Shutter Speed

Camera Parts and Functions


You're using the
wrong shutter speed.
Here, let me adjust
that for you.
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Objectives

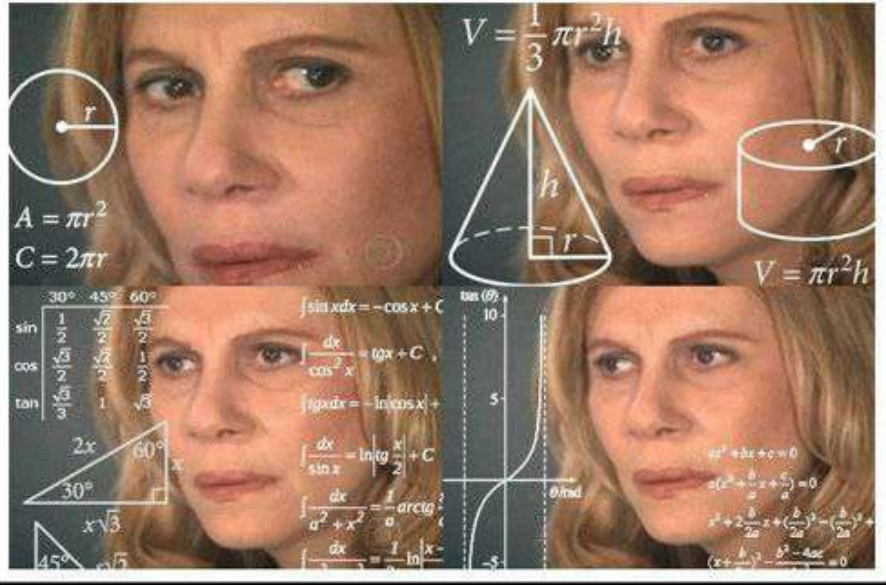
Students will be able to:

- Understand the shutter speed component of the Exposure Triangle
- Know the differences when it comes to fractions of a second
- Determine what makes a successful fast shutter speed
- Know how to do a long shutter speed correctly

Bellwork

Imagine you had a superpower were you got to freeze time. What would you do with it? Why?

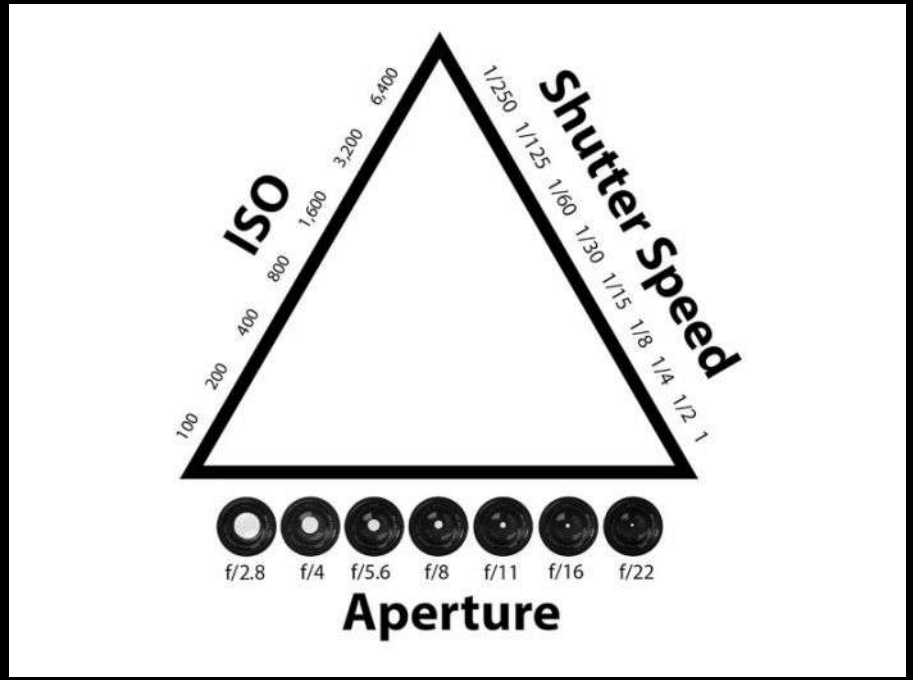
when you explain the exposure triangle to amateurs



The Exposure Triangle

In this lesson, we will be talking about Shutter Speed, one of the three sides of the Exposure Triangle.

Remember that with all three sides, when you adjust one, you typically have to adjust the other two.



