

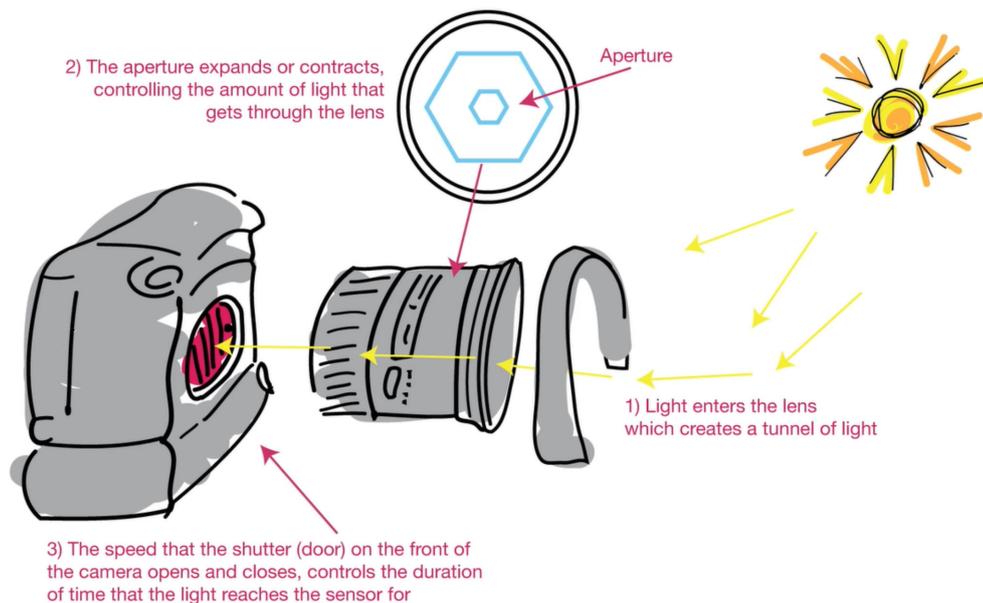
Mastering MANUAL MODE

Module 3 Aperture

Aperture

Aperture Overview

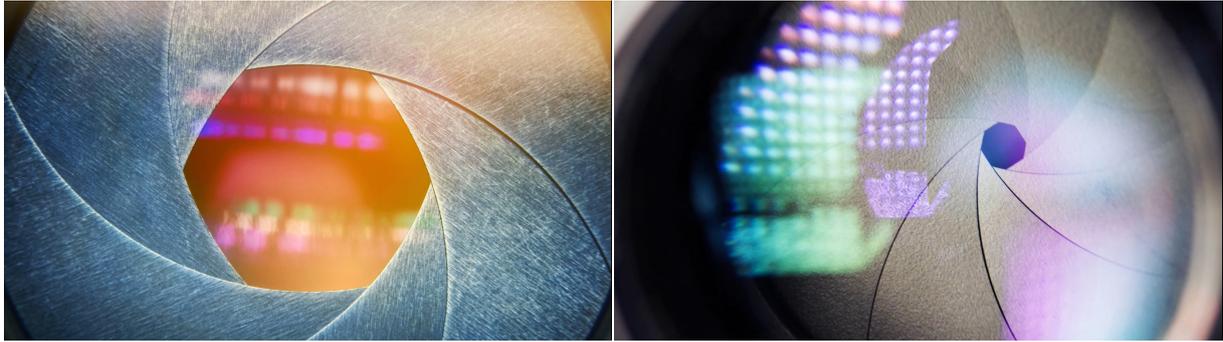
We've already talked about how the shutter speed is equivalent to a door between your lens and camera, that opens and closes, allowing the tunnel of light, to reach your camera sensor for a controlled period of time.



The next element that we need to discuss is the aperture. The aperture is the size of the hole inside the lens that the light travels through. You might remember in the introduction that I compared the opening and closing of the aperture to the expansion and contraction of the pupil in the eye.

Inside your lens, there are a series of overlapping metal leaves that expand and contract to control the size of that opening. You are able to control the expansion using the aperture function.

So when the aperture is large, that means that the hole is large and there's a lot of light coming through and when the aperture small, the hole is small and there's not a lot of light coming through. So far, so good. The confusing part comes in when we actually talk about the numbers that are used to express the differences in size.



