

# Digital Photography School

## Moving Toward Manual Settings: Understanding Shutter Speed (a beginner's guide)

This post on Understanding Shutter Speed, written by Hawaii photographer [Natalie Norton](#) is a follow up post to [Moving Toward Manual: Understanding Aperture](#). The posts are being written as a beginner's guide to gaining confidence in using manual camera settings.

# Manual Settings Part II Shutter Speed

Hello boys and girls, are we feeling confident that we're understanding aperture and how it affects overall exposure and depth of field??! How'd the assignments go? Are you scratching your head right now thinking "what's this sista talking about??" If you're not quite up to speed on Aperture (fstop) and it's role in exposure and/or if you're not totally clear on depth of field, I suggest taking a quick peek at [part one](#) on understanding aperture before you jump into this weeks installment.

You're so close to mastering manual settings I can just taste it! I know, exciting right?! Yeehaw. (Let's just face it, no one knows how to spell that word. Not a soul. . . is it Yehaw? Yeeha? Yee Haw? Boo.)

### Let's review:

- **What is Exposure? NO PEEKING!!! Answer first and then read the answer below!**

*Exposure is basically the process of recording light onto your digital sensor (or film). It is the amount of light (Aperture) that is recorded over a specific amount of time (Shutter Speed). And that's that. You with me so far?*

- **What is Aperture? Again, NO CHEATING! Try to remember on your own and then look at the answer below.**

*Your Aperture, like the iris in your eye, "opens up" to let in more light or "closes down" to let in less. Your Aperture controls the Depth of Field in a photograph.*

- **What is Depth of Field? Cheaters never prosper. The end.**

*The depth of field is basically the part of the image that is in focus in any given image. If the entire image is crisp and in focus, then the image has a large (deep) depth of field. If there is a lot of fall off, meaning that only a small portion of the image is in focus while the remainder is blurry, then the image has a very shallow depth of field.*

How did you do? You really need a 3 out of 3 to be ready to move on. We're not going in to depth on exposure, aperture or depth of field, because like I said we covered those last week. if you're confused in any way shape or form, don't make it harder on yourself by trying to start here. Go back and read Moving Toward Manual: Understanding Aperture. It's important that you have a foundation before we move along. Off you go. If you are in fact up to par and ready to move on, it's time to get this party started!

## **SHUTTER SPEED!**

### **1. What is Shutter Speed?**

In the most basic terms possible, shutter speed controls the ability to blur or stop action in a photograph. It is the MOMENT that light is exposed (recorded) on your digital sensor (or film) and the duration (length) of the exposure. Simple, no? NO? Ok: it is the amount of time your shutter stays open when you click the button thingie. :) Shazaam. That's it.

Shutter speed is set by fractions of a second as follows:

1/1000 1/500 1/250 1/125 1/60 1/30 1/15 1/8 1/4 1/2 1

To easily memorize shutter speeds, think basically double or half.

So if you're set at 1/1000 of a second, then your shutter will obviously be open for less time than if your shutter speed was set at 1 full second.

### **2. Why Does Shutter Speed Affect Motion in a Photograph?**

The longer your shutter stays open the more motion it will have time to record.



Image Credit: [Jonathan Canlas](#)

The shorter the time your shutter remains open, the more motion it will freeze. Kapishe? Kapishe.



Image Credit: my man, Richie Norton

### 3. How do Aperture and Shutter Speed Work Together?

Well shutter speed determines the amount of TIME your camera's shutter remains open, but if there was no OPENING allowing for light to enter and hit the sensor, then you would have no image. . . just black. The aperture determines (based on how widely it's open) the AMOUNT of light that is let in within the

amount of time determined by the shutter speed. Read it again and give it a second to sink in. You with me? Ok.

#### 4. Do I Need a Tripod When I'm Experimenting with Shutter Speed?

A general rule of thumb if you're not a tripod lover (which I am NOT): most people can hand hold their camera without introducing camera shake at the shutter speed that corresponds with the focal length of the lens. So for example: if you have a 50mm lens, then you will most likely be able to handhold your camera at shutter speeds of 1/60 or faster. If it's a 200mm lens then you're going to need to remain at 1/250 or higher.

