

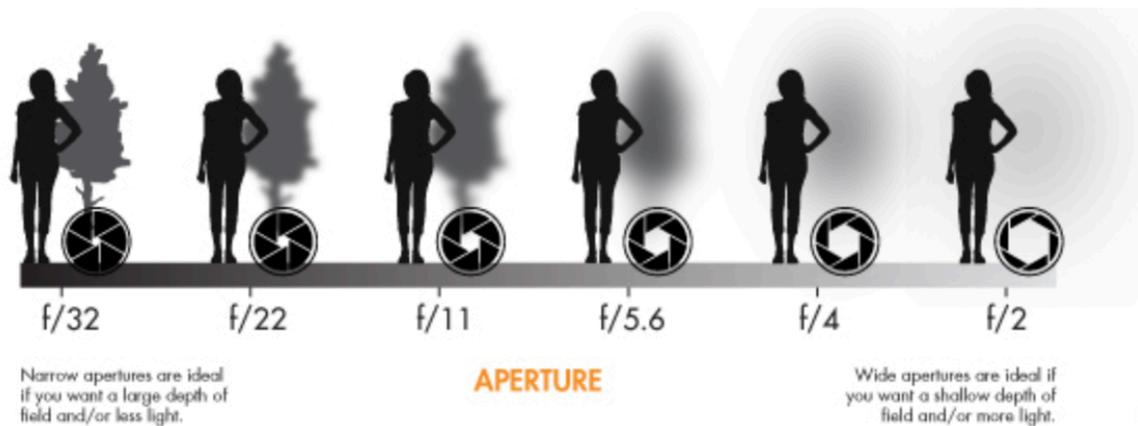
What is Aperture?

Put most simply – Aperture is ‘the opening in the lens.’

When you hit the shutter release button of your camera a hole opens up that allows your camera's image sensor to catch a glimpse of the scene you're capturing. The aperture you set impacts the size of that hole.

The larger the hole the more light that gets in – the smaller the hole the less light.

Aperture is measured in ‘f-stops’



You'll often see f-stops referred to as f/numbers. For example, f/2.8, f/4, f/5.6, f/8, f/22 etc.

Moving from one f-stop to the next doubles or halves the size of the amount of opening in your lens (and the amount of light getting through).

Keep in mind that a change in shutter speed from one stop to the next doubles or halves the amount of light that gets in also. This means if you increase one and decrease the other you let the same amount of light in.

One thing that causes a lot of new photographers' confusion is that large apertures (where lots of light gets through) are given f/stop smaller numbers and smaller apertures (where less light gets through) have larger f-stop numbers.

So, f/2.8 is in fact a much larger aperture than f/22. It seems the wrong way around when you first hear it, but you'll get the hang of it. There are a number of reasons why you may want to adjust aperture. First, as wide apertures let in more light than narrow ones, they're useful when you're photographing in low light. Here, typically want to want to let as much light in as possible, as you might struggle to get a fast-enough shutter speed to get a sharp image.

The reason for this is that shutter speed and aperture are directly related. As you make your aperture smaller, you need to have a longer shutter speed in order to let the same amount of light through to the sensor. Any more or any less and your image will be brighter or darker respectively.

