

What Lenses Can I Use With My Camera?

A Beginner's Guide to Camera Lens Types, Focal Length, and What Each Lens Is For

If your camera lets you change lenses, the choice of what to use can look overwhelming: fisheye, wide, standard, telephoto, macro, and a wall of numbers on every barrel. The good news is that almost every lens on sale falls into one of about eleven types; each type does one job in particular, and generally it does the job that it is intended for well.

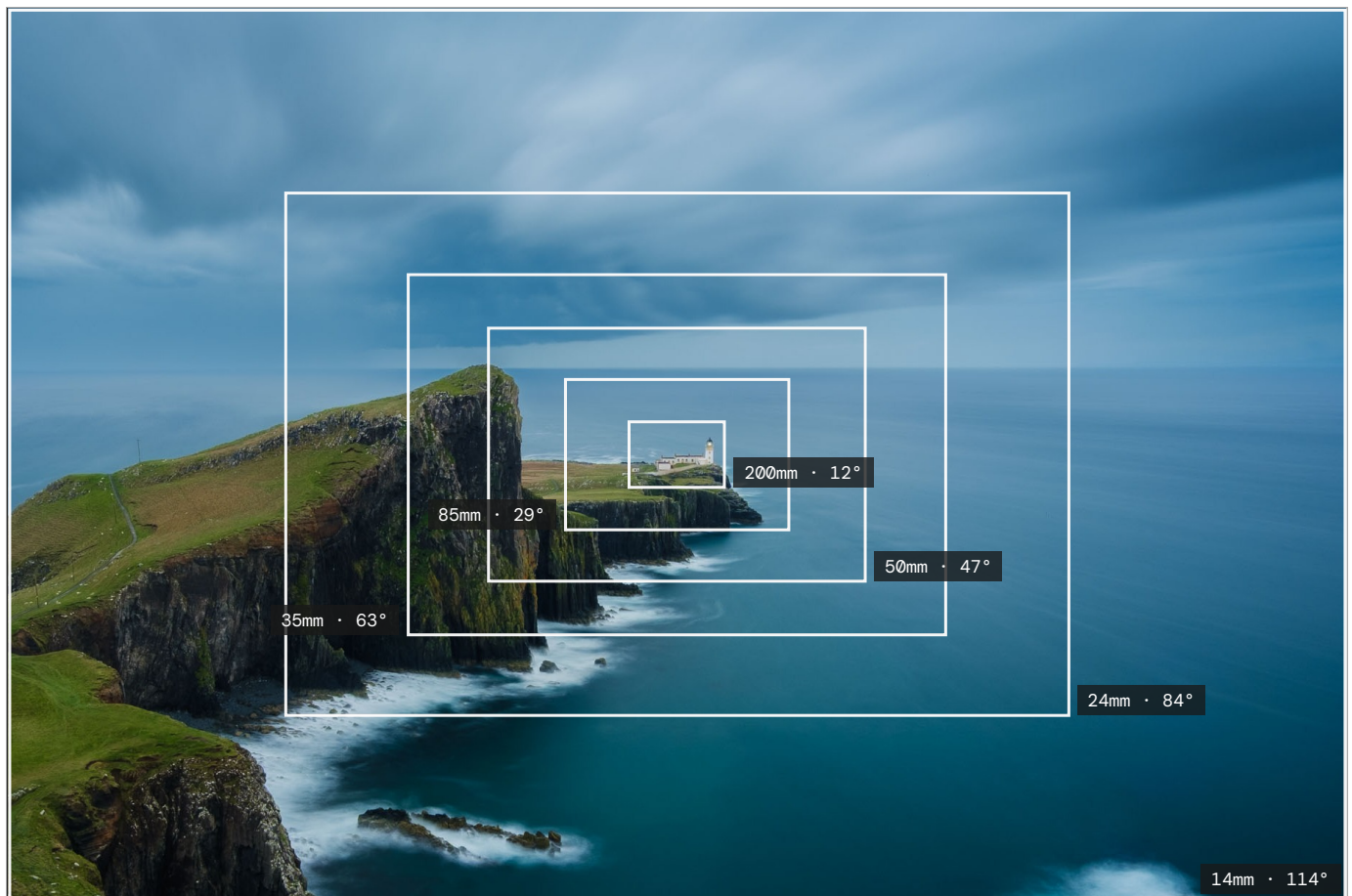
The number that matters most is the **focal length**, written in millimetres. A small number, like 16mm, means a **wide** lens that fits a lot of the scene onto the frame. A big number, like 400mm, means a **long** lens that sees a **narrow** slice of the scene and makes distant things look close, also known as a zoom.

