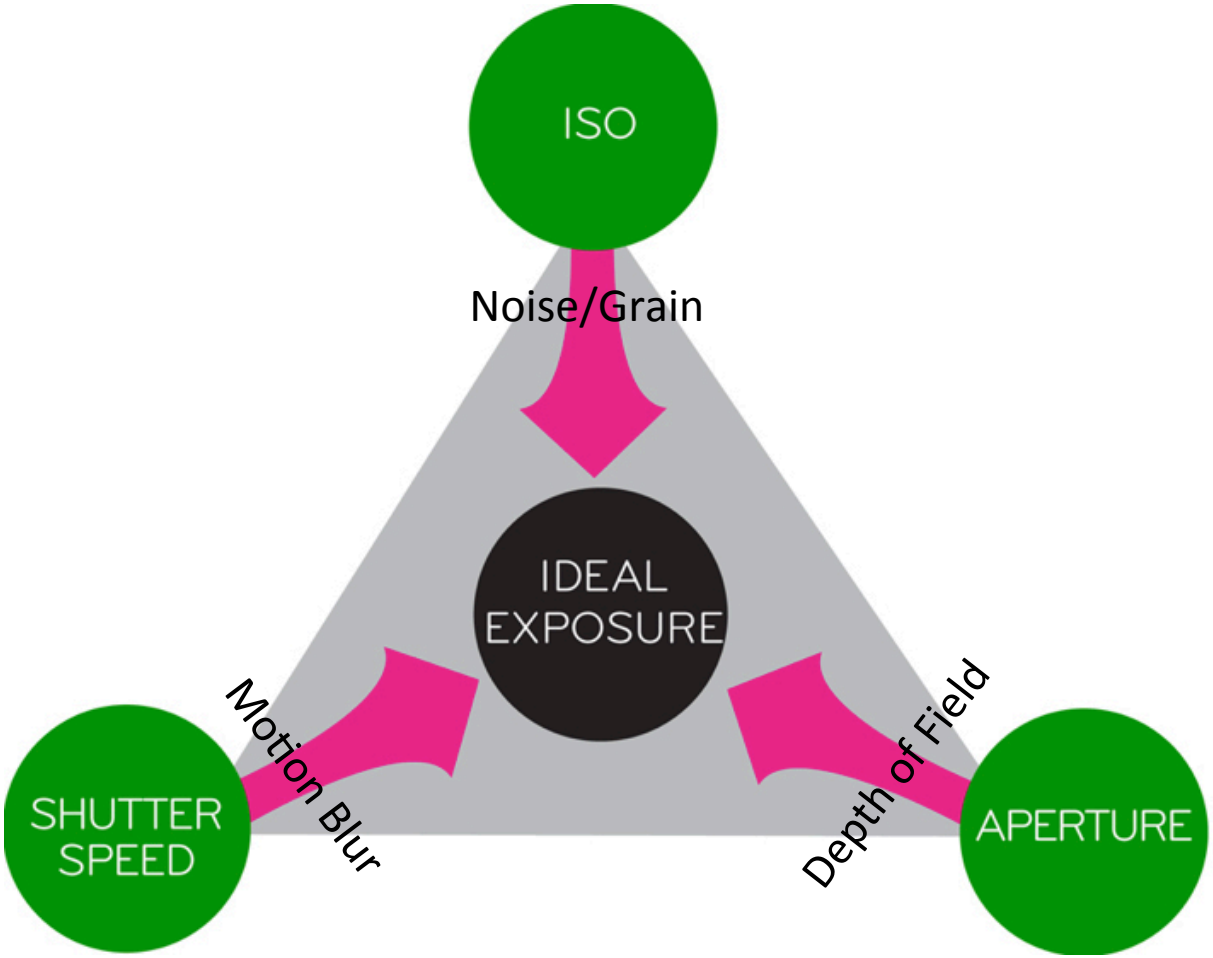
Introduction to Photography
Studio and Lighting