Depth of Field and Aperture

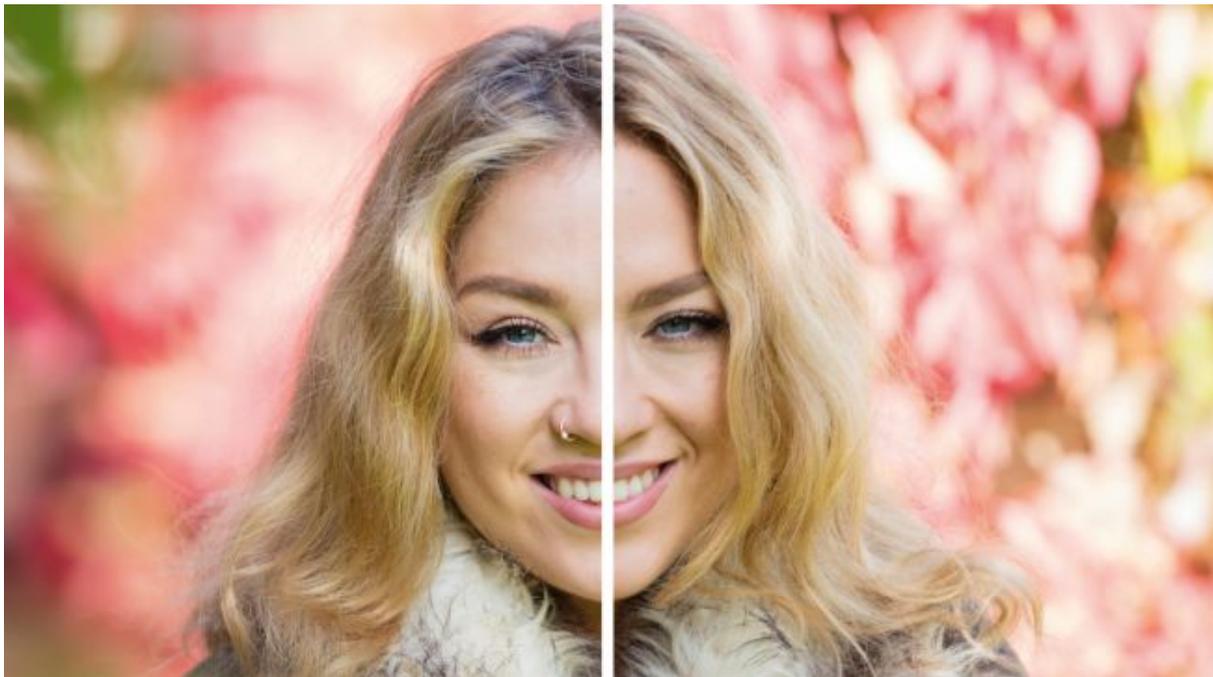
There are a number of results of changing the aperture of your shots that you'll want to keep in mind as you consider your setting but the most noticeable one will be the depth of field that your shot will have. Depth of Field (DOF) is that amount of your shot that will be in focus.

Large depth of field means that most of your image will be in focus whether it's close to your camera or far away.



For example, the landscape shot above has an aperture of $f/22$ and the result is that both the mountain in the background and the trees in the foreground remain in focus.

Small (or shallow) depth of field means that only part of the image will be in focus and the rest will be fuzzy.



FAST LENSES ARE IDEAL FOR PORTRAITS. THE DIFFERENCE BETWEEN $f/2.8$ (LEFT) AND $f/5.6$ (RIGHT) DOESN'T SEEM MUCH, BUT THE WIDER APERTURE BLURS BACKGROUND DETAIL MUCH MORE EFFECTIVELY

When shooting portraits, it's best to set a wide aperture (around $f/2.8$ - $f/5.6$) so the background behind your subject is nicely blurred, making them stand out better. All the focus can be placed on their subject at the expense of details in the background. This is known as having a 'shallow' depth of field. Be aware; the wider you open your aperture, the more light you are letting in. You must balance this with your shutter speed and/or ISO to compensate. This feature of wide aperture is also appealing, should you be in a very low light situation.



IF THE MODEL'S FACE IS SLIGHTLY SIDE-ON TO THE CAMERA, A WIDE APERTURE MAY BLUR ONE OF THE EYES. THIS CAN LOOK A LITTLE STRANGE, SO CONSIDER STOPPING DOWN TO F/5.6 TO KEEP BOTH EYES SHARP

