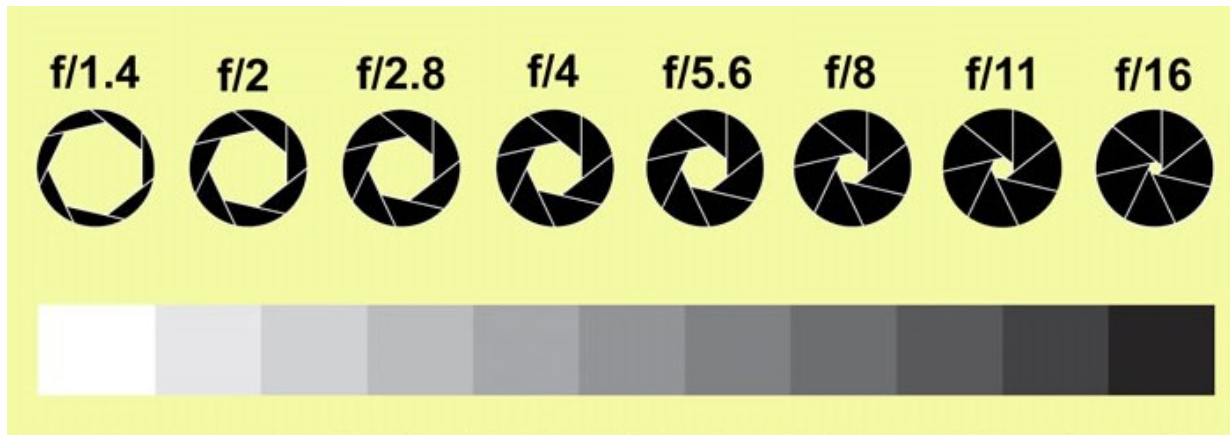


Photography The Basics Week 3 Aperture

The Aperture

The Aperture And Light

The aperture controls the amount of light entering the camera by increasing or decreasing the size of the lens opening (similar to the pupil of your eye). Apertures called "f/stops" were once displayed only in full "stops" that let in half the amount of light of the aperture size before it, or double that of the one after it. Most of today's cameras also have apertures in one-third stops.



f-numbers are confusing because, unlike shutter speeds, they are not intuitive at first. In fact, they don't seem to make sense at all because the **SMALLER** the f-number, the **BIGGER** the opening. Why? It's because the f-number is a ratio between the diameter of the aperture in the lens and the focal length of the lens. For example, on a 50mm lens, f/2 is saying that the diameter of the aperture is 25mm ($50/2=25$). An f/4 is saying that the diameter of the aperture is 12.5mm ($50/4=12.5$). So, the bigger the f-number, the smaller the aperture.

Since most photographers are more creative than mathematical, this seems like a cruel joke! Why put us through all this? Because by using a mathematical formula for determining f-numbers, exposures will be uniform when changing lenses. **MUCH** more on exposures coming up. But for now, just know that an f/8 on a 50mm lens lets the exact same amount of light into the camera as an f/8 on a 100mm lens.

Standardized series of f-numbers:

1 1.1 1.3 1.4 1.6 1.8 2 2.2 2.5 2.8 3.2 3.5 4 4.5 5 5.6 6.3 7.1 8 9 10 11 12.5 14 16 18
20 22 25 29 32 36 40 45 51 57 64 72 80

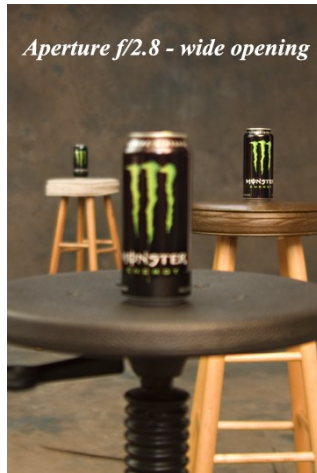
The highlighted f-numbers show the typical range of many lenses on the market.

Lenses are often described as "fast" or "slow". The wider a lens can get, the "faster" it's considered.

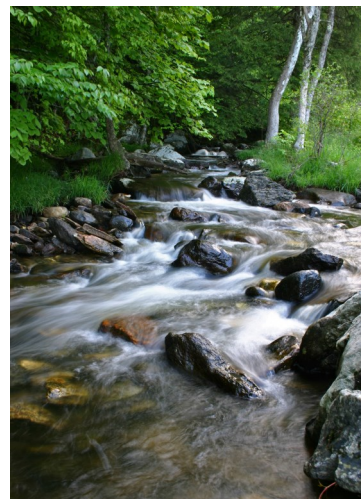
The Aperture And Depth Of Field

"Depth of Field" is a term that describes how much of the scene is in focus from near to far. The lens aperture is one of three factors that control depth of field. The other two factors will be discussed later.

"Shallow" depth of field



Wide/Deep depth of field





ASSIGNMENTS:

1. Depth of field #1 - Place your subject 3 or 4 feet from your camera. The background should be at least 15 feet away (more is just fine). Choose the **WIDEST** aperture your camera has and take your photo. Next, choose the **SMALLEST** aperture your camera will allow and take a second image.
2. Depth of field #2 - set up 3 objects, one that is 5 feet from the camera, the next 15 feet from the camera and the third 25 feet from the camera. Focus on the middle object and create an image using the smallest aperture your camera has. Create a second image using the largest aperture your camera has.

Keep notes of what you are doing!

Notes: