

# What Is Depth of Field in Photography?

Depth of field is how much of your scene comes out sharp, from the nearest sharp point to the furthest. Shallow depth of field means a thin slice of your image is sharp and the rest is blurred; a deep depth of field means most of the scene is sharp.

## The depth of field elements that dictate how much of your photo is sharp

### Aperture

The biggest lever. A low f-number gives a shallow depth of field.

### Focal length

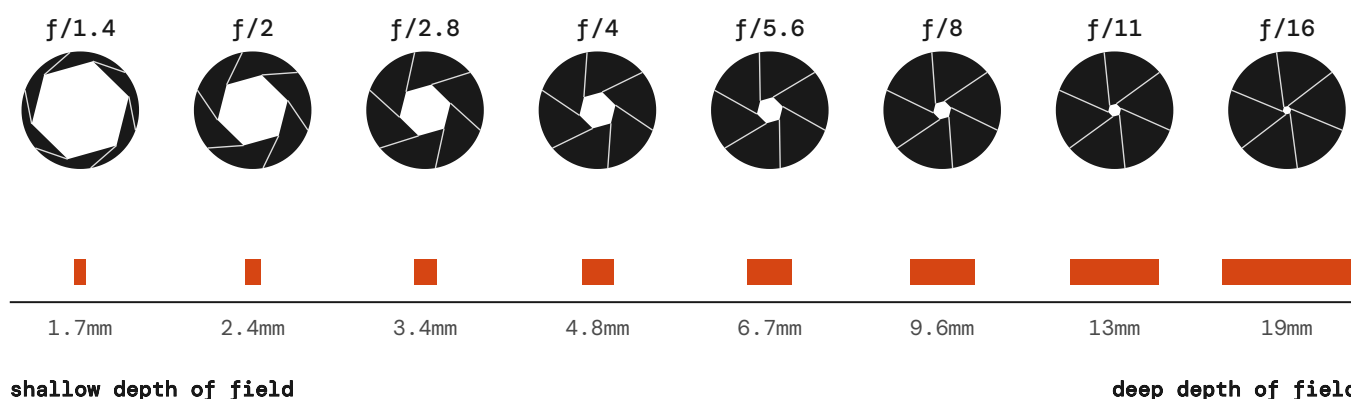
The longer the focal length, the shallower the depth of field.  
The shorter the focal length, the deeper the depth of field.

### Focus distance

The closer you are to your subject, the shallower the depth of field. The further away you are, the deeper the depth of field.

### THE APERTURE SCALE

f/1.4 - f/16



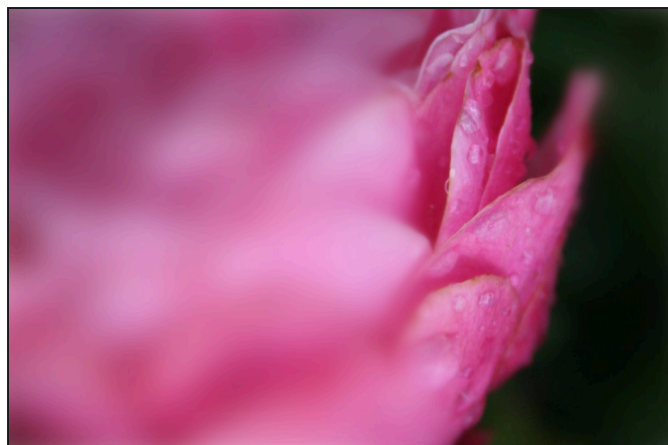
The lower the f-number, the wider the opening and the more light your camera receives. The orange bars show the depth of field for each one, on a 100mm lens focused half a metre away.

### EXAMPLE OF APERTURE AND DEPTH OF FIELD: ONE SCENE, FOUR F-NUMBERS

01-04

The same rose, the same lens, the same focus distance. The only thing changing across the four frames is the aperture, so every difference you can see is depth of field.

Follow the sharp band at the petal tips: at f/1.4 it is a sliver, and by f/16 it is more than eleven times deeper and takes in nearly the whole bloom.



01

**f/1.4**

About 1.7mm sharp

A wide aperture lets in plenty of light and holds only a tiny distance sharp. A narrow band across the outer petal tips records, and everything in front of and behind it is gone.

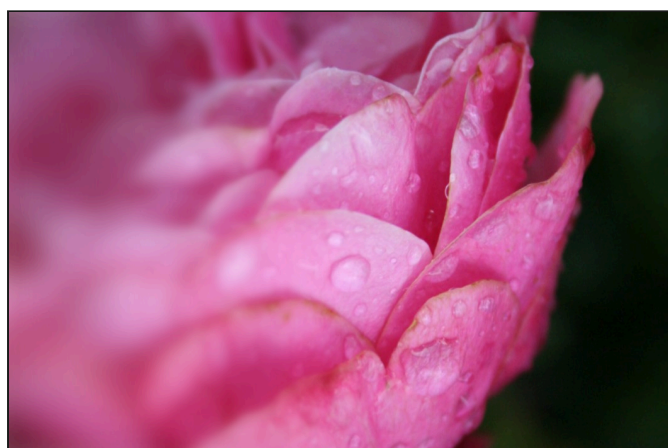


02

**f/2.8**

About 3.4mm sharp

One stop down doubles the depth of field, and a few neighbouring petals join in. Small changes at wide apertures make a visible difference this close.