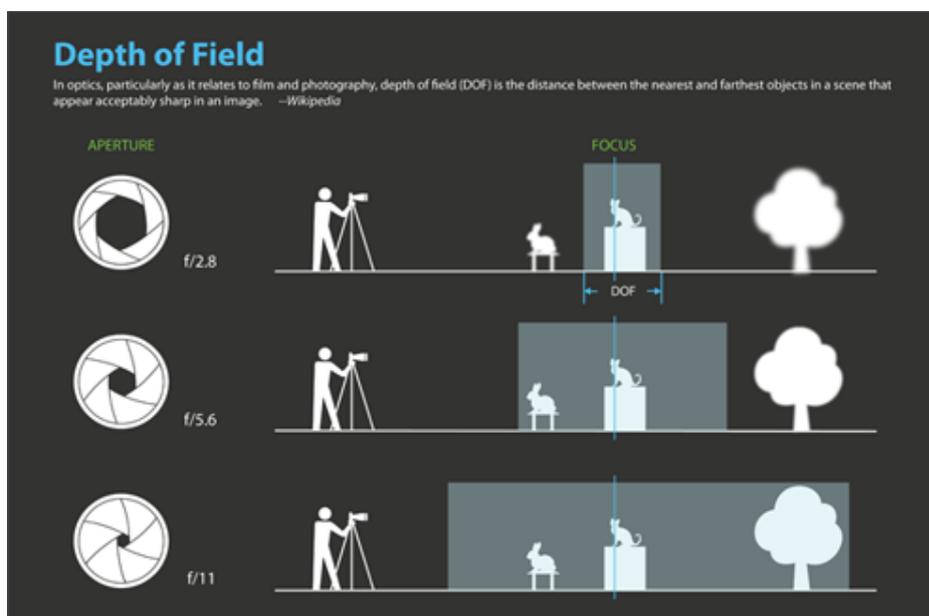
Some styles of photography require large depths of field (and small Apertures)

For example, in most landscape photography you'll see small aperture settings (large numbers) selected by photographers. This ensures that from the foreground to the horizon is relatively in focus.

On the other hand, in portrait photography it can be very handy to have your subject perfectly in focus but to have a nice blurry background in order to ensure that your subject is the main focal point and that other elements in the shot are not distracting.

In this case you'd choose a large aperture (small number) to ensure a shallow depth of field.

Macro photographers tend to be big users of large apertures to ensure that the element of their subject that they are focusing in on totally captures the attention of the viewer of their images while the rest of the image is completely thrown out of focus.



Depth of field is as important as your composition or picking a focal length. It's how you set the level of intimacy in a story or how you direct where the viewer should be putting their focus in the frame. It's the emotion, the punctuation, and the eyes of the story in photography.

NARROW APERTURE



WIDE APERTURE



OUT OF FOCUS

IN FOCUS

OUT OF FOCUS



WHY USE A SMALL APERTURE?

- 1 Increase depth of field in close-up shots to ensure the whole scene is in focus, from front to back. This is also important when shooting landscape scenes.
- 2 Capture the optimum degree of fine detail – so narrow apertures are great for deep landscape and building shots.
- 3 Narrower apertures allow slower shutter speeds for creative motion-blur effects, and striking light trails at night.

OUT OF FOCUS

IN FOCUS

OUT OF FOCUS



WHY USE A WIDE APERTURE?

- 1 Reduce depth of field to focus attention on your subject while keeping the background nicely blurred.
- 2 Isolate an object from a distracting background.
- 3 The more light that's allowed onto the sensor, the faster the shutter speed you can use to freeze action, or stop camera shake from spoiling your shots.
- 4 Create arty abstract shots with a macro lens by carefully controlling what is sharp.

Working in 'stops'

In the sequence below, notice how each f-number is 'half' the size of the one before it, and so lets in half as much light. The difference in light between two sequential f-numbers is often referred to as an f-stop, or simply a 'stop' – a stop is a 'unit' of light and exposure value. So, as

you increase the amount of light that comes through the aperture hole, you need to reduce the amount of time it passes through the aperture to maintain the same exposure. Your SLR works this out for you unless you are in Manual mode, where you can specify aperture *and* shutter speed.



A starburst from a light source is the result of light diffraction. Diffraction is the slight bending of (light) waves around small obstacles and the spreading out of (light) waves past small openings. As light passes into your camera through a small opening, i.e. a small aperture at a low focal length, it bends around the edges of the blades and creates the "star" look. The number of rays from each starburst is related to the number of aperture blades in your lens. The more blades your lens has, the more "starburst" is possible. So, if you want to switch up the look, experiment with different lenses as well as different apertures. Also, remember that the focal length also affects the size of the opening.