

## Understanding Depth of Field

**A basic definition of depth of field is:** the zone of acceptable sharpness within a photo that will appear in focus. In every picture there is a certain area of your image in front of, and behind the subject that will appear in focus.

Three main factors that will affect how you control the depth of field of your images are:

1. Aperture (f-stop)
2. Distance from the subject to the camera
3. Focal length of the lens on your camera

### How does aperture control depth of field?

Aperture refers to the access given to light from the lens to the camera sensors. The size of your aperture controls the amount of light entering your lens.

Using the aperture (f-stop) of your lens is the simplest way to control your depth of field

**Large aperture = Small f-number = Shallow (small) depth of field**

**Small aperture = Larger f-number = Deeper (larger) depth of field**

### How does the focal length of a lens control depth of field?

Focal Length refers to the capability of a lens to magnify the image of a distant subject.

The longer you set your focal length the shallower the depth of field.

The closer your subject is to the camera, the shallower your depth of field becomes.

Moving further away from your subject will deepen your depth of field.

With a point and shoot camera, there are ways to control your depth of field.

In the Scene Modes menu, look for a symbol of a human head, which is the setting for portraits. This will give you a narrow depth of field.

Look for a mountain symbol, which is a setting for landscapes, which will give you a deeper depth of field.

Simple ways you can control depth of field and still use and automatic shooting mode with a DSLR.

By choosing Aperture Priority mode you can set your aperture to get the depth of field that you want, and the camera will automatically set the shutter speed.

Changing your aperture affects your shutter speed so the result may not meet the needs of your image.

For instance, if you are trying to increase your depth of field by reducing aperture size you will also need to increase (slow down) your shutter speed. Understanding how all these settings work can increase your control over depth of field.

### Is depth of field equally distributed in front and back of my focus point?

No, it's usually about one third in front and two thirds behind your focal point, but as your focal length increases it becomes more equal.

Managing depth of field is one of the most important tools at your disposal, because having tack sharp images is one of the most important factors to getting that great shot. Knowing how to make the parts of your image you want sharp and the parts you want to be out of focus is a great artistic tool to create great images.

### When should I use a shallow depth of field?

Using a shallow depth of field is a good way to make your subject stand out from its background and is great for portrait photography. Shallow DOF can also be useful in wildlife photography where you want the subject to stand out from its surroundings. This is also useful because many wildlife photo

opportunities are low light situations, and increasing your aperture size will give you more light. Shallow depth of field is also effective for sports photography. This should also help give you a fast enough shutter speed to freeze the action.

### **When should I use deeper depth of field?**

In **landscape photography** it is important to get as much of your scene in focus as possible. By using a wide angle lens and a small aperture you will be able to maximize your depth of field to get your scene in focus.

For maximum front-to-back sharpness in a landscape or cityscape, use short focal lengths and apertures of around f/16 or smaller, and focus about a third of the way into the scene. To keep the camera steady during the longer exposure, use a tripod or increase the ISO instead.

### **Can depth of field be adjusted to get everything in focus?**

Yes, using what is called the hyperfocal distance.

### **WHAT IS HYPER-FOCAL DISTANCE?**

Hyper-focal distance, at its simplest, is the focusing distance that gives your photos the greatest depth of field.

For example, consider a landscape where you want everything — foreground and background — to appear sharp. If you focus on the foreground, the background will appear blurry in the image. And if you focus on the background, the foreground will look out of focus!

How do you fix this?

Simple: you focus at a particular point between the foreground and the background, which makes both the foreground and the background elements of the scene appear reasonably sharp.

This focusing point is called the hyper-focal distance.

When you are focused at the hyperfocal distance, your depth of field will extend from half the distance to your focal point to infinity.

Use a DOF calculator to find your hyperfocal distance. If you don't have a DOF calculator, a good rule of thumb is to focus a third of the way into the scene. Using an aperture of about f/11 or higher with a wide angle lens will maximize your depth of field.

### **What about depth of field in macro photography?**

Depth of field decreases the closer you focus, so when it comes to photographing miniature subjects the choice of aperture becomes crucial. Because most macro images are produced in low light and with a longer focal length, the depth of field is often very shallow.

Adjust your lens to the smallest aperture that the light will allow. It may also be necessary to increase your ISO to allow you to properly expose the image and to maximize your depth of field. With this very narrow focus it becomes necessary to use a tripod, because even the slightest movement of the camera will move your macro subject outside your depth of field.

### **To summarize controlling depth of field**

#### **Increase depth of field**

- Narrow your aperture (larger f-number)
- Move farther from the subject
- Shorten focal length

**Decrease depth of field**

- Widen your aperture (smaller f-number)
- Move closer to the subject
- Lengthen your focal length

Understanding how these adjustments control your depth of field will greatly improve your photography.

**Acknowledgements:**

For further information check out these websites:

<https://digital-photography-school.com/understanding-depth-field-beginners/>

<https://www.techradar.com/how-to/photography-video-capture/cameras/what-is-depth-of-field-how-aperture-focal-length-and-focus-control-sharpness-1320959>

These notes will shortly be available to download from: [www.seniornetsounds.org.nz](http://www.seniornetsounds.org.nz)

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