

# Tips for Digital Photographers

## Capturing Movement with Shutter Speed

0003



by Norm Whyte

### Introduction to Capturing Movement with Shutter Speed

In my Tips for Digital Photographers outlining shutter speed and f-stop settings we discuss how these two settings are a basis for good creative photography.

Shutter speed combined with f-stop setting will give you a myriad of exposure combinations. Some shutter speeds will give you blur of moving subjects. Others images will call for the action to be stopped and require very fast shutter speeds. Night time photography will require long exposures of seconds to minutes requiring you to use a tripod.

Shutter speed is fundamental to photography. It determines so much of every picture we take and understanding shutter speed is absolutely essential for anyone learning photography.

Shutter speed is the rate at which the shutter on your camera opens up and then closes.

A camera is a pretty simple device. It is a box containing a light sensitive surface (image sensor), something to focus the light on that surface (lens), and a hole to let the light in (aperture).

The shutter is like a set of window blinds behind the hole. It opens to let light in, and it closes again to keep it out. Shutter speed has a direct impact on the brightness and darkness of the pictures we take.

Shutter speed does not just control the amount of light into your camera.

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### Stopping Movement

Shutter Speed is also used to freeze motion, create motion blur in waterfalls and waterways and also to capture light trails. This TIP will help you to understand when to use each of the different settings.

As you may recall, shutter speed is the amount of time your camera lens is open and exposing your image sensor to light. After that period of time is over, your shutter closes, and the photo gets processed and is saved on your memory card.

To help you better understand we will look at the various effects created by the variation of shutter speed.

#### Stopping Movement:

Action shots are of moving subjects and you will often get a blurry image (called motion blur) because the subject has moved in the frame while the shutter is open.

The problem with a very fast shutter speed is that you not only freeze the action, but you also freeze any illusion of movement. It can look like your subject is not moving at all – particularly race cars.



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### Stopping Movement

#### Stop Action with Blurred Backgrounds

This is achieved by following your subject with the camera. This is called 'panning'. Preferably shoot in program mode with shutter priority and select 1/250 second and faster.

Shoot only when the subject is in the right position (like closest to you or as they turn through a curve).



Because your camera will be following your subject while the shutter is open, the subject will be much sharper than the background.

The background will be quite blurry as it will have moved relative to the camera during the same time. The result is a very pleasing motion blur that we all associate with moving objects.

Let us now look at some of the shutter speeds you might use for taking your photographs and how and when you will use them.

Hopefully this will show you how you apply them to your own photography.

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### Fast Shutter Speed

#### 1/500 second and faster

Many modern day digital cameras have speeds exceeding 1/1000sec and are used for very fast subjects or to help in isolating backgrounds with wide open lenses or using a small f-stop.

It's may be difficult to achieve these speeds in low light conditions and in many cases it will be a compromise of the shutter speed and f-stop. Mind you, sometimes a small f-stop setting can enhance the separation of the subject from its background.

For good lighting conditions this separation of the subject may require a shutter speed at 1/1000 or more. This can be the case in sports photography where players are 'frozen' in the image .



*Remember that you also have the ISO setting of your camera which may be set to increase the sensitivity of light on the sensor and therefore your shutter speed. Setting your camera ISO can be used to advantage in both low (up) and high (down) lighting situations.*

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### Fast Shutter Speed

#### 1/250 of a second

While this shutter speed will not capture all your fast action it is popular with professionals for portraiture and wedding photography. It is also good for midday portraits or landscapes when using a telephoto lens.

*Remember that for a given lens length the shutter speed should be 1/lens length to avoid camera shake. That is for a 200 or 250mm telephoto lens you should shoot at 1/200-250 sec and for a 50mm lens at 1/50 sec.*

#### 1/125 of a second

This is a good all round shutter speed for good lighting and will avoid camera shake and motion blur for lenses up to

100-150mm. Combined with 100 ISO it will give acceptable exposure settings for most photography. It is a useful shutter speed to use on overcast or lowlight outdoor shooting situations.

It has become more generally used since the film ISO moved out of the early 25-50 ISO sensitivity range. Years ago with this slower film, most images were shot at 1/50 sec. A good starting point is to use the reciprocal of the ISO rating to establish a broad f-stop setting for normal bright sunlight.

