Let’s Recap this Morning

What two pillars have we covered?

- Light
- Composition

- Give some examples of both
- What is meant by Balance?
- What are the three areas in a landscape image?
- What happens when you tilt a wide-angle lens? When can this be good?

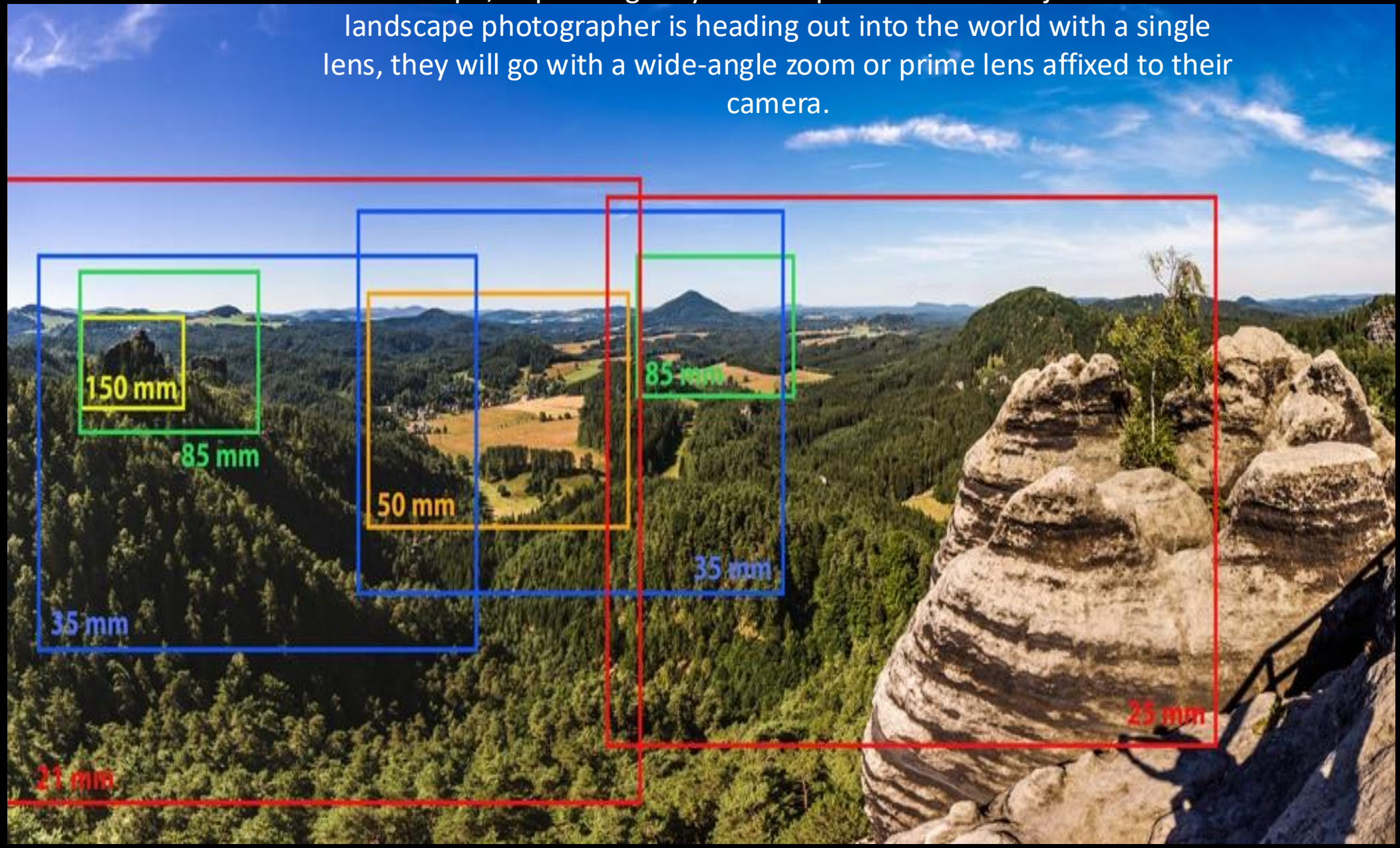
Pillar Three

Pillar 3 – Appropriate Sharpness

3. Appropriate Sharpness

Focal Distance

Any camera lens can and will be the perfect lens for capturing a landscape, depending on your viewpoint and the subject. But if a landscape photographer is heading out into the world with a single lens, they will go with a wide-angle zoom or prime lens affixed to their camera.