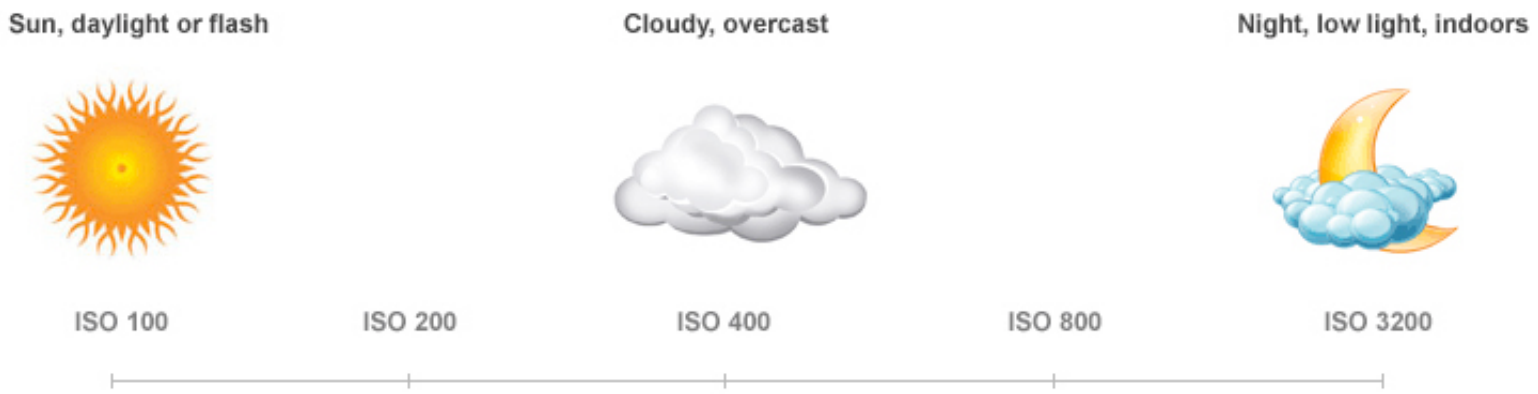
Controlling exposure: working with flash and available light

Exposure Triangle



ISO

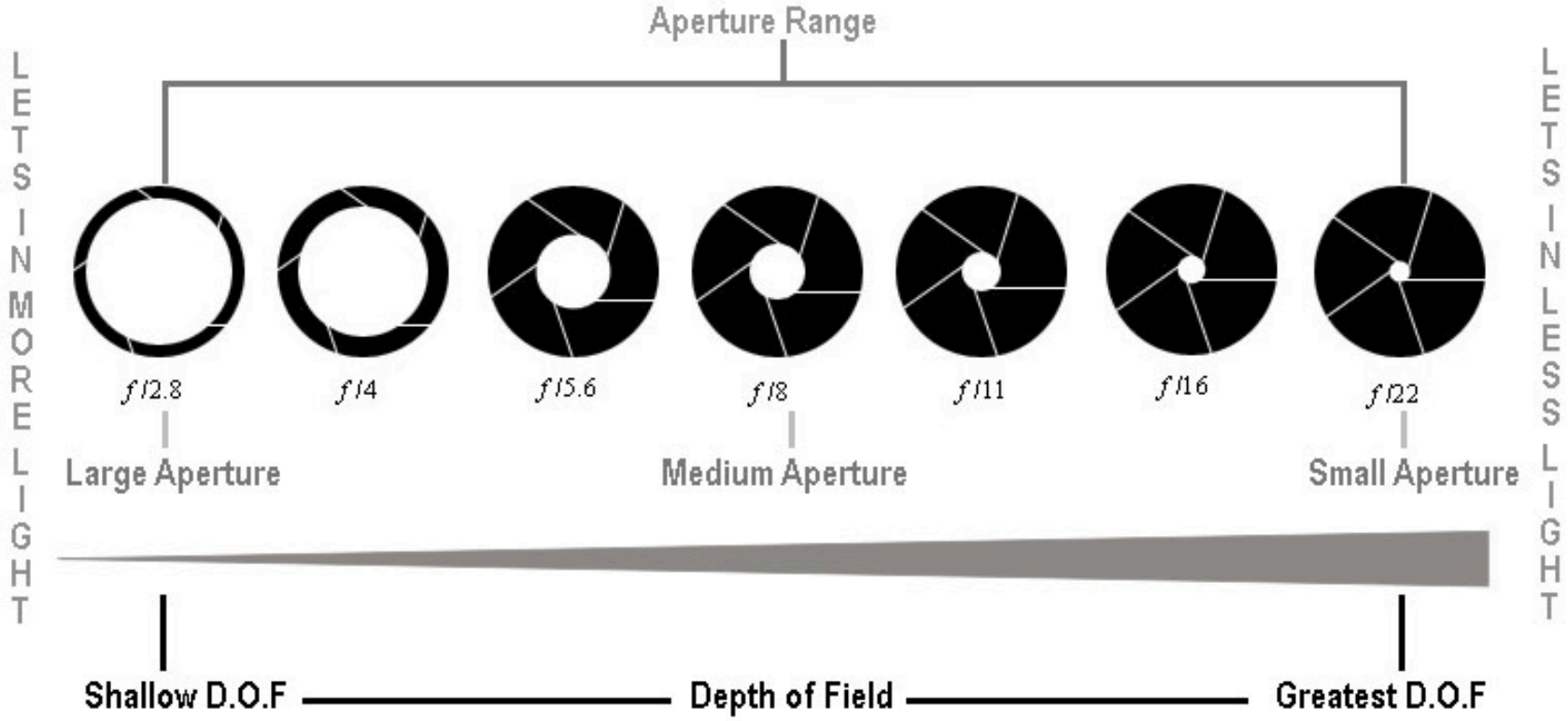
ISO is the measure of a camera sensors sensitivity to light.



In Digital Photography ISO measures the sensitivity of the image sensor. The same principles apply as in film photography – the lower the number the less sensitive your camera is to light and the less noise is visible.

