

Creative Control - Shutter speed

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Aim

- To demonstrate and practice techniques which will allow the photographer to control speed of capture and thereby produce photographs unavailable with Point and Shoot photography.

Topics

Review Aperture and Depth of Field and Exposure Triangle

How the shutter functions

Setting shutter speeds

Effect of shutter speeds

Exercises

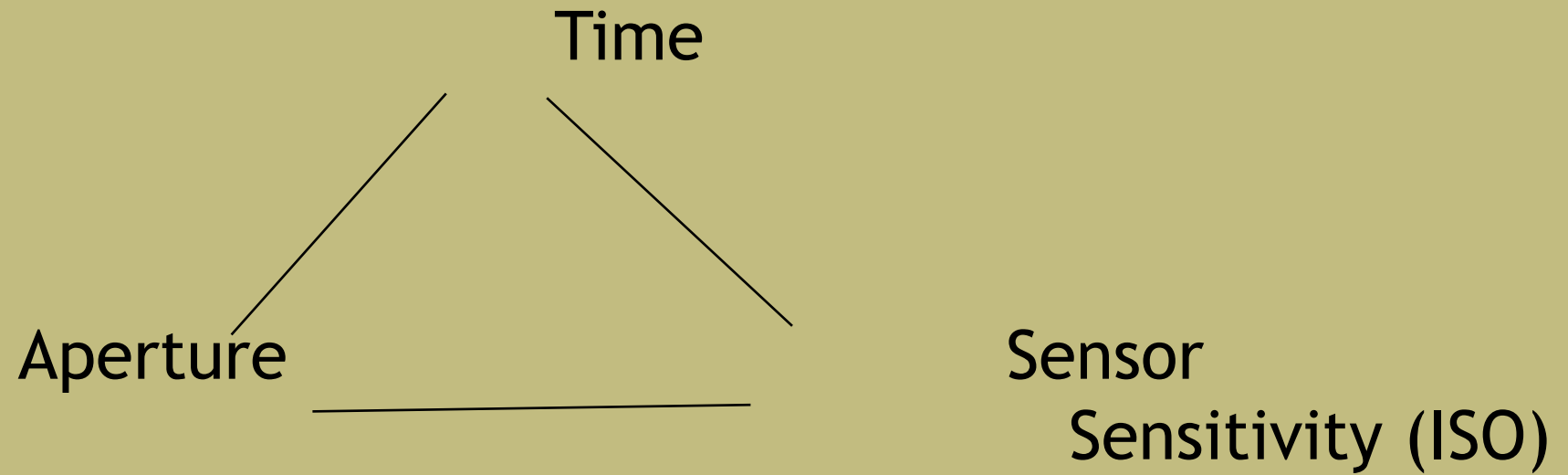
Review Aperture and Depth of Field

Aperture - the opening through which light reaches the sensor

Depth of Field - the area in front of the camera which is in focus

- Small aperture number - small Depth of Field - small interference with light
- Large aperture number - large Depth of Field - large interference with light
- Small Distance - small depth of field
- Larger distance - larger dpth of field

Review Exposure Triangle



Glossary

Shutter - a curtain or other device which controls the amount of time that light strikes the sensor

Bulb - an historic term used to indicate that the shutter is to be controlled by a device external to the camera. Originally a hollow rubber ball with a tube through which a blast of air tripped the mechanical shutter control. Appears on the camera display for shutter speed.

Cable release - an external mechanical device using a cable and thumb button to release the shutter. Similar looking device is used today but it is actually a switch.

