amount of time that the shutter is open, exposing the sensor to light.**

**Shutter speed is measured in seconds - or in most cases fractions of seconds. The bigger the denominator the faster the speed (ie 1/1000 is much faster than 1/30).**





To stop any fast-moving action, a high speed such as 1/1000sec or even 1/2000sec is essential, although you will need to take the action into account. A person jogging toward you can be “frozen” with a modest speed such as 1/60sec, while a racing car speeding by you will need 1/1000sec or more.

# shutter speed: motion control



1/500



1/125



1/60



1/30



**In most cases you'll probably be using shutter speeds of 1/60th of a second or faster.** This is because anything slower than this is very difficult to use without getting camera shake.

**Camera shake** is when your camera is moving while the shutter is open and results in blur in your photos





**If you're using a slow shutter speed (anything slower than 1/60) you will need to either use a tripod or some type of image stabilization (more and more cameras are coming with this built in).**

### Correct posture

**Stabilize your upper body and take a position that keeps the camera from moving.**



#### Point ①

One hand holds the grip of the camera, and the other hand supports the lens.

#### Point ②

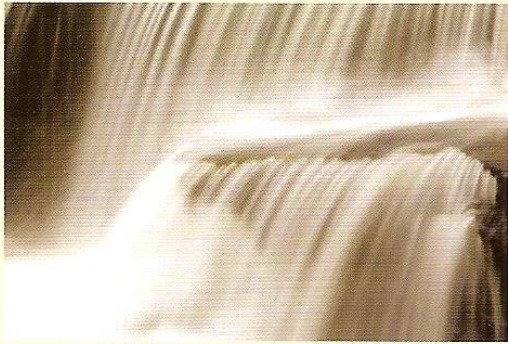
Take a secure stance with your feet shoulder-width apart.

#### Point ③

Lightly tuck your elbows against your body.

When shooting in a kneeling position, steady your upper body by placing your elbow on your knee.



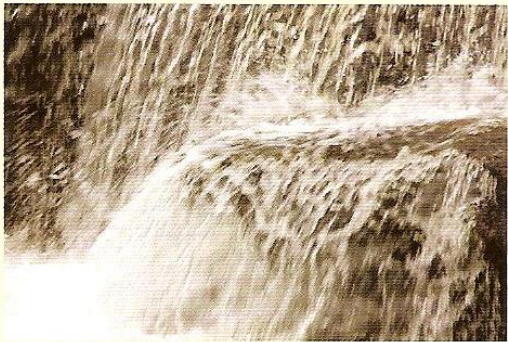


1 second

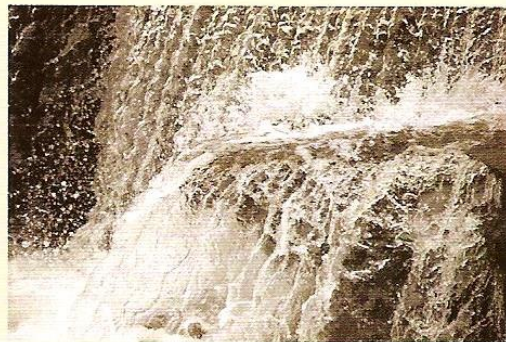


1/20 sec

Your shutter-speed choice can result in very different interpretations of the same scene. For example, this waterfall cascade was photographed at a selection of speeds. There is no right or wrong approach; it is simply a matter of taste. Any scene that features movement can be approached in this way.



1/80 sec

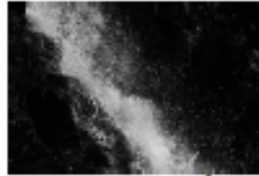


1/640 sec

At the other extreme, longer shutter speeds are needed for subjects like night scenes and for producing deliberate blur effects in daylight, such as flowing water in a waterfall.

# Mode S (Shutter Priority)

In shutter-priority auto, you choose the shutter speed while the camera automatically selects the aperture that will produce the optimal exposure. Use slow shutter speeds to suggest motion by blurring moving subjects, fast shutter speeds to “freeze” motion.



Fast shutter speed ( $1/1,600$  s)

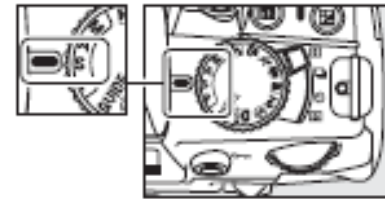


Slow shutter speed (1 s)

To take photographs in shutter-priority auto:

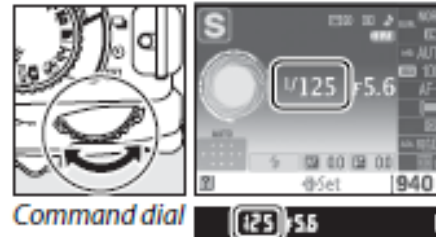
- 1 Rotate the mode dial to S.

Mode dial



- 2 Choose a shutter speed.

Shutter speed is shown in the viewfinder and information display. Rotate the command dial to choose the desired shutter speed from values between 30 s and  $1/4,000$  s.



Command dial

- 3 Frame a photograph, focus, and shoot.