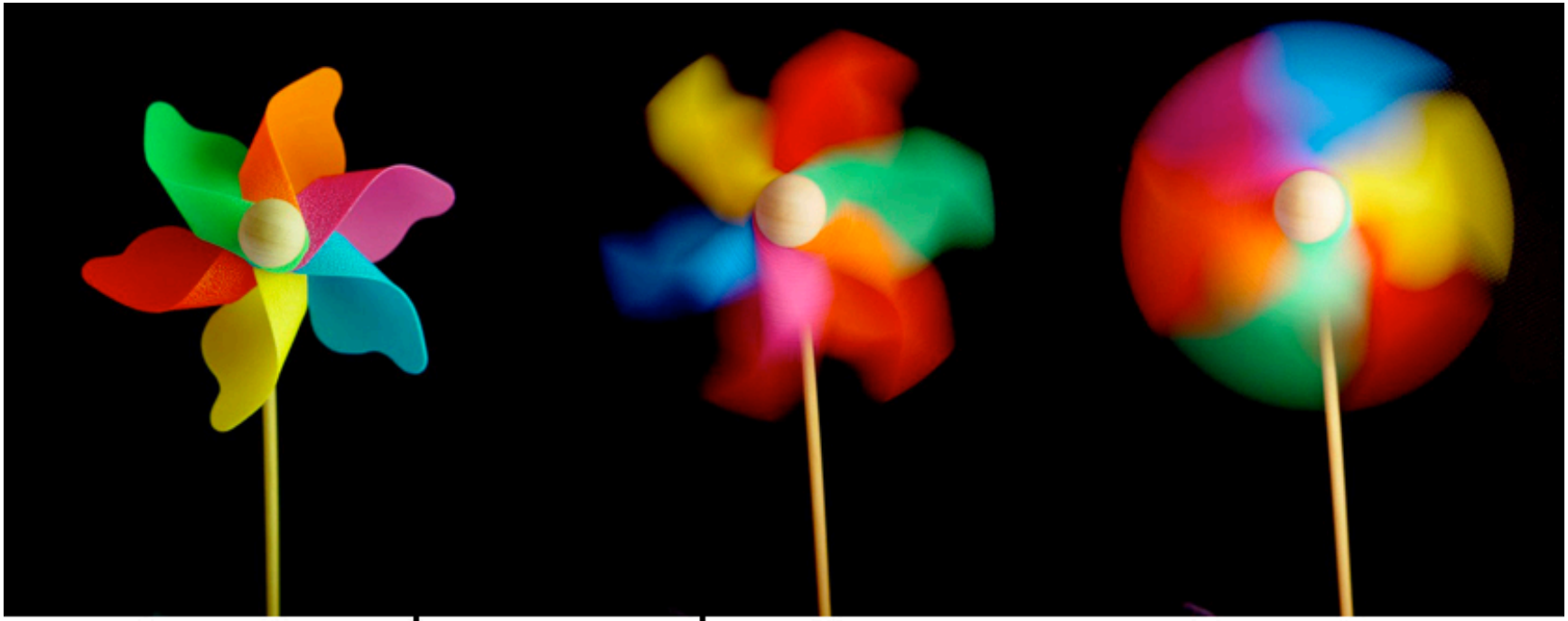
Aperture

In optics, an aperture is a hole or an opening through which light travels.



