SHUTTER SPEED IN DIGITAL PHOTOGRAPHY

Shutter speed is the amount of time that the shutter is open.

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

When you're not using a tripod, you'll want a shutter speed no slower than of 1/125th of a second. This is because anything slower than this is very difficult to capture clearly without getting the blurry effects of 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 1/125) you will need to either use a tripod or some type of image stabilization (more and more cameras are coming with this built in).

Just like ISO and aperture, shutter speeds double with each setting. You'll have the options for the following shutter speeds that look like this:

1/500, 1/250, 1/125, 1/60, 1/30, 1/15, 1/8

IMPORTANT NOTE: *Most cameras don't display these shutter speeds in fractions! Instead, 1/500 looks like 500, and 1/125 looks like 125. The camera leaves out the numerator, so you'll have to remember that this number does not mean 500 seconds, but one five-hundredth of a second.*

Some cameras also give you the option for very slow shutter speeds that are not fractions of seconds but are measured in seconds (for example 1 second, 10 seconds, 30 seconds etc). These are often marked with a second symbol (“). Minutes are indicated with a single quote mark (‘). Very long shutter speeds are used in very low light situations, when you're going after special effects and/or when you're trying to capture a lot of movement in a shot). Some cameras also give you the option to shoot in ‘B’ (or ‘Bulb’) mode. Bulb mode lets you keep the shutter open for as long as you hold it down. To use bulb, you will need a stopwatch or clock to measure the exposure time.

Below are some examples of shutter speeds. Many are much longer than you will ever use. **Try to match each shutter speed with its length of time.** The answers can be found at the end of this lesson, just before the assignments.

400	One twenty-fifth of a second
4”	Thirty minutes
30	One minute, thirty seconds
30’	One four-hundredth of a second
1’30”	Four seconds
125	One thirtieth of a second

Shutter Speed and Movement

When considering what shutter speed to use in an image you should always ask yourself whether anything in your scene is moving and how you’d like to capture that movement. If there is movement in your scene you have the choice of either freezing the motion (so it looks still) or letting the moving object intentionally blur (giving it a sense of movement).

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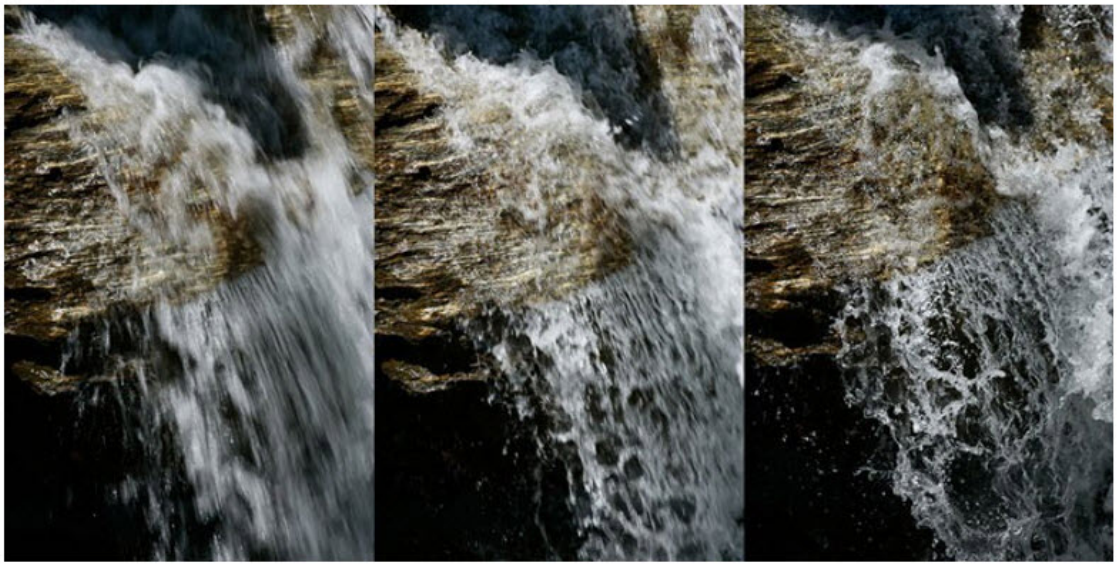
To freeze movement in an image you'll want to choose a faster shutter speed. To let the movement blur you'll want to choose a slower shutter speed. The actual speeds you should choose will vary depending upon the speed of the subject in your shot and how much you want it to be blurred.

Image from: http://www.idigitalphoto.com/shutter-speed-explained/



1/25 of a second | 1/60 of a second | 1/400 of a second

- The image on the left was taken with a long shutter speed that captured the motion of the water.
- The image on the right was taken with a short shutter speed in order to freeze the motion.
- The image in the center was taken with a shutter speed somewhere in between the two.

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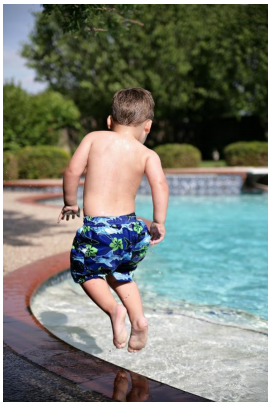
1/125 of a second 1/25 of a second

The image on the left was taken with a short shutter speed that froze the people spinning around.
The image on the right captured the motion of the carousel.

The next images that were taken with long and short shutter speeds. The motion that we see gives clues as to how long the shutter was open when the picture was taken.



This image was taken with a short shutter speed, probably around 1/400 of a second. We know this because his feet aren't touching the ground. He is frozen in the air. A shutter speed of less than 1/125 of a second make leave him blurry

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This image was taken with a long shutter speed, probably around 20-30 seconds. The stripes of red light are the tail lights of a moving car, driving around the white parked car. The parked car is not moving and looks still, but the mov- ing car does not record at all due to how fast it is moving. Its tail lights are very bright and record as moving stripes of light. The photographer used a tripod here. If he or she did not, the image would not be in focus due to camera shake.

This image was taken with a short shutter speed. The motion of the wine in the glass is frozen.

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This image was taken with a long shutter speed of about 10 seconds. The motion of the carnival ride is captured. The actual machine is lost to motion, but we can see the trail of the lights. We know the photographer used a tripod, because the metal railing and background is perfectly sharp. The people in the foreground are a bit fuzzy and ghosted because of their natural movement while they stand and watch.

This image was taken with a short shutter speed, probably around 1/1000 of a second. The water is completely frozen in time. It's surface tension is evident and it sprays up into little droplets as it meets his head.

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This image was taken with a long shutter speed, perhaps five to ten minutes. The stripes of light are created by the traffic as it makes its way around the windy road. The cars disappear due to their motion, but the light trails remain because they are so bright.

This image was taken with a short shutter speed. The motion of the bird is frozen

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Answers to matching exercise:

400	One four-hundredth of a second
4”	Four seconds
30	One thirtieth of a second
30’	Thirty minutes
1’30”	One minute and thirty seconds
125	One twenty-fifth of a second