Aperture

In this lesson, we'll be taking a look at **Aperture.**

Estimated Completion Time: **11 minutes.**

Aperture

A few points before we start looking at ***aperture*.**

All cameras have an automatic mode. Some cameras only have automatic modes. In order to take *great* photos, you don't *need* to understand, much less adjust, ***aperture*.**

However, if you do get a basic understanding of aperture, you'll be able to take *even better* photos.

When you understand aperture, you'll be able to take photographs like this one.

Aperture

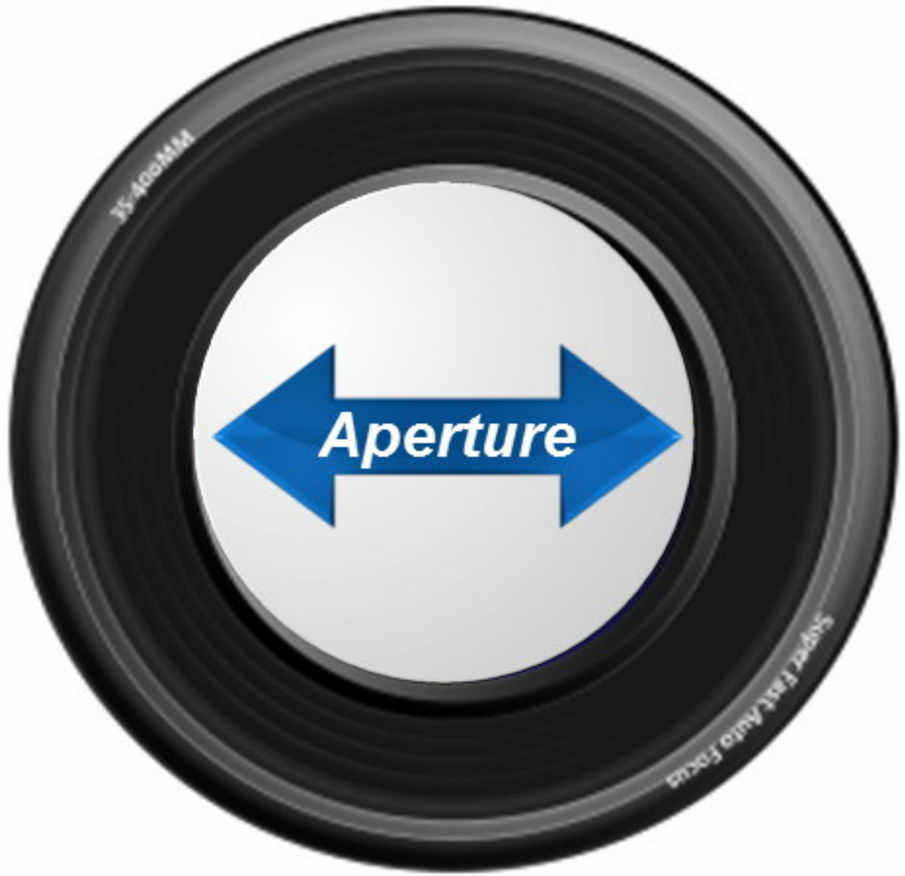
When you take a photo, the camera ***shutter*** opens to let in light, along with the image you are taking a photo of.

The shutter stays open for a certain period, then closes. The length of time it stays open is called the ***shutter speed***.

Here we are looking down a camera lens - and the shutter is opening and closing, taking photos.

Aperture

The *wider* the shutter opens, the larger the ***aperture*** is, and the more light is let into the camera.



Aperture

A *large* aperture setting opens the shutter wide - letting in more light, while a small aperture setting only opens a small way - letting in less light.

As you'll see shortly, this can dramatically affects how the photograph turns out.

When you take a shot, the shutter will open to a certain size. This is known as the aperture.