3. Appropriate Sharpness

Focal Distance (Focal Length)

Lens Focal Lengths are measured in millimetres, and displayed on a lens body.

There are two main types of lenses – Prime and Zoom. Prime have a fixed focal length, while zoom have a range of focal lengths

Prime lenses, as seen on the right, only one focal length value displayed. (Here, an 85mm prime lens.)

3. Appropriate Sharpness

Focal Distance (Focal Length)

A zoom lens is a system of camera lens elements for which the focal length (and thus angle of view) can be varied, as opposed to a fixed-focal-length (FFL) lens (prime lens).

On Zoom lenses, the range of focal length will be displayed.
(Here, a 55-250mm zoom lens is shown.)

3. Appropriate Sharpness

Focal Distance (Focal Length)

Many bridge cameras have long zoom lenses which now often start at a super wide-angle focal length of 20 or 22mm equivalent focal length (in 35mm film camera terms)

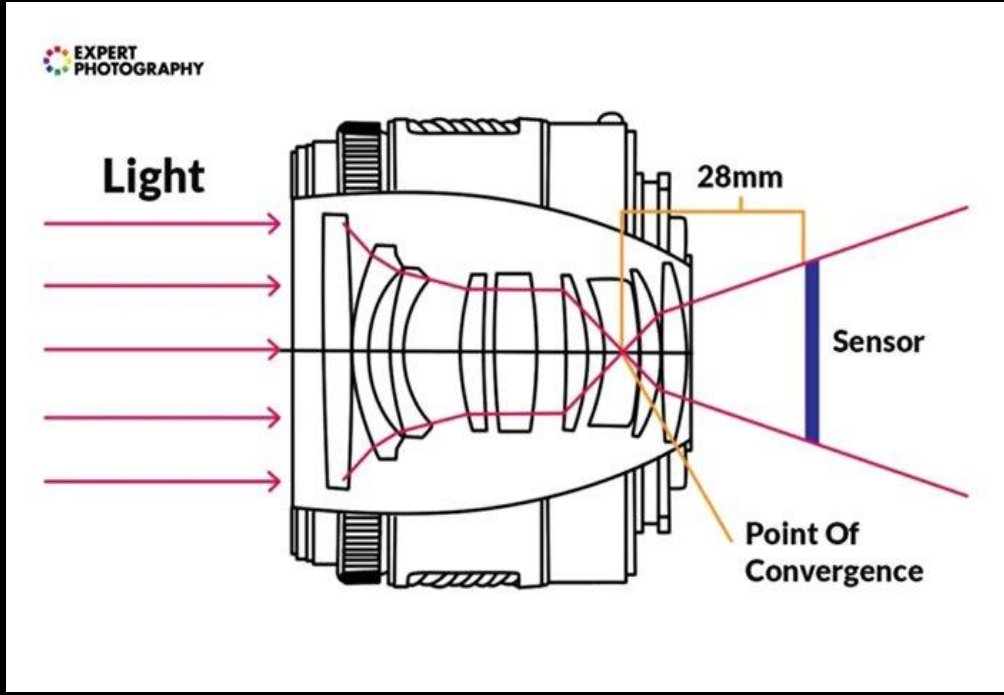
A bridge camera has a telephoto zoom limit of over 400mm (35mm equivalent), although some 21st-century cameras reach up to 2000mm.

The “amount of zoom” is expressed in units of magnification such as “12x zoom” (as seen here) or “40x zoom” and **not** in millimetres.