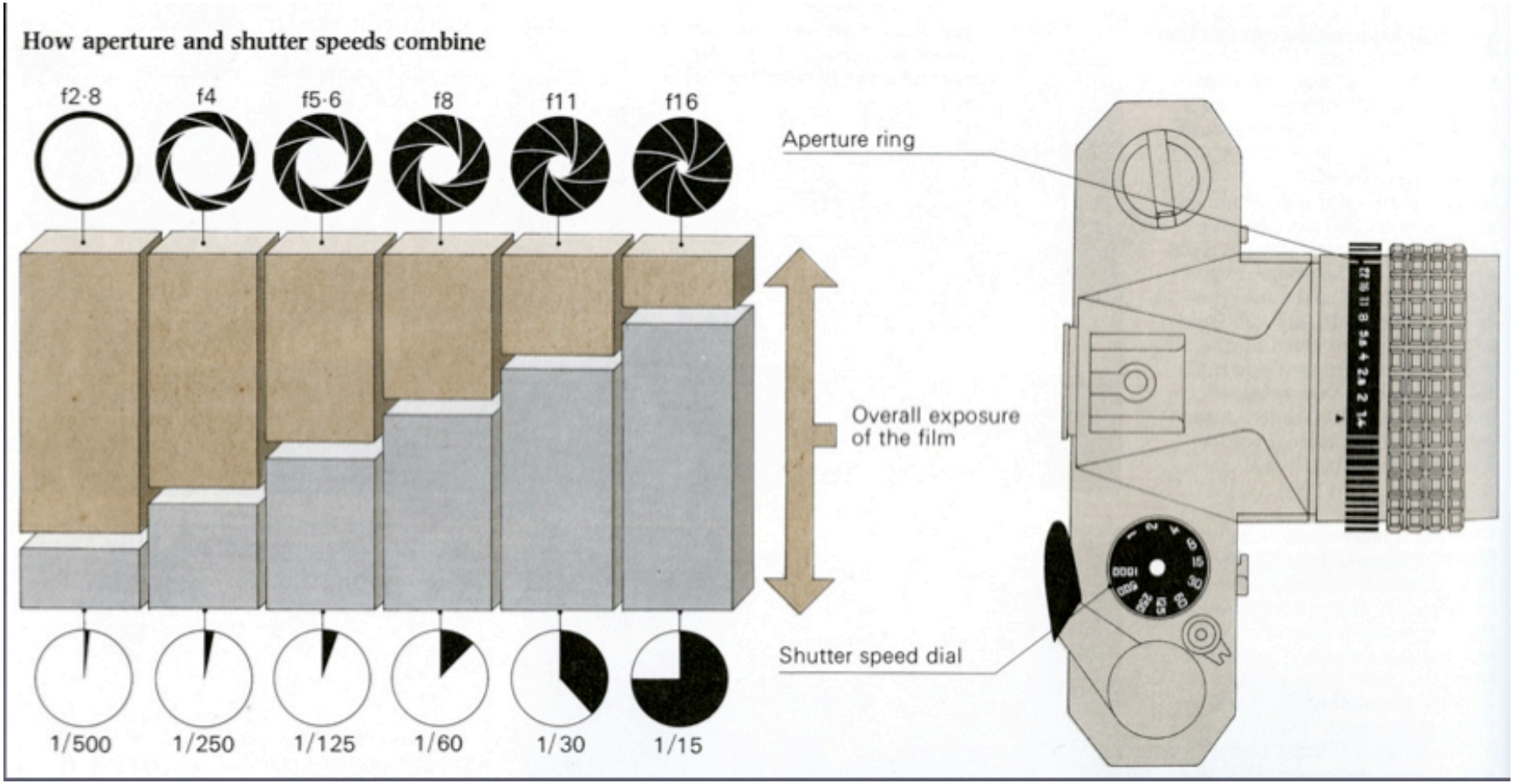
Shutter Speed

In photography, **shutter speed** or **exposure time** is the length of time a camera's shutter is open when taking a photograph.



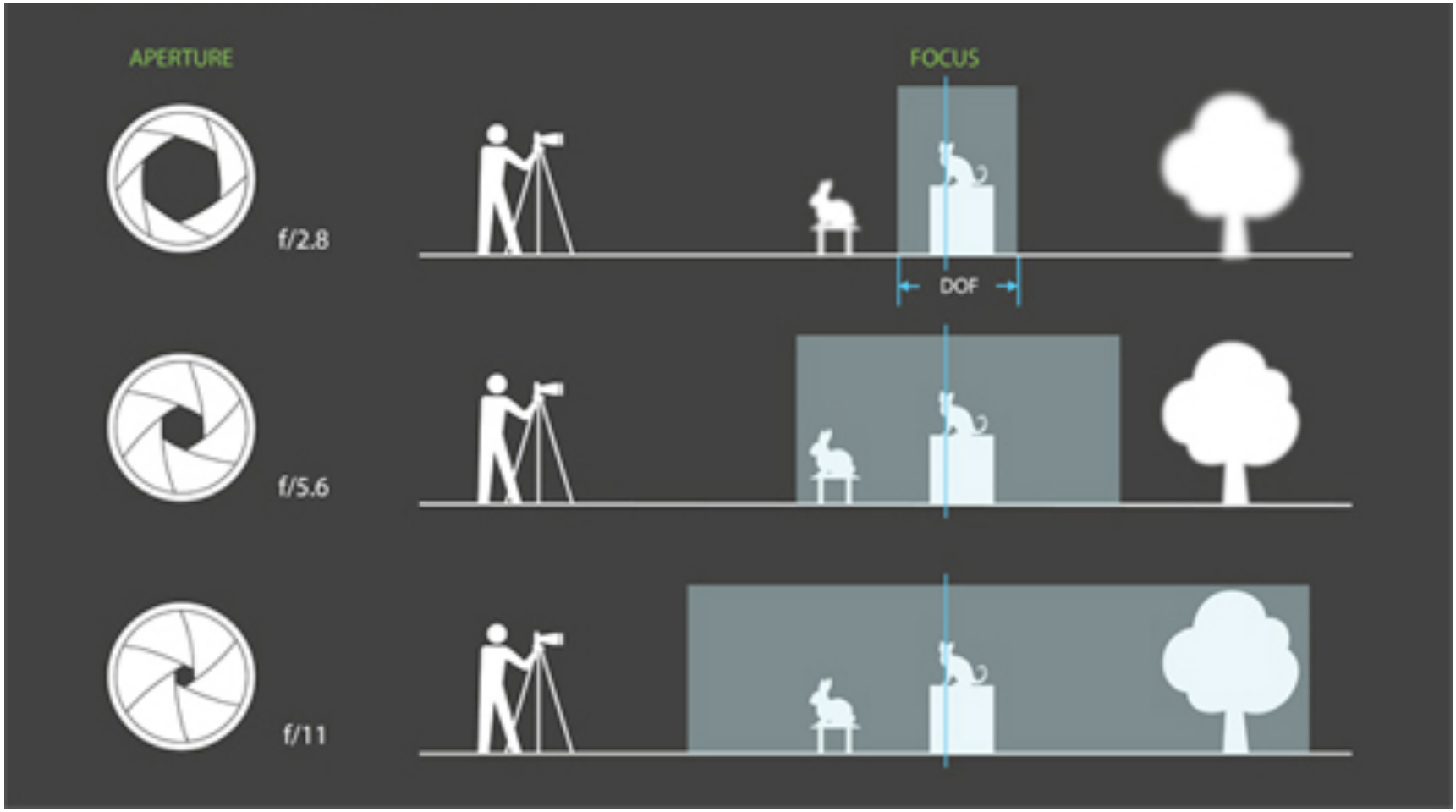
1/1000	1/500	1/250	1/125	1/60	1/30	1/15	1/8	1/4	1/2	1	2	4	8
Freeze action/movement			Hand held camera no slower than 1/60		Movement blur - tripod required								