Exposure

There are three factors that influence the exposure of your image:

- *Aperture*
- *Shutter Speed*
- *ISO*

A “correct” or “good” exposure occurs when you maintain as much detail as possible in both the very bright parts (highlights) as well as the very dark parts (shadows) of an image.

How much of a range in which you can capture detail from light to dark is referred to as the *Dynamic Range*. As you are about to see over the next few days, there can be many “correct” or “good” exposures.

What is Shutter Speed?

The amount of time the shutter is open that allows light in.

While the shutter is open, the image sensor is exposed to light. Think of it as how long the camera “sees” the image.

Shutter Speed is measured in fractions of **Seconds**

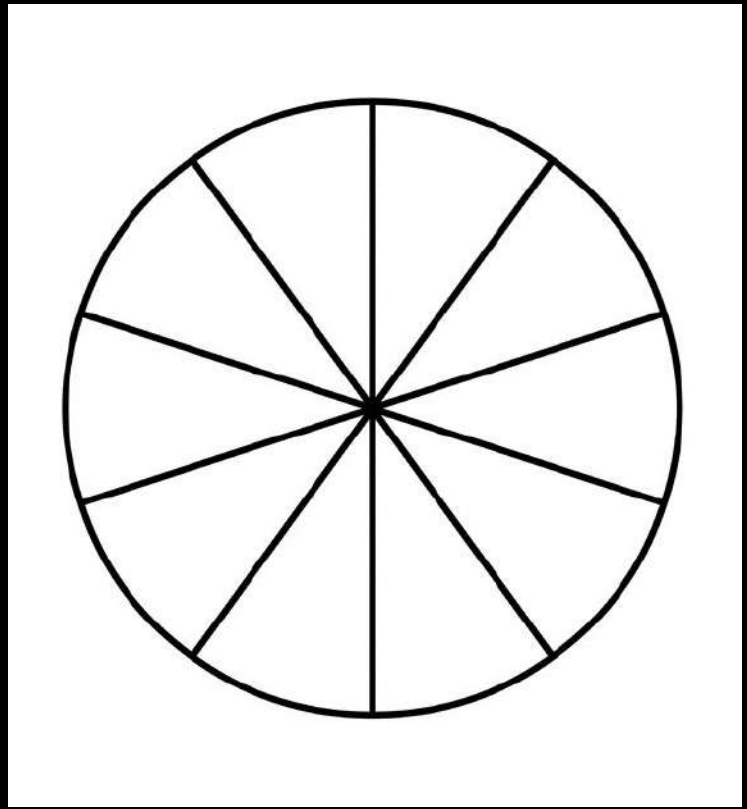
Common shutter speeds:

- 1 whole second,1/2,1/4,1/8,1/15, 1/30,1/60,1/125,1/250,1/500,1/1000
- B = Bulb – shutter is held open for a specified amount of time.

Which is faster?

Remember that shutter speeds are measured in fractions of a second. Think of it like you would a pie in Math. The more you cut it up, the smaller the shutter speed, which makes it quicker.

Cameras can typically shoot as slow as 30 seconds.



Fast Shutter Speed

Fast Shutter Speeds (1/125 and higher) are used to stop motion and will “freeze” the subject in action.