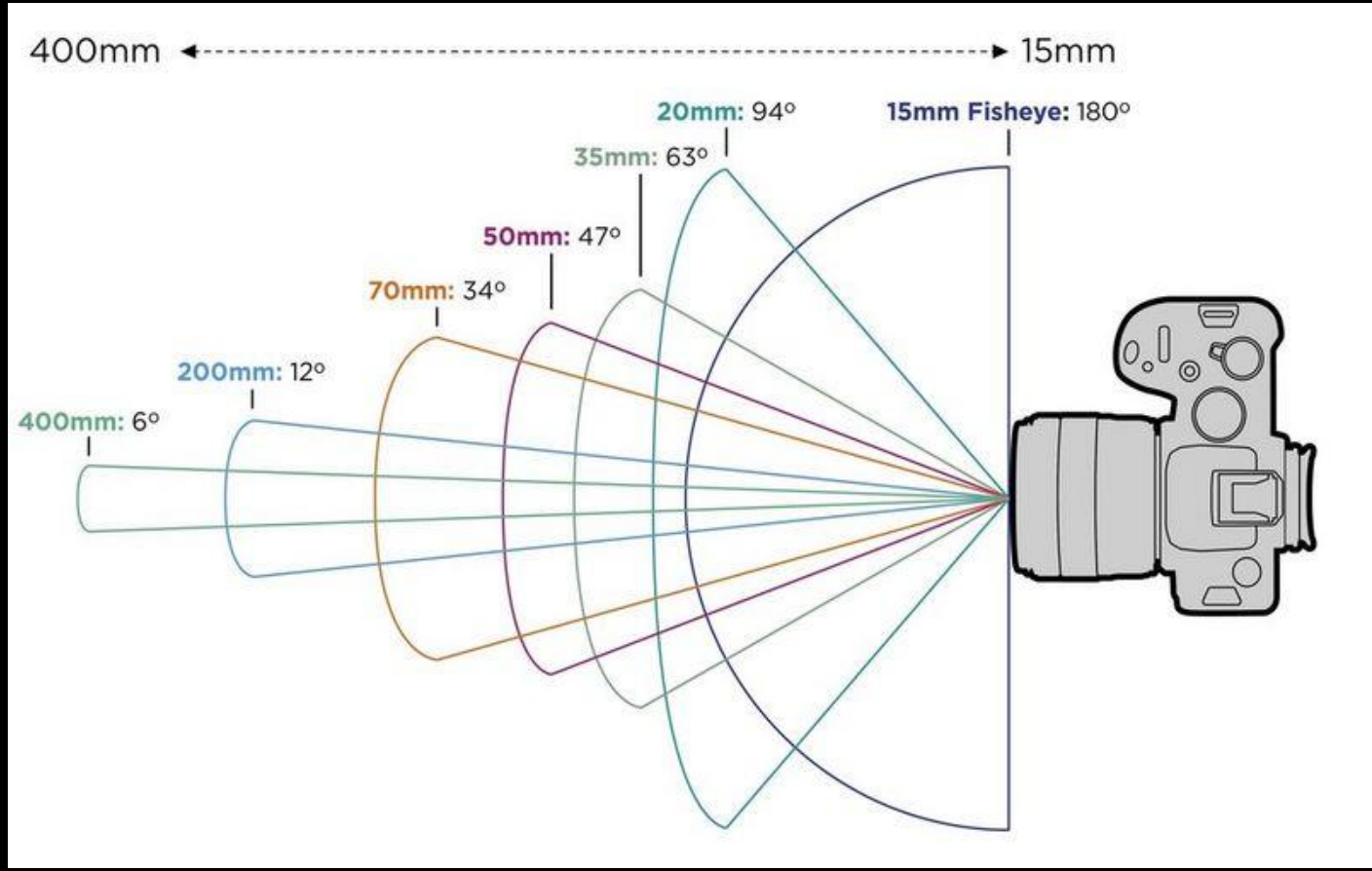
3. Appropriate Sharpness

Focal Distance (Focal Length)

The focal length of a lens is the optical distance (usually measured in mm) from the point where the light meets inside the lens (point of convergence) to the camera's sensor.



When you use a camera lens with a short focal length, such as 18 mm, your resulting photo has a wider angle of view. Lenses with longer focal lengths, such as 200 mm, give you narrower angles of view, and make the image appear closer.