Get more tips on avoiding camera shake [here](#).

Your assignment for this week, pop your camera on over to Shutter Priority and take 2 images of the same (or at least the same type) of moving object. For one image your goal is going to be to stop motion and for another it will be to SHOW motion. If you're not clear on how Shutter Priority works: you put in the desired shutter speed, and the camera will select the appropriate aperture for the lighting conditions you're in.

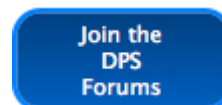
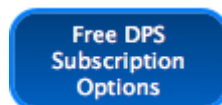
Happy shooting and good luck!

Stay tuned for the upcoming post on manual settings and ISO and another on how flash freezes motion. [subscribe to Digital Photography School here](#) so you don't miss the next post in this series.

*[Natalie Norton](#), world renowned wedding and portrait photographer, resides on the North Shore of Oahu, HI. View more of her tutorials and samples of her work at [www.natalienortonphoto.com](http://www.natalienortonphoto.com).*

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#### 28 Responses to "Moving Toward Manual Settings: Understanding Shutter Speed (a beginner's guide)"

- [Pete Langlois Says:](#)

I've used various shutter speeds when shooting my son's baseball games to get the ball to freeze or the bat to show motion blur.

Pete

<http://www.petelanglois.net>

- [Embassy Pro Books Says:](#)

This is great information, thanks for the part 2

- [chaim Says:](#)

can you help with diamond photography please ?

- [richard Says:](#)

SO CLEAR! Nice shots! THANK YOU!

Pete: I LOVE the baseball idea! My 5 year old is about to start his first year in soccer. I think I'll try this with the ball and him running!

- [AC Says:](#)

This is my favorite mode to shoot in personally. I think it makes for very interesting snaps. Also, people with stable hands and a good grip on the camera can use shutter speeds up to 1/5 quite easily. Once you pass that, a tripod helps a lot.

- [taryn Says:](#)

thanks for part 2, natalie! it was very easy to understand.

- [Karthick Says:](#)

Natalie is so cool!

Thanks for the explanations Sistah!

- [Stephanie Says:](#)

Yes, I get this! I love how you explain stuff, thank you! Can't wait to have you explain ISO and flash. (And, of course, how do you use aperture, shutter speed, and ISO all together to make awesome photographs!)

Thanks!

- [Antoni Says:](#)

Thks a lot Natalie.

For the first time anybody explains easy to understand these concepts.

- [Fernando Says:](#)

Great guide as usual!

I rarely use shutter priority, I mostly just use Aperture priority or full out Manual. Dunno why really....

Thanks for these guides, it's always good for a refresher now and then!!

- [Shelly Says:](#)

Excellent and easily understandable yet again. Thank you, Natalie for the great article!

- [Bill Says:](#)

Great article. Remember to take into account your camera's crop factor when estimating the shutter speed required to avoid shake. For example with a crop factor of 1.5 and a lens of focal length 55mm, the effective focal length is 82mm so you should use a shutter speed faster than 1/82 sec to avoid blur.

- [Deb Says:](#)

I am really liking your no nonsense approach to teaching us 'auto' shooters how to move beyond our comfort zones. I have only recently upgraded my digital camera to one with manual choices and the timing couldn't have been better.

This might even inspire me to get out that old film SLR and revisit what it can do, it never did much but shoot on auto!

- [Jon Says:](#)

So now that we know about aperture and shutter speed and what effect they have on the pictures, it would be helpful to know what settings to use under specific situations. I think I have a good understanding of what these settings do, I just don't know what combination of them gives me the right result in any given situation. Is that just experience or is there some basic guide that I can use so that I have more confidence about using these more manual settings.

- [Rosh Says:](#)

Best definition for Aperture

I've found my best simple definition for aperture is "the area of focus around the subject"

Rosh

<http://www.newmediaphotographer.com>

- [Jeremy Says:](#)

Great lesson, I really like using the shutter speed priority for water falls and rivers. Get some great shots with that.

Will be great for lesson on ISO as well.