Aperture & Shutter Speed

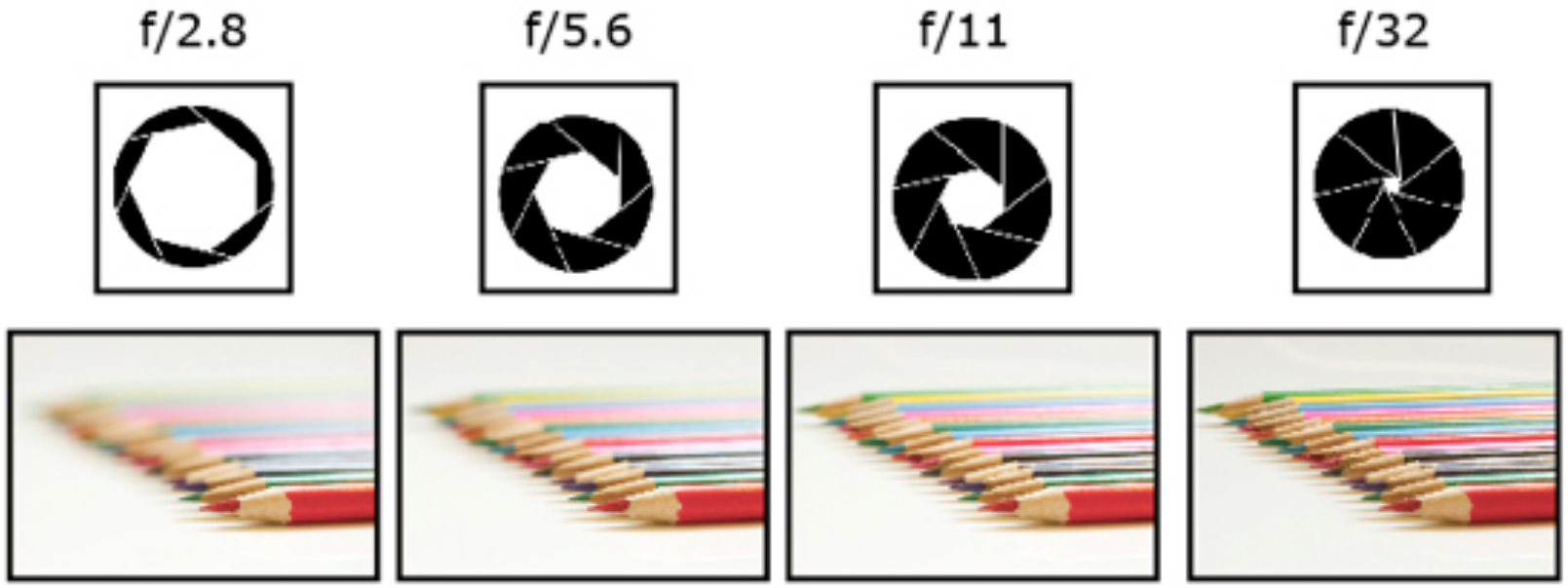


Depth of Field (DOF)

In optics, particularly as it relates to film and photography, depth of field (DOF) is the distance between the nearest and farthest objects in a scene that appear acceptably sharp in an image.