For example if you are using ISO 100 sensitivity, your shutter will be 1/100 sec at f16. The exposure varies to f11 for hazy, f8 for cloudy and f5.6 for shaded

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### Fast Shutter Speed / Slow Shutter Speed

conditions. Use these same lighting relationships for sensitivities of 200 ISO (1/200 sec @ f16, 1000 ISO (1/1000 sec at f16 for bright sun. This gives you an idea on which ISO setting suits your photography.

#### 1/60 of a second

At this shutter speed, the blur from camera shake starts to have an impact on your photography (any lens length greater than 50-60 mm will have inherent camera shake. You will need to be conscious of camera shake and keep your camera as still as possible .

Correct posture when holding your camera will help reduce camera shake.

- hold your camera with BOTH hands
- place your camera close to your face
- tuck your elbows in at your sides and
- take a breath and exhale just before you press the shutter.

A lot more lenses feature image stabilization these days. This is particularly useful on telephoto and long zoom lenses.

#### 1/15 of a second

Use this shutter speed when I want to convey a sense of motion for slower moving subjects. This can be useful for normal lighting of sports and slow moving cars and other objects

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### Slow Shutter Speed

You run the risk of blurring the subject (not just its movement) with this shutter speed and you will need to use support for your camera or preferably a tripod.

*Remember that the slowest shutter speed you should consider for hand held photography is 1/30sec. For shutter speeds of 1/15 sec and greater you should use a tripod for sharpest results.*



#### 1/5 of a second

This is the ideal shutter speed for photographing waterfalls. You will find the water blends at this speed and the water droplet movement over a distance for the time setting of your shutter will record as a streak of colour.

This shutter speed or slower is also good for photographing still subjects in a moving environment (say wind-blown leaves) and lends itself to very calming mood scenes for your imagery.

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### Slow Shutter Speed



#### 1 second plus

These are the shutter speeds you will use for twilight/ night and pre-dawn photography. You should use this setting only between sunset and sunrise. When you are using shutter speeds of 1 second or more you need to be careful of sunlit areas in your photograph as they will be washed out with the brightness..

This shutter speed is ideal for capturing cityscapes after twilight sets into night. The city lights and buildings will be a blaze of colour. Use this shutter speed when you want cars to have a slight sense of motion without the heavy light streaking often associated with longer exposures.



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### Slow Shutter Speed

We find ourselves evolving into a discussion of shutter speed here as well as exposure. This is because of the relationship between the two and the exaggeration of this at these lower light levels.

#### 5 seconds onwards to 30 seconds:

This is the true realm of night photography. Most night shots will be taken around 5 to 20 seconds depending of the f-stop used.



If you use f11 or larger to retain depth of field of buildings this can lead to very long shutter speeds.

At 5 seconds, the headlights from any moving subject, such as a car, ferry or tram, will almost certainly take up a huge portion of the image frame. The closer the travelling subject is to you camera, the bigger the effect.

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### Challenge - Capture Movement with Fast and Slow Shutter Speeds

#### Challenge 1: Slow shutter speed

##### Local waterfall or fountain

- Hint: use a shutter speed of 1/5 second or more and aim for f8 or smaller f-stop to capture the ambient lighting. The movement of the water will vary depending on your shutter speed – experiment.

##### Night Lights of your town/city

- Hint: use a tripod and set your exposure from 10-30 seconds to several minutes using available light) You will be surprised at the effect. Ferries and cars will move through your image leaving light trails
- Street lighting in your local suburb at night by using slow shutter speed. You will not need a tripod. Watchout for streetlight (hot)

#### Challenge 2: Fast shutter speed

- Sports Ground (stop movement and separate from the background)
- Hint: use a very fast shutter speed and watch your light – you may find the camera shooting on small f-stops (f2)

##### Racing cars and boats

- Hint: Try for 'panning'\* effects shooting at right angles and moving camera with the direction of the cars or boats etc (\* blurred striated background caused by moving camera)

NOTE: Consider showing your images at a Seminar and sharing your experiences with others.

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### Studio Promo

#### How you will benefit as a photographer:

You will improve your images and become a more creative photographer through -

- attendance at **FREE** Digital Photography **Seminars** at local library
- reading up to date issues in my monthly **Newsletter**
- asking questions in our **Lifetime Photographer's** email network.
- my regular free '**Tips for Digital Photographers**' which will help you improve your skills.
- '**Challenges**' in **Tips for Digital Photographers** which accompany each issue to expand your creativity.

- prepaid **Practical Photography Workshops** including Basic, Travel and Available Light photography.
- Access to **Manuals of Practice**

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**Restoration Photo-Art Workshops Seminars**

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