How Aperture and Shutter Speed Affect Exposure:

The aperture increases or decreases the amount of the light passing through the lens. Each f-stop doubles or halves the amount of light
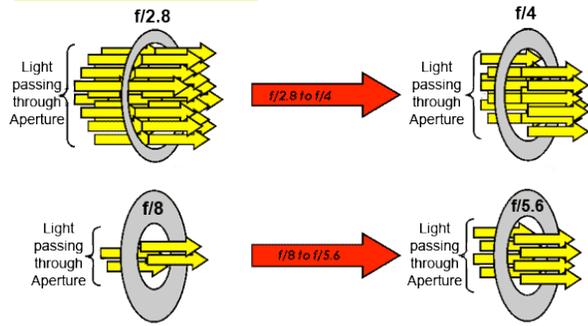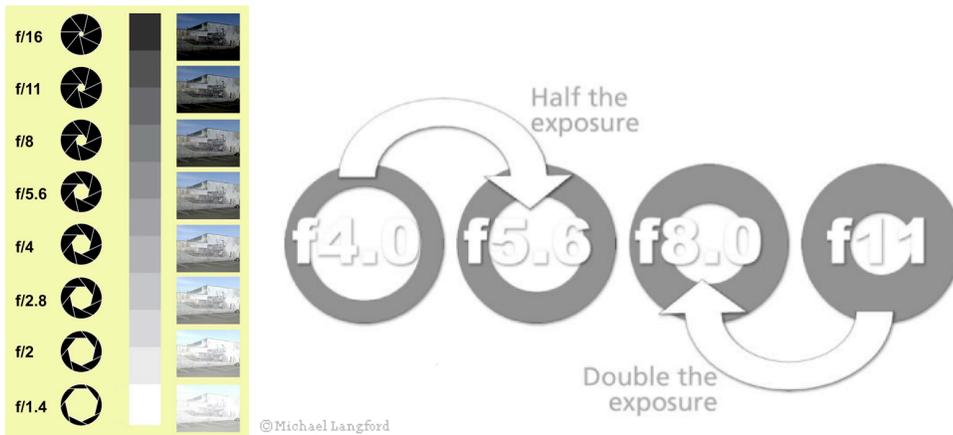
The shutter controls the amount of time allowed to fall on the sensor.
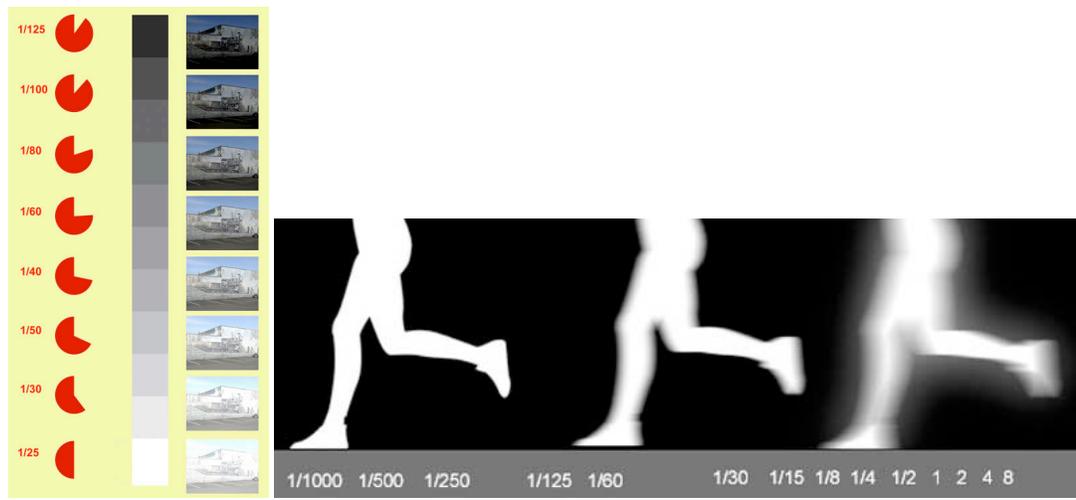
In this project you will take multiple pictures of the same subject using different combinations of shutter speed and aperture.
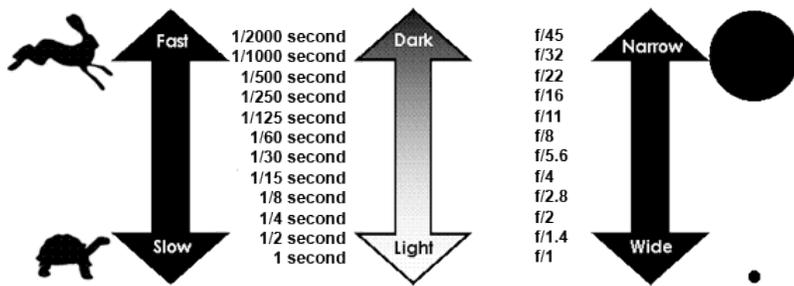
Exercise 1: Aperture and shutter speed comparison

1. Set the ISO to 400
2. Set shutter speed to 1/30
3. Shoot a series of images at different apertures: f/8, f/11, and f/16
4. Now, set the aperture to f/11
5. Shoot a series of images at different shutter speeds: 1/15, 1/30, and 1/60

Compare the two image sequences.

Exercise 2: Aperture and shutter speed adjustments for equivalent exposures

Shoot 5 images at these settings:

1. Aperture = f/5.6, Shutter speed = 1/30
2. Aperture = f/8, Shutter speed = 1/15
3. Aperture = f/11, Shutter speed = 1/8
4. Aperture = f/16, Shutter speed = ¼
5. Aperture = f/22, Shutter speed = ½

Compare the images – they should be equivalent in overall density.

Exercise 3: Lighting changes

1. Shoot a subject in bright lighting, setting aperture and shutter speed to give an average exposure level
2. Shoot the same subject in dim light, adjusting the aperture and shutter to keep the overall exposure level roughly the same

Exercise 4: Film speed

Film speed, or ISO, is how fast the chemical reaction to light takes place in film photography. In digital photography, it's used to control the overall sensitivity of the light sensor to simulate different kinds of film.

1. Set ISO to 400
2. Set Aperture to f/5.6
3. Choose a shutter speed for an average exposure
4. Shoot one image
5. Change ISO to 200
6. Adjust aperture and shutter speed to get the same level of exposure, shoot another image
7. Repeat at ISO 800 and 1600