Depth Of Field Example



Camera Modes

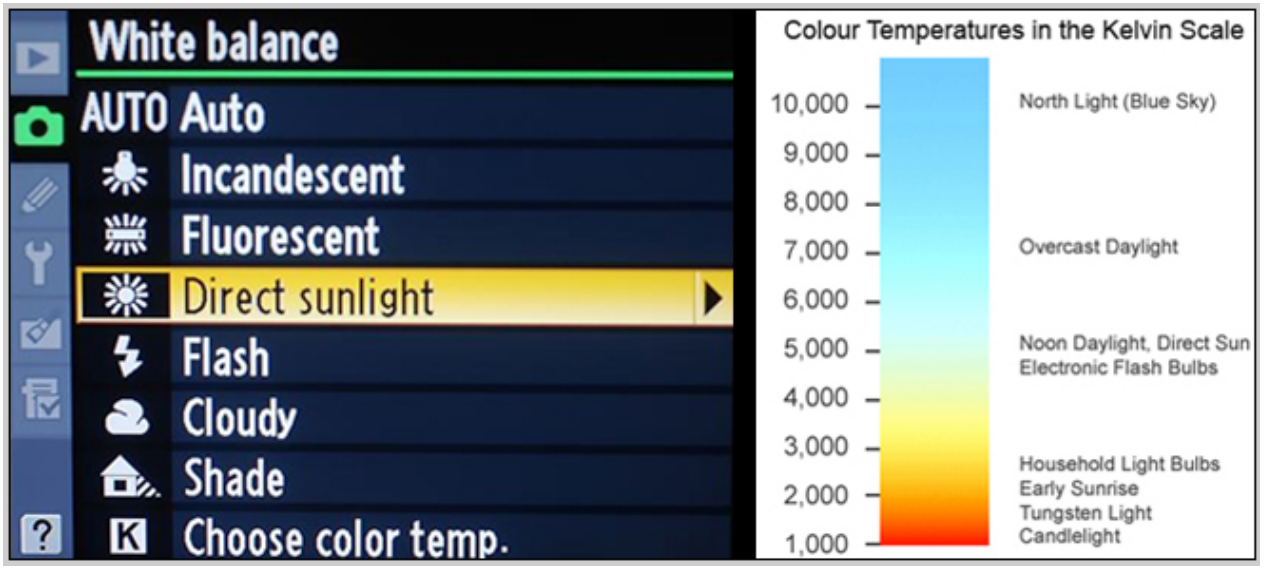
P: Program mode has the camera calculate both shutter speed and aperture (given a manually or automatically selected ISO). The difference between Program mode and Full Auto mode is that in program mode, only the *exposure* is automatic, while other camera settings (e.g. shooting mode, exposure compensation, flash) can be set manually; in Full Auto mode everything is automatic.

A or Av: Aperture priority or 'Aperture value' enables manual control of the aperture with the shutter speed calculated by the camera for proper exposure (given an ISO sensitivity).

S or Tv: Shutter priority or 'Time value' enables manual control of the shutter speed with the aperture calculated by the camera for proper exposure (given an ISO sensitivity).

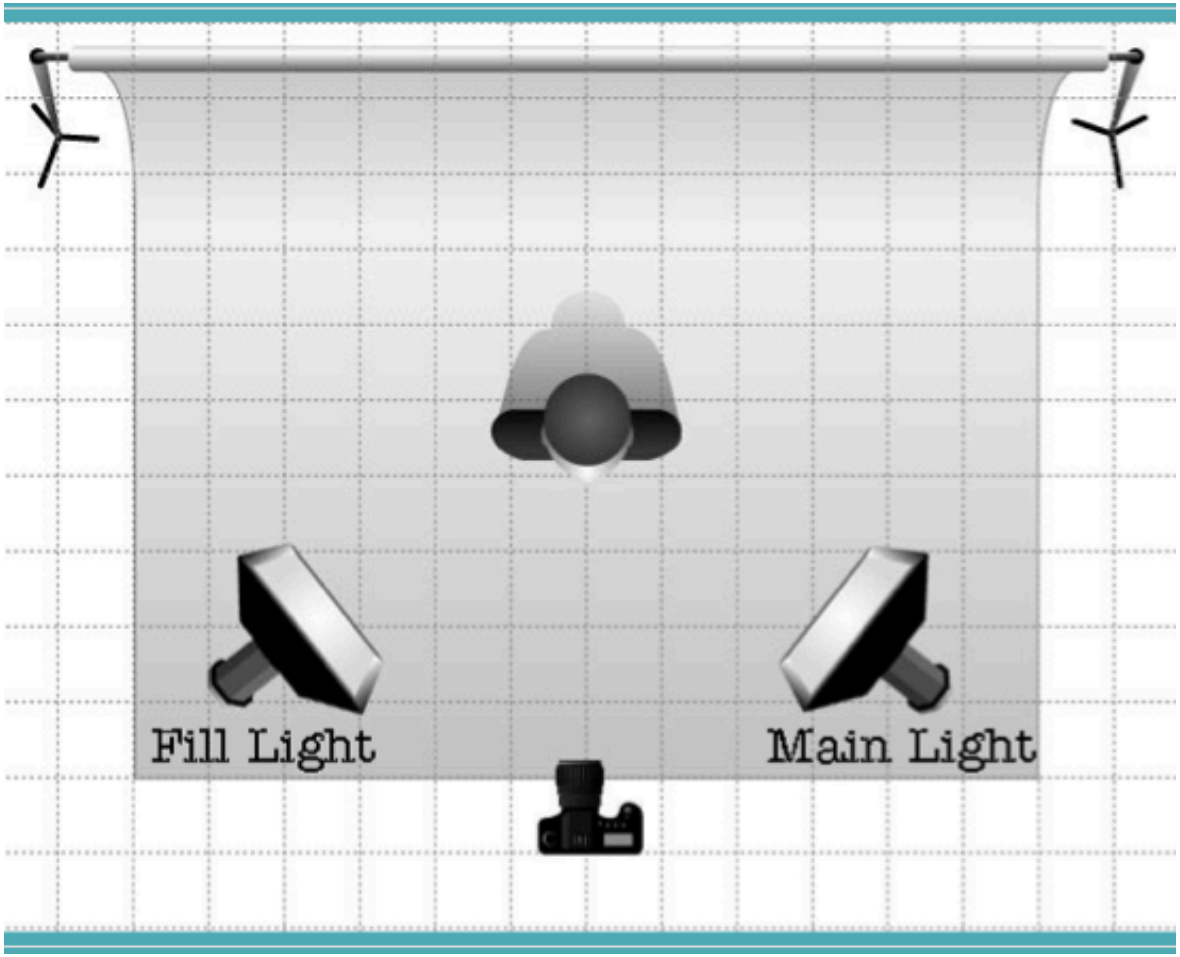
M: Manual mode both shutter speed and aperture and independently set manually (with ISO sensitivity also set manually), where proper image exposure requires accurate manual adjustment.