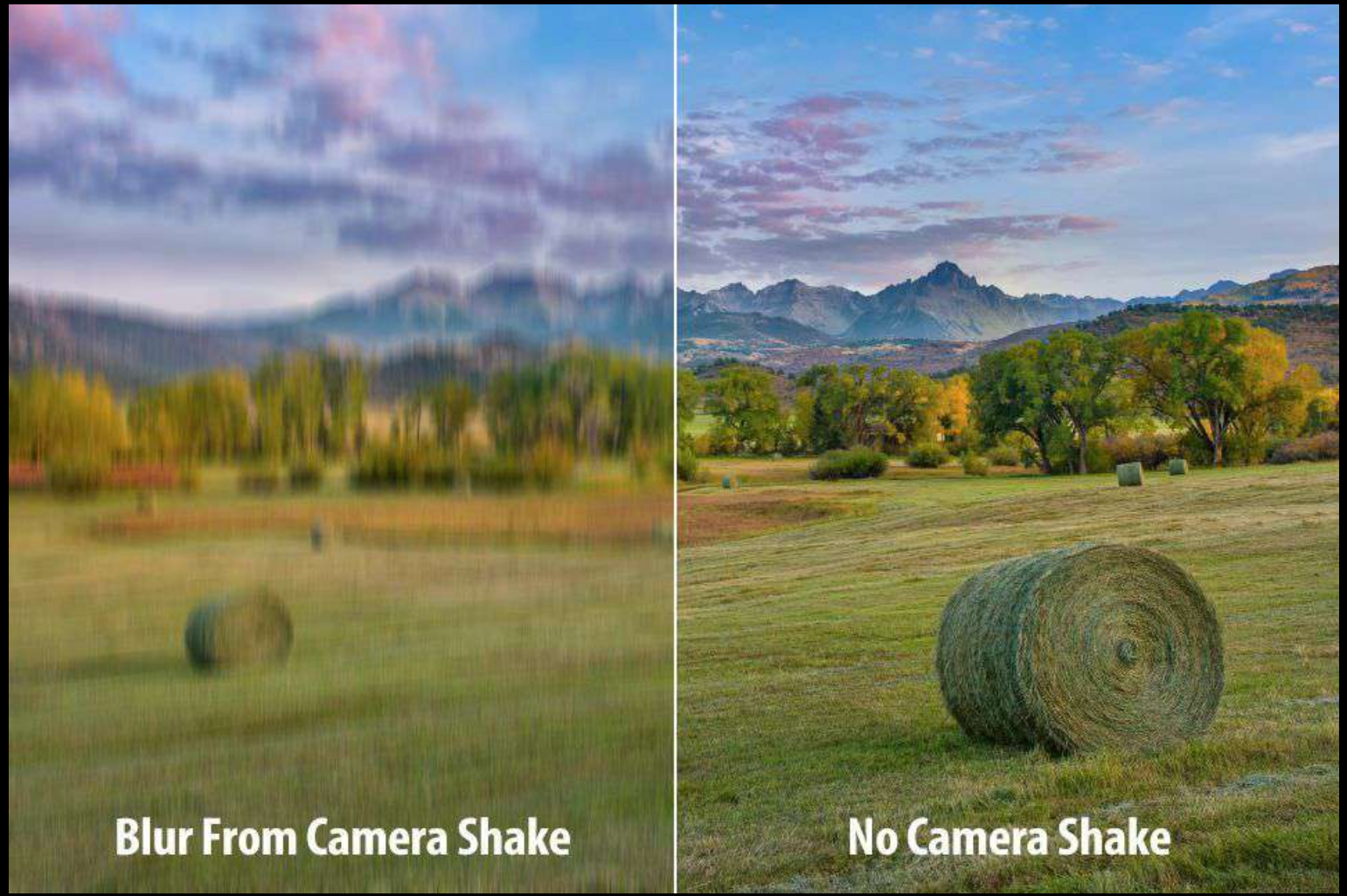
If your hands shake, typically 1/125 is the slowest you can get without seeing camera shake.

The faster the speed, the more “frozen” your action becomes.

Slow Shutter Speed

Slow Shutter Speeds (1/60 or slower) can be used to portray movement or speed.

Anything slower than 1/60 it’s recommended to use a tripod in order to prevent camera shake from being seen.


Blur From Camera Shake
No Camera Shake

Very Slow Shutter Speed

Very Slow Shutter Speeds (5 seconds or slower) can be used in very low light situations to obtain correct exposure, or achieve dramatic effects.

Always use a tripod with this slow of a shutter speed.

Shutter Speed Scale

1/1,000 | 1/500 | 1/250 | 1/125 | 1/60 | 1/30 | 1/15 | 1/8 | 1/4 | 1/2 | 1 Second | Bulb

Shorter times

Fast Shutter Speed

Freeze Motion

Very little light

Longer Times

Slow Shutter Speed

Blur Motion

A lot of light

BEWARE!

As your shutter speed decreases, your chances of capturing a blurry image increase because you must hold the camera steady for a longer period of time.

It is recommended to use a tripod at 1/30 or slower to reduce blur caused by a photographer holding the camera in order to take a photo using a long exposure.

Water with Fast Shutter Speed

Water with Slow Shutter Speed

Do you want to freeze or show blur?

Here is a helicopter showing a fast enough shutter speed to show the individual blades of it’s rotor.

Why might this be bad?

Do you want to freeze or show blur?

If you have even a little bit of blur added to the rotor blades, it helps make the helicopter look like it's not going to fall right out of the air and helps give it some motion.

Do you want to freeze or show blur?

On the other hand, sometimes seeing actions blurred isn’t always helpful.

Do you want to freeze or show blur?

Here, you want to show all the action completely frozen so that you can see defining details, like the winner.

Do you want to freeze or show blur?

Think about shutter speed when you're approaching a photo assignment. Here, having slow shutter speed to show a dancer makes the photograph unique and something not a lot of people have seen before.