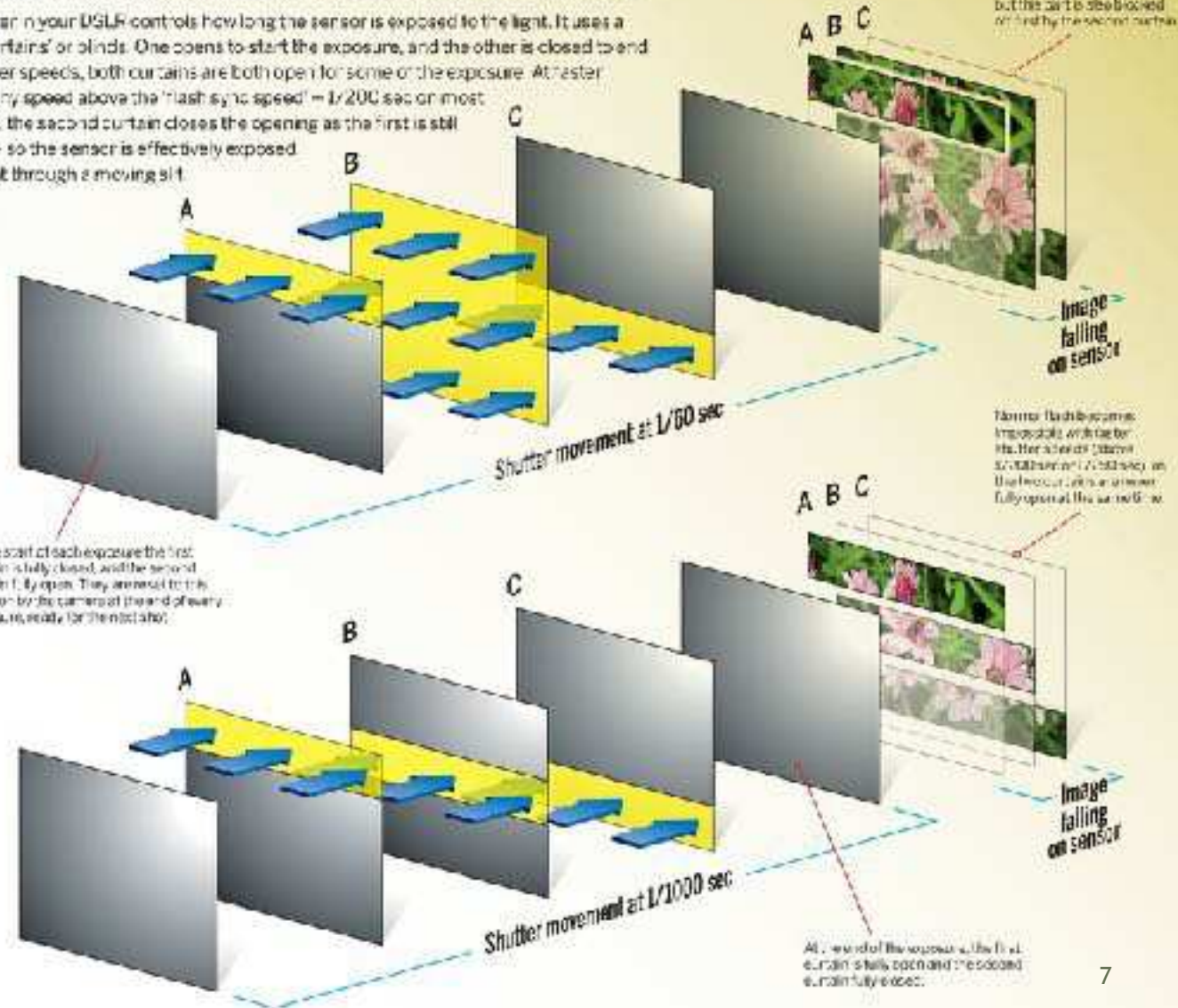
Remote shutter control - a wireless electronic shutter control

How a shutter works

How a camera's shutter works

At faster speeds, the image is exposed through a moving slit.

The shutter in your DSLR controls how long the sensor is exposed to the light. It uses a pair of 'curtains' or blinds. One opens to start the exposure, and the other is closed to end it. At slower speeds, both curtains are both open for some of the exposure. At faster speeds (any speed above the 'flash sync speed' = 1/200 sec on most cameras), the second curtain closes the opening as the first is still opening – so the sensor is effectively exposed to the light through a moving slit.



Point & Shoot and Shutter speed

Using data received by the built in light meter the camera will attempt to ensure that an adequate amount of light reaches the sensor to produce a properly exposed image.

The most common way to do this is to alter the shutter speed or use flash while keeping the shutter speed and ISO as low as possible.
(Exposure triangle)

In point and shoot all of this out of your control.

Shutter speed ranges available

Varies from manufacturer to manufacturer and model of camera

Shutter speed control 'on' is indicated by 'S' or 'Tv' on your display

Bulb (Manual Mode on many cameras), 30" through to 1/2000th second are fairly common.

Setting Shutter Speed on a sample camera

Adjusting Wheel

Selector set to Tv

Canon shown. Others use S instead of Tv



Setting Shutter Speed on your camera

Display showing Tv Priority

Present Shutter Speed
(May appear as 60)