White Balance



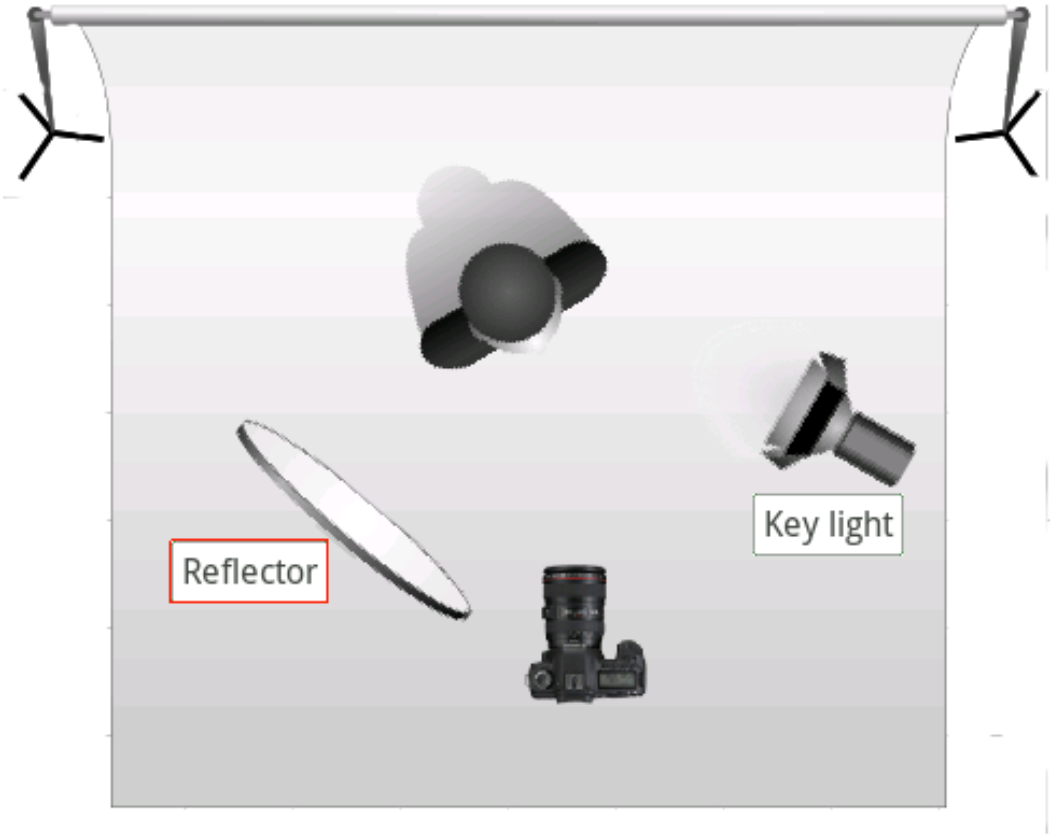
White balance (WB) is the process of removing unrealistic color casts, so that objects which appear white in person are rendered white in your photo.

Basic Lighting Setup



- The basic two light setup is a good starting place for portrait/still life photography and consists of a background, main light and a fill light on the side. Most lighting setups are a variation on this basic one.