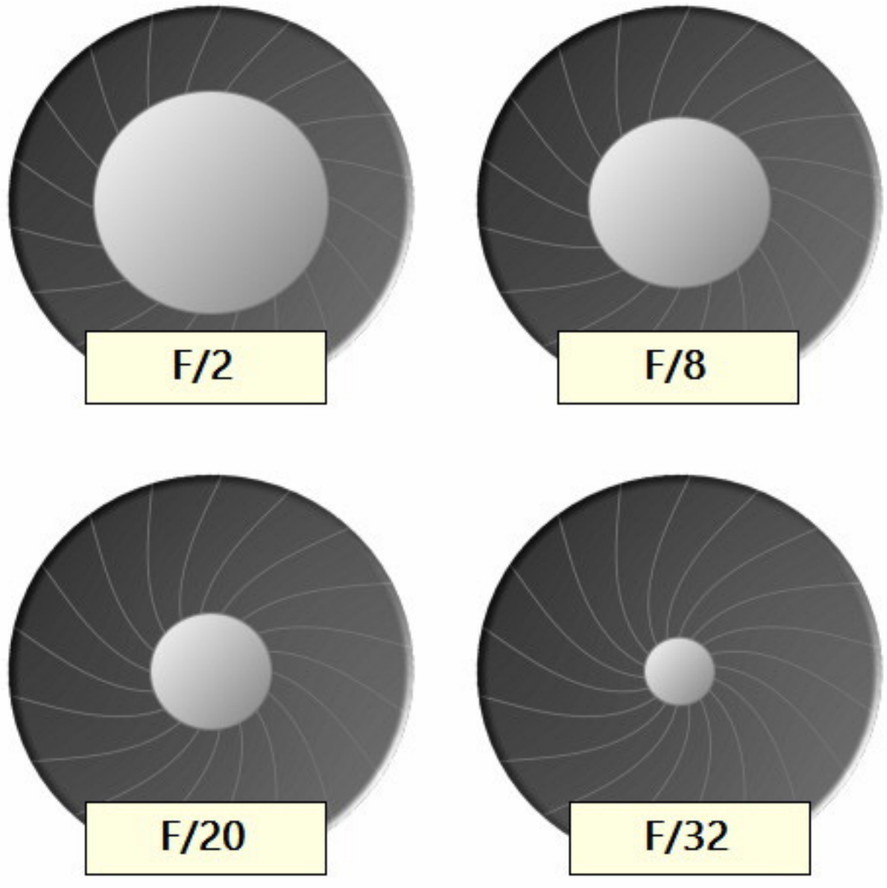
Aperture

Not all cameras have aperture control. Generally, only the higher end compact cameras, big zoom cameras, or DSLR cameras have the ability to change aperture.

On cameras without manual aperture control, the camera will still quite often change the aperture automatically.

Aperture

Aperture is measured in ***f-stops,*** often just called ***stops.*** Aperture settings can range from F/1, right through to F/40 or more. The **lower** the f-setting, the **wider** the shutter opens.



Aperture

Many cameras or lenses offer a reduced aperture range - say F/3 through to around F/8 or so. The better the camera, or to be more precise, the better the lens, the wider the aperture range will be.

Often a measure of just how good a lens is, a lens that can achieve F/2 or even lower is regarded as a very high quality lens.

The better the camera, the more aperture control you'll have.

Aperture

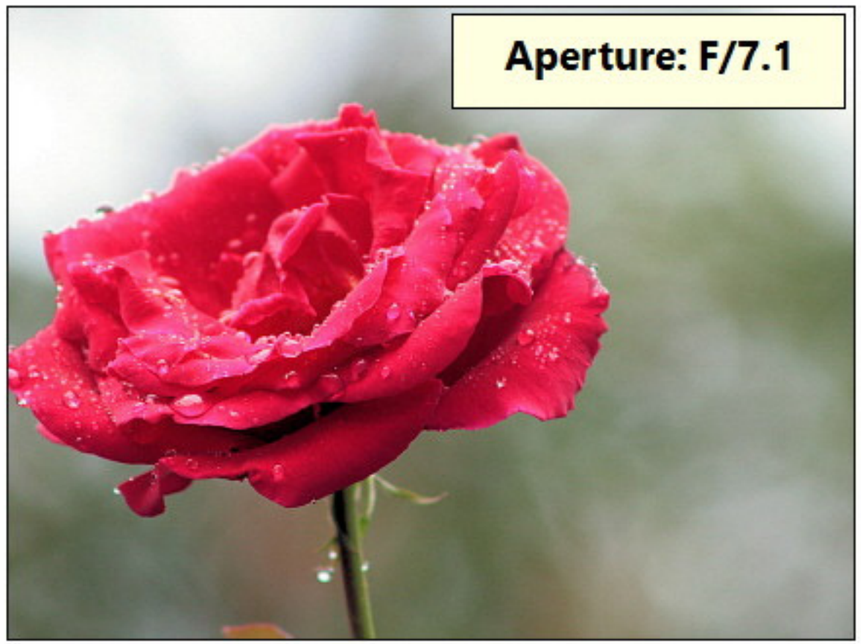
So, what difference does the aperture make? Quite a lot as it turns out. Compare the two images below.