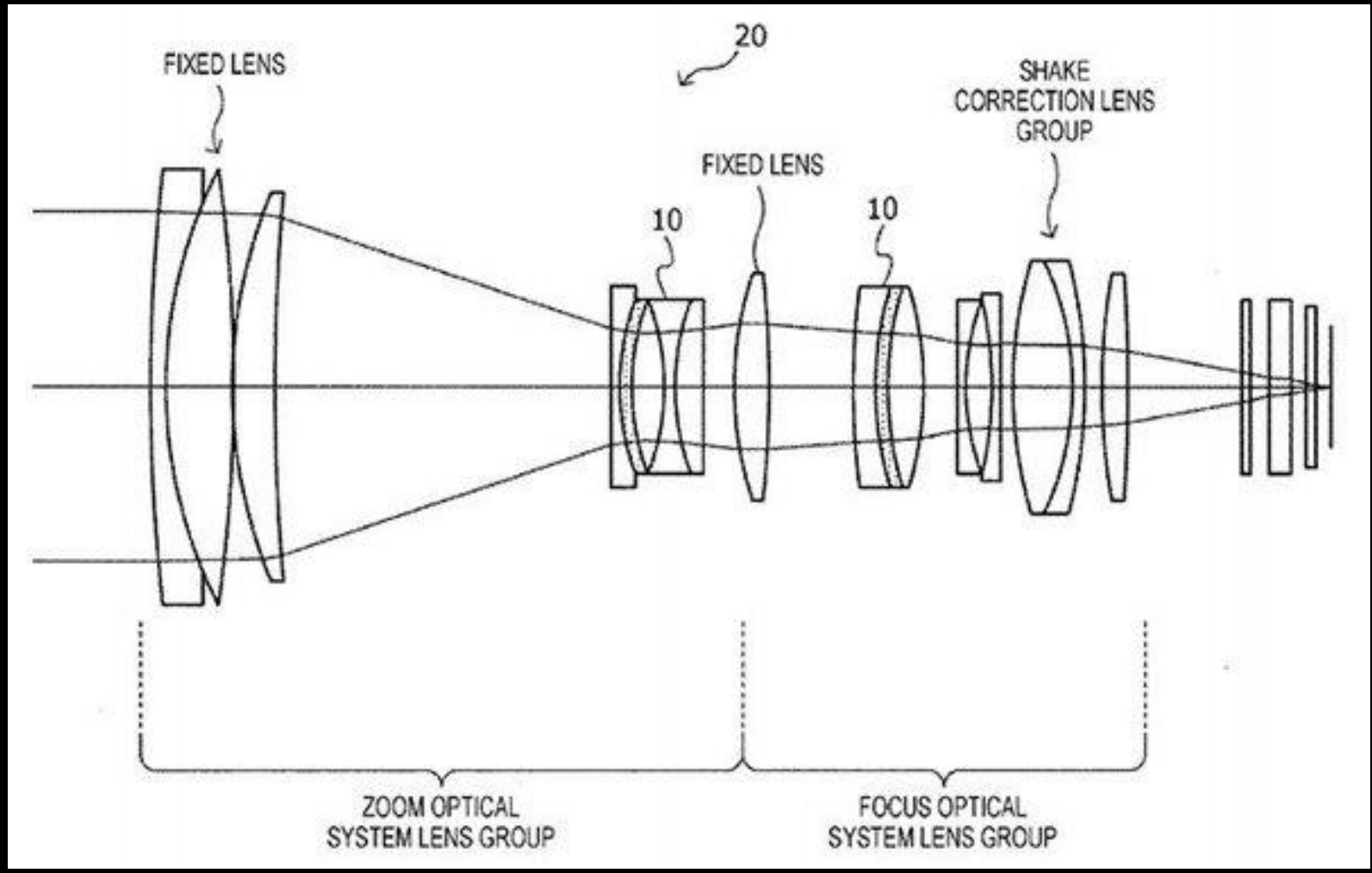


3. Appropriate Sharpness

Focal Distance (Focal Length)