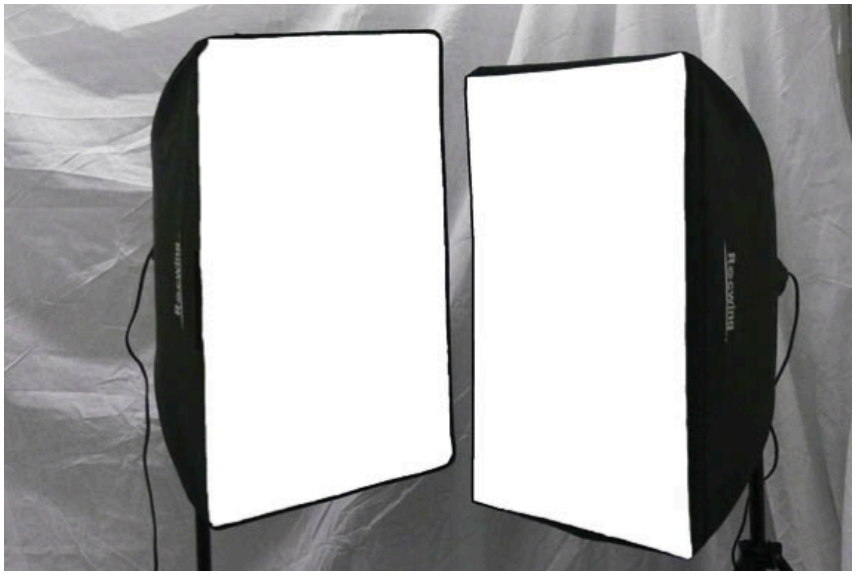
One Light Setup



- One light facing the model at about a 45 degree angle. The reflector acts as a fill light softening the shadows. For harsher shadows do not use the reflector or use a light modifier.

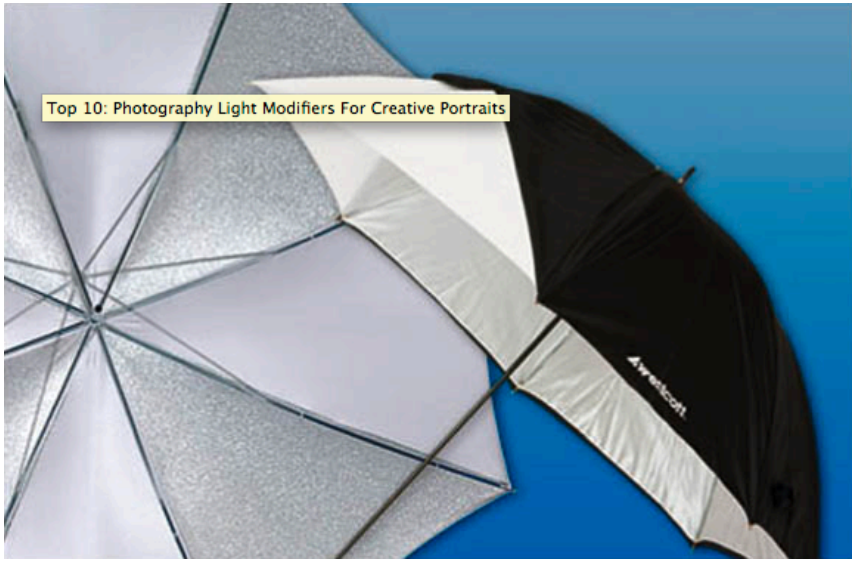
Light Modifiers

Softboxes



A square or rectangular device that has translucent material lining. Softboxes generate soft even diffused lighting and are good for controlling light and shadows on reflective surfaces.

Umbrellas



Umbrellas create soft light and convert your light into a much bigger light source by throwing the light out wide. There are two main types:

1 - **Shoot-through Umbrella:** The umbrella is placed between the Light source and your subject. It's known as a shoot-through because light is diffused as it passes through the umbrella's translucent material.

2 - **Reflective Umbrella:** The light source is targeted away from your subject and towards the umbrella. The diffusion comes when the light bounces on the umbrella and back towards your subject.

Barn Doors

Barn doors are made of four adjustable metal flaps around a square and attach to the front of your light.

Each of these flaps can be moved so the light from the flash can be shaped or shielded from a particular direction. This is usually used to prevent light from spilling or to block the light from hitting the lens.

Snoot

A snoot is a metal tube that is attached to the front of your light. The tube restricts the light down to a narrow beam. This isolates the light and allows you to direct it to a certain area.

Usually used to create strong shadows or a ‘spot light’ effect.

Reflectors

A reflector takes light that would usually spill out to the sides and redirects back towards the subject. Without the use of a reflector a large quantity of usable light could be wasted. The color of the reflector will show up from the light reflected into the subject.

- Gold – produce warm tones
- White – creates neutral color effect
- Silver – creates neutral tones but brighter than white