Everything on this page follows from that one idea. Use it as a cheat sheet: find the kind of photograph you want to take, and it will direct you to the lens that captures it.

What Each Lens Focal Length Captures

SAME SPOT, SAME CAMERA

This is one scene, photographed from one position. Each box shows how much of it a given focal length would fit into the picture.



Boxes are drawn to scale for a full-frame camera. A 200mm lens takes in about a fourteenth of the width a 14mm lens does, and roughly one two-hundredth of the area. Illustrative only: the photograph was taken on one lens and cropped. Photograph by Philip Mowbray.

How to Read a Camera Lens's Name

READING THE NUMBERS

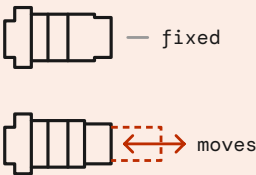
Lens names can look like complex code, but they are just a set of information in a fixed order. Here is a typical one, taken apart:

Fujifilm XF	16-55mm	f/2.8	R LM WR
BRAND AND MOUNT The brand and which camera system it fits. A lens only mounts on the system it was made for, unless you use an adapter.	FOCAL LENGTH How wide or long it sees. Two numbers mean it <i>zooms</i> across that range; one number means it is <i>fixed</i> (prime).	MAXIMUM APERTURE How much light it can let in at the widest aperture. The smaller the number, the more light can be let in.	RANGE AND EXTRAS Each brand's own badges for features and build. In this example, for Fujifilm, these mean an aperture ring, a fast, quiet focus motor, and weather sealing.

So Fujifilm XF 16-55mm f/2.8 R LM WR reads as: a Fujifilm X-mount lens that zooms from wide to short telephoto (16-55mm), lets a lot of light in, and is sealed against weather.

ONE MORE DISTINCTION

Prime or Zoom?



Prime lenses have one fixed focal length. Fewer moving parts means wider apertures, smaller bodies and often better sharpness for the money. You zoom by walking.

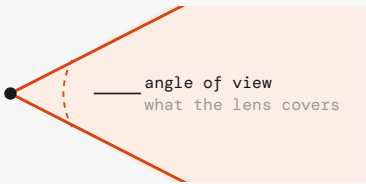
Zoom lenses cover a range in one body, so you change framing without changing lens. Usually heavier, and slower at the long end.

Every category that follows comes in both forms.

The Main Lens Types, by Focal Length and Viewpoint

WIDEST TO LONGEST

HOW TO READ EACH ENTRY

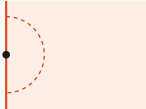


The viewpoints, indicated as *wedges* below, are drawn to scale, so each one shows how much of the scene that lens covers. The outlines show the typical shape and proportions of each type. Figures are for full-frame cameras; on a crop sensor, the angle is narrower, but you can still use these as a general guide.

Fisheye

8 - 15mm

the lens
 

angle of view 180°
 

Sees almost everything in front of it and bends straight lines into curves. A deliberate effect rather than a general-purpose lens.

BEST FOR
 Skateboarding · Interiors · Skies

e.g. Canon EF 8-15mm f/4L Fisheye

Ultra-wide

14 - 24mm

the lens
 

angle of view 84 - 114°
 

Fits large subjects into tight spaces: interiors, architecture, sweeping landscapes. Anything near the edge of the frame stretches.

BEST FOR
 Interiors · Architecture · Landscapes

e.g. Sony FE 16-35mm f/2.8 GM

Wide

24 - 35mm

the lens
 

angle of view 63 - 84°
 

Wide enough to give a sense of place, close enough to normal to keep people looking natural. The reportage and street standard.

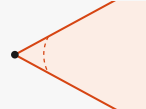
BEST FOR
 Street · Reportage · Travel

e.g. Sigma 24mm f/1.4 DG DN Art

Standard

40 - 58mm

the lens
 

angle of view 41 - 57°
 

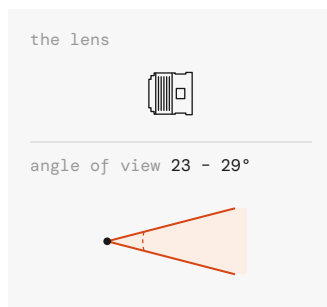
Close to the way we see, with almost no distortion. The lens to learn on, and the cheapest route to a wide aperture.