What the numbers mean

1/60 or 60 means that the shutter will be open for 1/60th of a second

1/125 or 125 means 1/125th of a second

0"3 means 0.3 seconds

1"0 means one second

20" means 20 seconds

Bulb means manual control of the shutter

Effect of Shutter Speed

Shorter time means faster speed

Shorter times tend to freeze action or subjects in motion

Longer time means slower speed which blurs and can even miss subjects in motion

Standard speed

$1/100^{\text{th}}$ sec



Slow speed

$1/6^{\text{th}}$ sec



Compare



Faster speed

Point and Shoot

1/160th sec



Slower speed

Set by photographer

1/13 sec



Now you have the choice



Slow speed effects

Common and fun use of slow shutter speed

Avoiding moving objects



Bulb

601 sec

Tripod and bulb

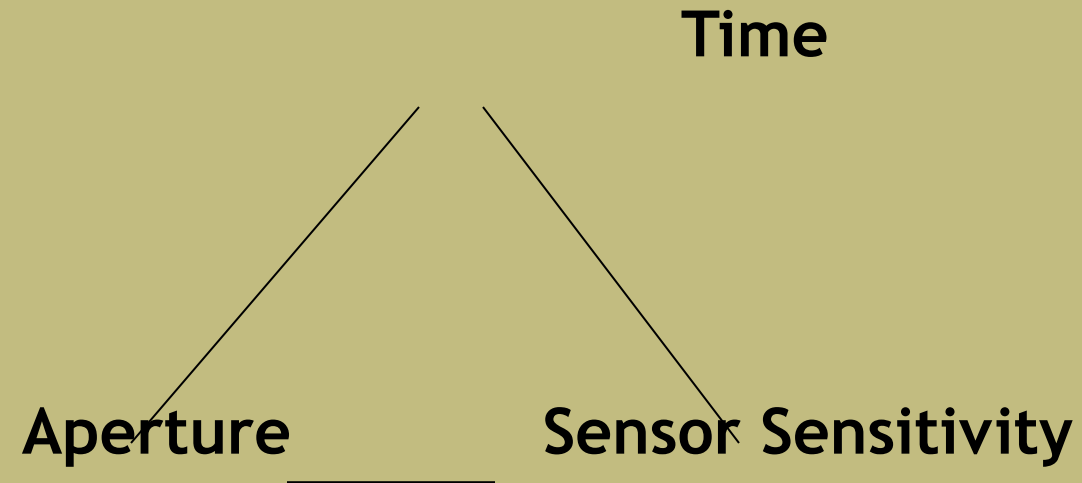
Star light and
flash light

Safety

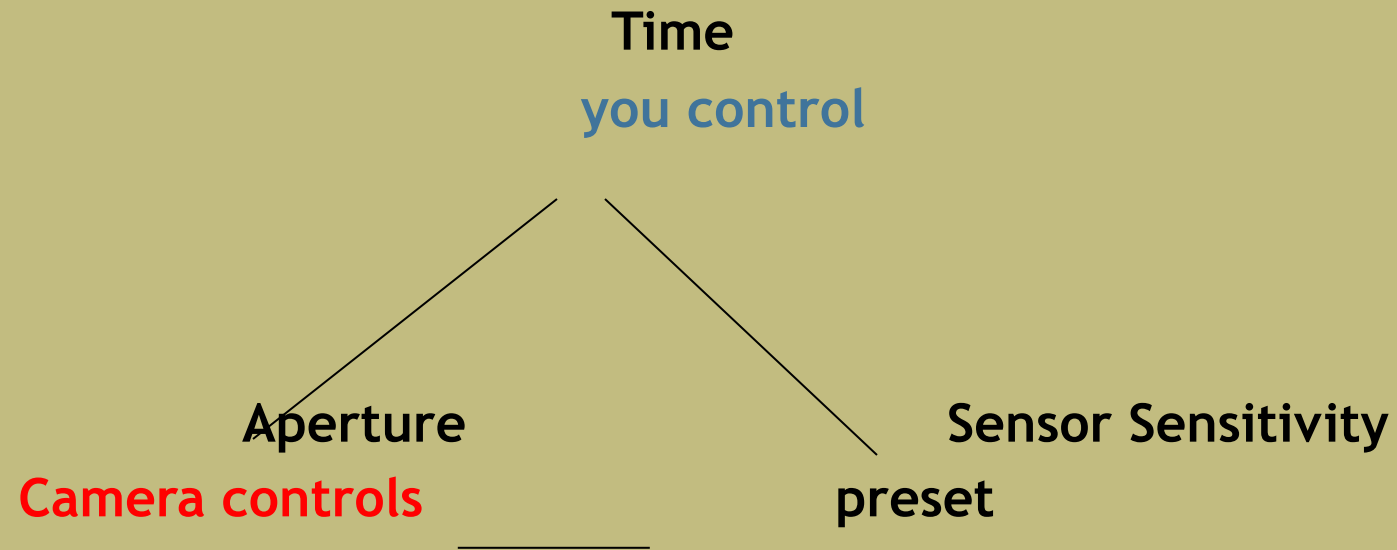


Remember the Exposure Triangle?

Exposure triangle



Exposure triangle



To maintain exposure the camera must change Aperture to compensate for the photographer's changes in shutter speed.

Exercise – Salt Falls

Set up on tripod and ISO at 1600

Shoot Salt Falls at $1/250^{\text{th}}$

Shoot Salt Falls at $1/100^{\text{th}}$

Shoot Salt Falls at $1/20^{\text{th}}$

Exercise

Set up your camera on its tripod facing me.

Manually focus on me. (set focus switch on side of the lens on M or MF)

Set a shutter speed of 1/125 sec

Shoot my photo

Set a shutter speed of 1/60th and shoot again

How to 'capture the moment'

Select your position

Select the area for the capture

Tri-pod set up (cable release very handy)

Pre-focus on spot using Manual Focus and depth of field

Test shoot

Chimp

Set camera to 'Continuous Mode'

Set Shutter Speed

As subject approaches start shooting

Continue until after they pass pre-focussed spot

Example results



Shutter speed and camera support

- 1/60 sec and faster probably blurred (tripod?)
- 1/125 sec sharper but darker
- Tripod, mono-pod, car, tree, railing...
- Hand held stance. - Feet shoulder length with one slightly forward. Elbows tucked in with camera close to the body.

Review

- Exposure triangle
- Shorter time freezes the action
- Longer blurs the action
- Camera support
- You can use it on your next shot!