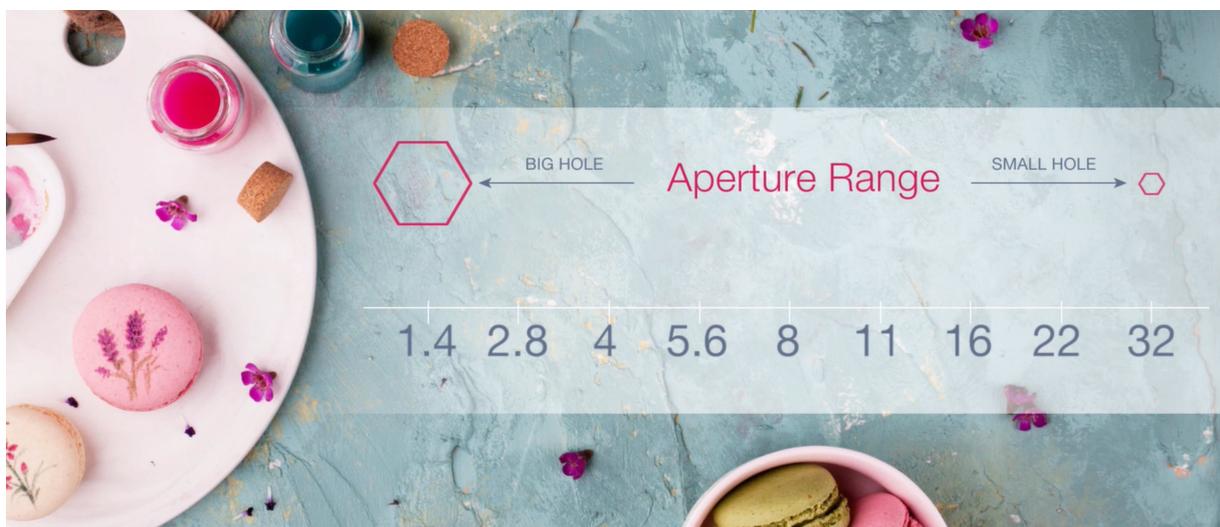
Aperture Scale

If they were based upon a nice simple configuration of intuitive increments, for example, one, then you double the light to two double the light to four, double the light to eight, with each of those points being one stop along the way, then it would make sense.

But unfortunately, the numbering system that was created to describe apertures is based on a complex mathematical equation related to the area of the opening, and it results in numbers that are opposite to logic.

So for example, one of the largest apertures on the scale would be 1.4, but it's expressed a small number and one of the smallest apertures on the scale would be 32, but it's expressed as a large number. So this creates lots of confusion and it's one of the most challenging elements of understanding manual mode for most people. The problem isn't actually the concept itself, it's the numbering system related to the concept that creates problems. To help you to overcome any confusion, what I'd like to suggest is that you learn the numbers pretty much off by heart. It's a relatively small range and they don't take that long to absorb. So at the large end of the scale, probably the largest aperture that you're likely to come across would likely to be 1.4f.

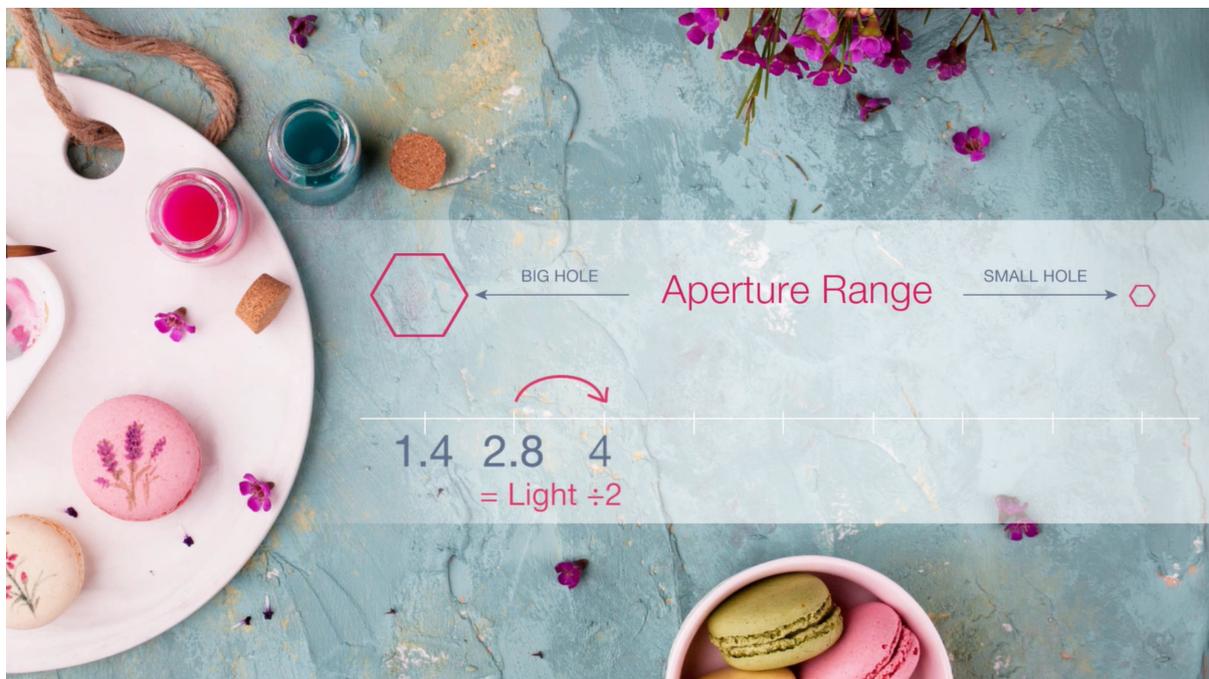
Then it goes upwards in increments (which is downwards in opening size) 2.8, 4, 5.6, 8, 11, 16, 22, 32. And each step of the way along the scale creates either an increase or a reduction in the quantity of light coming through that little hole in the lens, by half.