Do you want to freeze or show blur?

But freezing the motion can also be very beneficial to your photograph. Here, the dancer seems to be weightless, lost in a moment.

Do you want to freeze or show blur?

Typically for sports you want to have a higher shutter speed to freeze that action, really seeing all of the details caught so it feels like you're in that moment.

Do you want to freeze or show blur?

Where if you try to do slow shutter speed in sports photography, you'll either get everything blurry and can't tell who's what, or it becomes somewhat comical. It's harder to do slow shutter speed successfully in sports.

This technique shown here is called panning photography.

Do you want to freeze or show blur?

Some photos feel like they’re frozen but actually are super long exposures. This was probably taken at 30 seconds.

Definitely need a tripod for any star or night photography.

Do you want to freeze or show blur?

Whereas this photo was probably taken at a faster shutter speed but you lose a lot of the light that was exposed to the camera’s sensor.

Do you want to freeze or show blur?

Keep in mind that *too long* is still the same even for night photography. Here the shutter speed was open for so long that the stars themselves go from being dots to being smudges.

Please note

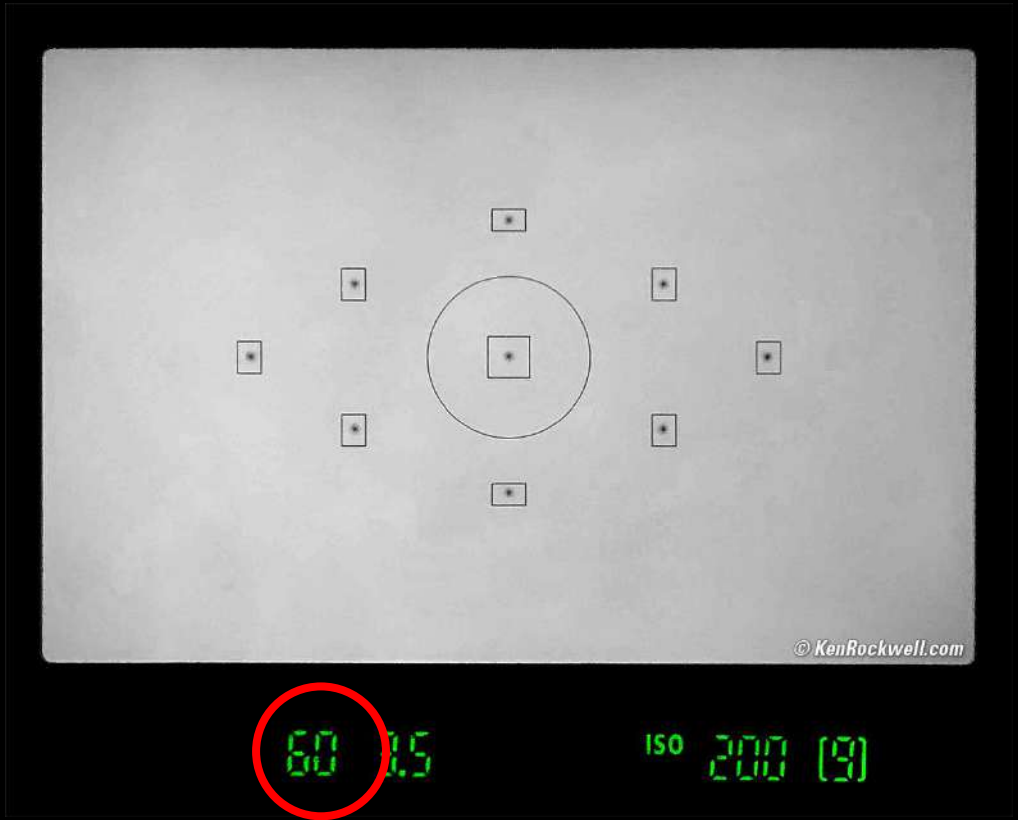
When you see photos like this, please don’t think they were just open for the whole night and that’s what you get. This was probably created using multiple long exposure shots to create the final photo.

How to Set Shutter Speed on a Camera

When using a Canon Rebel T3i, you need to use the main dial at the top to set your Shutter Speed.

Where do we find our Shutter Speed Value on the camera?

Where do we find our Shutter Speed Value in the Viewfinder?




UNDERSTANDING
SHUTTER SPEED
WITH STAR WARS LEGO

Closure

Think back to what you've learned today and how it might connect to what you've learned so far in class.

What are three things that you think are important from this lesson?

Discuss this with your neighbors and be prepared to share with the class.