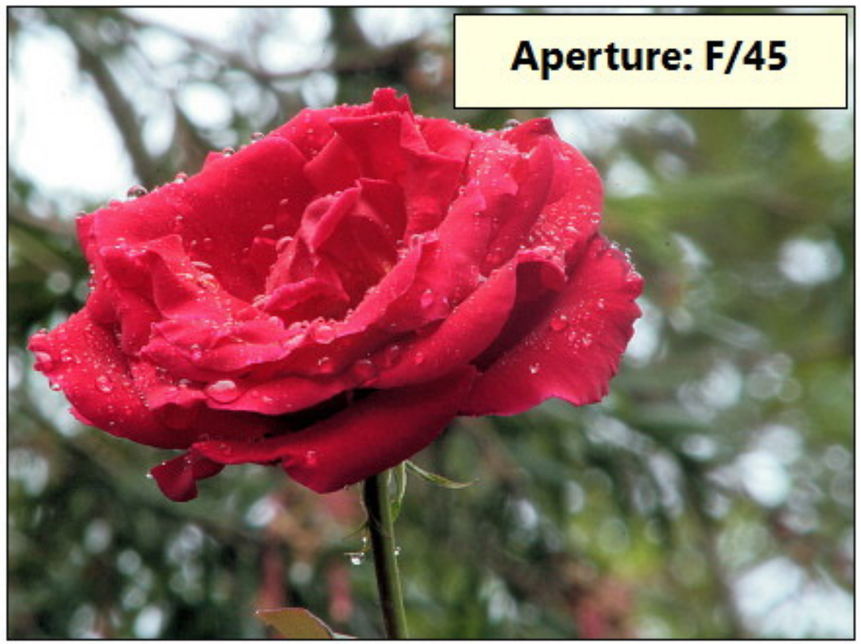
Can you tell the difference between these two photos? Large aperture settings (lower F number) give a smaller depth of field - less is in focus. Small aperture settings (larger F number) allow much more to be in focus.

Aperture

Here's another example. Because a large aperture gives a small depth of field, it is a perfect setting to achieve the *blurry background* effect.

The ***Depth of Field*** refers to how much is in focus. The more that is in focus, the larger the depth of field. This feature of changing the aperture allows you to change the depth of field to create great effects.





With the larger aperture, as on the left, the rose stands out far more.

Aperture

The blurry background effect.

Aperture

This blurry background effect is a great way to ensure that your subject stands out in your photo, with no distractions.

The blurry background effect can be enhanced when you zoom in as well.

Aperture

The decreased depth of field here not only gives a blurry background, but a wonderful effect on the leaf itself.

Aperture

When the object in focus is not so close to the camera, the effect is very subtle, but still noticeable.

The focus here is on the street sign - which is not that close to the camera, so the blurred background effect is not as noticeable.

Aperture

The opposite is true when you want everything in focus - set the aperture as low as you can, and more will remain in focus.

Landscapes should generally be taken with a fairly high aperture for better results.

Aperture

As with everything, there are trade-offs.

If you want a high depth of field, you need a low aperture setting. But, because a low aperture reduces the amount of light coming into the camera, the shutter speed needs to be reduced as well. Lower shutter speeds increase the chance of blur.

A higher aperture setting (F/14) in this case forced the camera to set a shutter speed of 1/3 of a second. In a hand held camera, this can mean blurry photos unless you are rock solid.

Aperture

There are two ways to adjust for the slower shutter speed. First, you can use a tripod.

Second, you can increase the ***ISO*** setting *(we have another lesson that covers ISO).* The ISO setting on your camera determines how sensitive the camera is to light. The higher the ISO setting, the more sensitive to light the camera is. A camera sophisticated enough to allow aperture control will also allow ISO control, and allow you to use much faster shutter speeds.

A high aperture setting (F/14) in this case, accompanied by a higher ISO setting, allowed us to get this shot at 1/100 of a second - enough for hand held photos.

Aperture

Because of this trade-off (high aperture means slower shutter speeds), you are almost always better off taking action shots with a low aperture setting.

A high aperture setting (F/3.5) allowed us to use a fairly fast shutter speed on this photo. Note that the high aperture still means a relatively small depth of focus.

Aperture

Another possible issue with the shallow depth of field you can get with large apertures is how much of the subject is in focus. Below, we've set the aperture at F2.8 - and as a result, not even the whole flower is in focus.

Aperture

When a camera has a mode called **Aperture Priority,** all you do is select the aperture you are after, and the camera will select all other appropriate settings to ensure the photograph is exposed correctly. This normally involves adjusting shutter speed, and ISO.

Note that, as with *shutter priority,* the camera will do it's best to make sure the photograph is exposed correctly, but ultimately, this depends on whether enough light is available to do so.

*In **Aperture Priority** mode, you select your desired aperture, and the camera does the rest.*

Aperture

If your camera does not have manual aperture control, or even if it does - it may have some various modes available that will adjust the aperture automatically.

For example, if you select a mode called **Portrait,** you may find the camera automatically adjusts aperture to give that blurry background look - based on whether this is possible in the circumstances.

Aperture

Well done. You've now completed this lesson.

In this lesson, we took a look at **Aperture.**