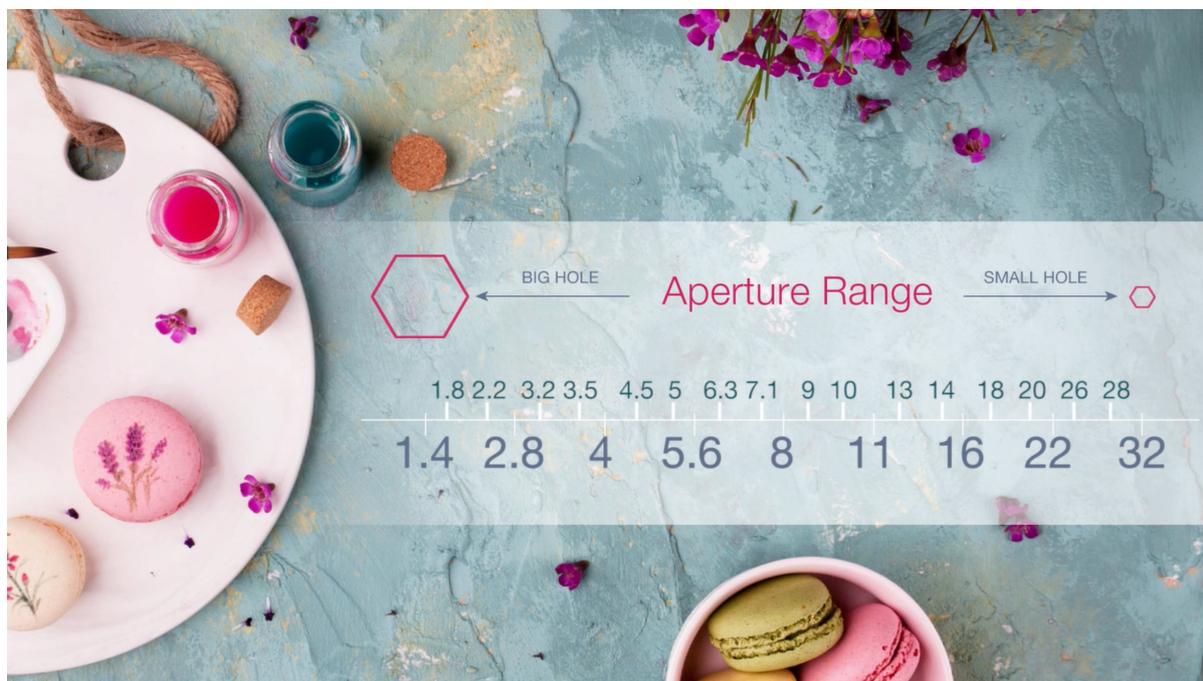
What that means is if your aperture is at 2.8 and you increase the aperture to 1.4, that means the hole doubles in size, and this doubles the amount of light getting through, which means that it's increasing the quantity of light reaching the sensor by double also.



If you go the other direction and you're at 2.8 aperture and you changed to 4 you have decreased the size of the hole, and therefore the light coming through the lens is halved. As a result, you will have half the light exposing on the camera sensor.



You'll also probably find some additional values that your camera offers within the scale, for example, 3.5, 4.5, 7.1. These are half or third stop increments. Here is a representation of the full scale.



To recap: The light comes into the camera through the lens. The aperture controls the diameter of the hole that the light travels through. Then it reaches the shutter, which is a door between the lens and the camera that opens and closes, and in the process determines how long that the sensor sees the light for. Are you with me so far? If you are feeling confused at all? If you are please revisit the relevant sections until you feel really clear, before proceeding further.