- [Author: Natalie Norton Says:](#)

Jon,

That's exactly the direction we're heading! Get this foundational stuff down and before you know it, you're going to be able to figure that stuff out all by yourself!!

Best,

Natalie

- Lynne Rogers [Says:](#)

You know, I've been reading reading reading and this is truly the one article that I have read and the information is actually making sense and staying! Thanks alot

- zigwig [Says:](#)

sorry but am i the only one encountering a problem?

i set my cam at TV mode (this is the shutter priority right?). ISO - Auto.

when i take a photo at a slower shutter speed (anywhere between 1/4 to 1/200, true enough, i get a blurry photo, but well lit. so that part's great. i get that.

but when i increase the shutter speed past 1/400, the images are already too dark to be of any use. i am shooting indoors. or should high shutter speeds past 1/250 be done OUTDOORS with maximum lighting? if so, does this mean i cannot take nice "frozen" pics of moving objects indoors?

- [kristarella Says:](#)

Great tips. The revision questions were really good.

The ball-park figures for hand-held photography are good, but I think everyone should experiment with their own camera to see how steady they can keep it at slow speeds. I find that I can get down to about 1/15th without shaking (probably of a still subject, and maybe not as good with a larger lens).

- [Sunnyman Says:](#)

zigwig, you have to think of it this way:

- what kind of effect do I want to create with this picture?  
with a slow shutter speed you may get some motion blur (depending on if the subject is moving, and how fast, like snail vs. Ferrari...)

And if you prefer to "freeze" the motion, use a fast shutter speed (if the light is sufficient, that is).

You say you get too dark pictures at fast shutter speeds. Well, the camera should WARN you if

the light is insufficient, with some blinking red icon or something. Check the manual to figure out how that warning feature looks like on your camera!

I have an article about shutter speed on my site, that may also be helpful:

<http://www.alphototips.com/using-shutter-speed-to-get-image-control>

- Jeremy [Says:](#)

hey zigwig,

try taking control of the ISO and bumping it up a bit, maybe 400 to 800 just be careful how high you go before you get noise ect. I found that when using slower shutter speeds outdoors you generally need to bump ISO rite down as well.

- bogart [Says:](#)

I have problem with the shutter speed when i shoot in the dark. The faster shutter speed the more lights it needs.

- [kristarella](#) [Says:](#)

bogart, that is the nature of “exposure”. It’s the amount of light you exposure your film or sensor to. So if the shutter is open for less time then less light is recorded.

The two ways to compensate for that is to open the aperture (see Natalie’s last post) or increase the ISO (essentially making the sensor more sensitive to the available light, Natalie said she’ll write about that in the next post).

- zigwig [Says:](#)

thanks for the replies guys. i wanted to freeze a moving subject, which is why i was increasing shutter speed. but i am shooting indoors. it is still dark even when i increase ISO ( i was already at 1600 ISO!), even at my widest aperture. so i guess i should just accept that I cannot shoot great “frozen” shots too well indoors?

- RacingGuy [Says:](#)

zigwig - under the indoor conditions you describe, you might need a ‘faster’ lens or use a flash. A faster lens is one with a lower f-stop (wider aperture) to allow more light to enter the camera.

Alternatively, a flash adds more light to the scene to allow your existing lens to do the job without cracking up the ISO. Don’t give up!

- klbuley [Says:](#)

This is wonderfully written! Its great, Natalie!!!

- Muhammad Ali [Says:](#)

If the lens is 18-200mm, the shutter speed will depend on whether you are zoomed in or not, right? Meaning if not using any zoom, a shutter speed of 1/18 sec or faster should be used to avoid shaking? Or will this still be considered a 200mm lens and speed of 1/250 sec should be



used regardless of whether your are at the wide angle or the telephoto end of the zoom?

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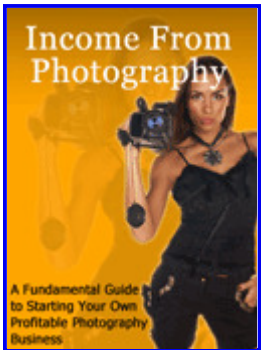
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