BEST FOR
 Everyday · Documentary · Low light

e.g. Nikon Z 50mm f/1.8 S

Portrait

85 - 105mm



Flattens facial features flatteringly and separates the subject from the background. Head-and-shoulders work lives here.

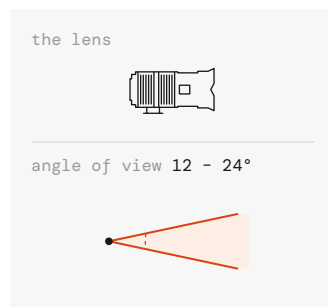
BEST FOR

Headshots · Weddings · Editorial

e.g. Sony FE 85mm f/1.8

Medium Telephoto

100 - 200mm



Reaches across a room or a touchline and compresses depth, stacking foreground and background closer together.

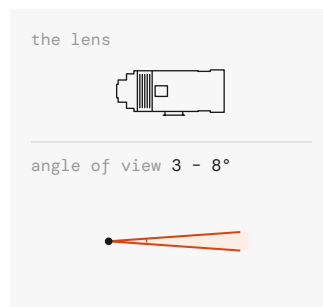
BEST FOR

Sport · Events · Candid

e.g. Canon RF 70-200mm f/2.8L IS USM

Super Telephoto

300 - 800mm



A narrow slice of the scene, heavily magnified, for wildlife and distant sport. Big, heavy, and unforgiving of camera shake.

BEST FOR

Wildlife · Sport · Aviation

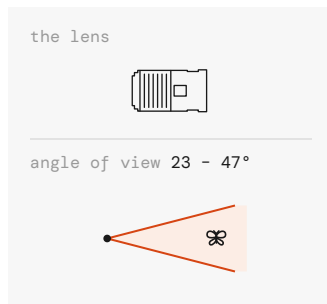
e.g. Nikon Z 600mm f/6.3 VR S

Special Purpose Lenses

DEFINED BY WHAT THEY DO, NOT THEIR LENGTH

Macro

50 - 105mm typical



Focuses close enough to render a subject life-size on the sensor. Depth of field becomes millimetres thin.

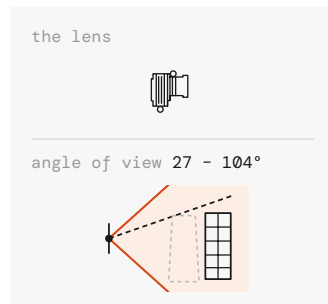
BEST FOR

Insects · Flowers · Products

e.g. Sigma 105mm f/2.8 DG DN Macro

Tilt-shift

17 - 90mm



The lens moves independently of the sensor, so you can keep buildings from leaning and angle the plane of focus.

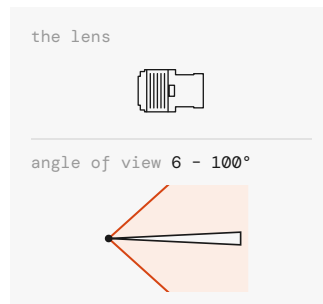
BEST FOR

Architecture · Interiors · Still life

e.g. Canon TS-E 24mm f/3.5L II

Superzoom

18 - 400mm



One lens covering wide-to-long, able to capture a wide range of scenes, from expansive to zoomed-in. The compromise, however, can be sharpness.

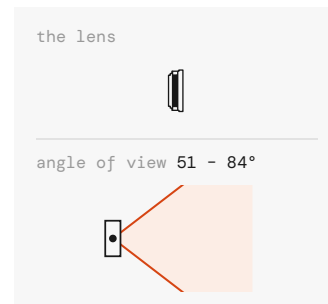
BEST FOR

Travel · Safari · Days out

e.g. Tamron 18-400mm f/3.5-6.3 Di II VC

Pancake

24 - 45mm



A thin, light prime that makes a camera feel almost flat, making it easily pocketable. Modest apertures, but optics tend to be extremely sharp.

BEST FOR

Street · Travel · Everyday carry

e.g. Fujifilm XF 27mm f/2.8 R WR

Notes: Angles are diagonal field of view on full frame. Ranges are conventional, not fixed: categories overlap at the edges.

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