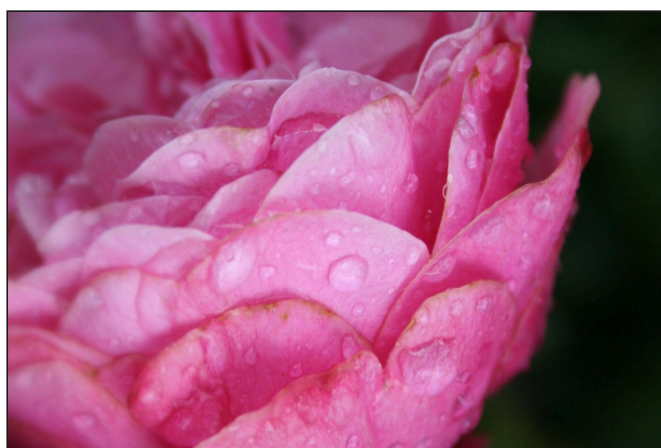


03

**f/5.6**

About 6.7mm sharp

Four times the depth of field of f/1.4, and the band now covers the whole group of outer petals. This is the middle of the range, and where most lenses are at their sharpest.



04

**f/16**

About 19mm sharp

A high f/stop is a narrow aperture: less light, but far more depth. Nearly the whole flower is sharp, while the garden behind stays soft, because stopping down deepens the band around wherever you focused rather than reaching the distance.

**Note:** the four frames above come from a single photograph, with the blur simulated for illustrative purposes.

## GET THIS STRAIGHT

### A low f/stop is a wide aperture, and a wide aperture means less in focus

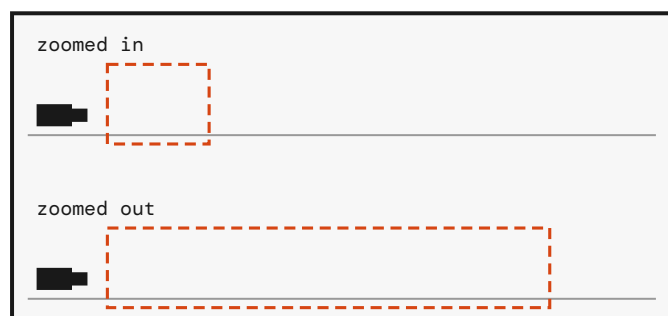
The number and the opening work in **opposite directions**, which is where most beginners get stuck. A low f/stop is a wide aperture with a shallow depth of field, so only a small distance in your photo is sharp. A high f/stop is a narrow aperture with greater depth of field, meaning more of your scene is sharp.

**Top tip:** a depth of field calculator app will do the maths for you before you shoot.

## IN PRACTICE

05-08

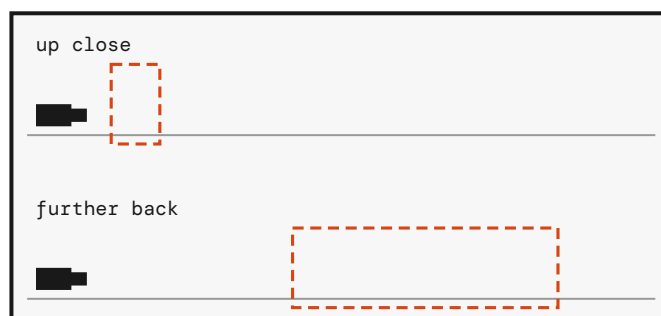
Aperture is not the only control. Three other things change how much of a photo comes out sharp.



05

### Focal length

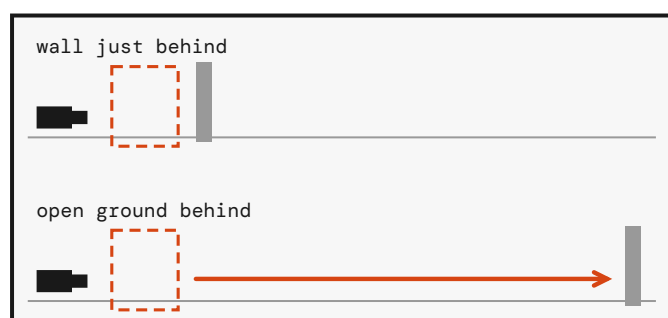
The more you zoom in, the less of the photo is sharp. Zoom out and more of it comes out sharp.



06

### Distance to subject

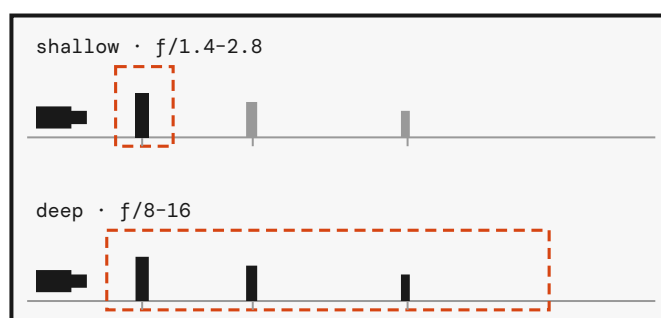
The closer you stand to your subject, the less of the photo is sharp. Step back and more of it comes out sharp.



07

### Distance to background

This does not change how sharp your subject is, only how blurred the background looks. A wall right behind your subject still reads. Open ground far behind turns that wall into a blur of colour.



08

### Shallow or deep

Shallow depth of field for portraits and details, where blur lifts your subject off its surroundings. Deep depth of field for landscapes and interiors, where near and far both need to hold.

**Notes:** Depths are for a 100mm lens on full-frame, focused at 0.5m, circle of confusion 0.03mm. Sensor size and the size a photo is printed at also affect what our eyes accept as sharp. Plan diagrams are not to scale. The four frames come from a single photograph, with the blur simulated for illustrative purposes.