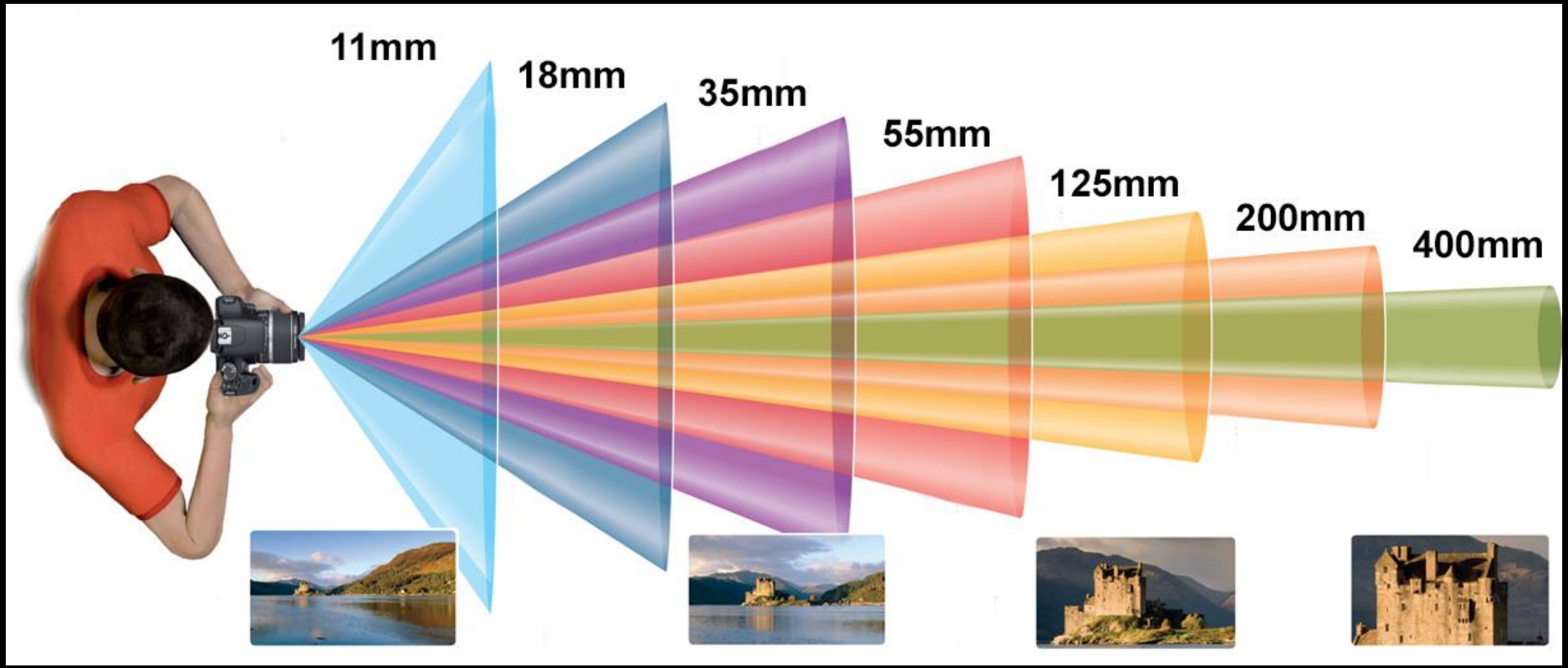
Opto-mechanically, a zoom lens works by moving lens elements. In such a lens, the “zoom group” moves to change the effective focal length — the effective magnification — of the lens. There’s also a focus group (in advanced lenses, sometimes several), which moves to change the focal point of the lens.

As shown in the diagram, a zoom lens can be quite complex. And typically, pretty large. That’s why you don’t find zoom lenses in smartphones or other very small cameras.



3. Appropriate Sharpness

Lenses – Wide Angle to Telephoto



3. Appropriate Sharpness

Focal Distance (Focal Length) - Smartphones

Here's the iPhone XS camera complex, two separate camera-lens assemblies. One of these has a 35mm equivalent lens/camera combination of about 26mm, the other a 35mm equivalent lens/camera combination of about 52mm.

You could call the second one "1x" and the first one "0.5x". But the way that smartphones are outfitted, the first camera, the 26mm-look-alike, is the "main" camera. It's the best one in the phone.

So that's always the basis for your lens ratios, even though it's wide-angle and the other, pretty much "normal", closer to what your eye sees. Because of that, the second camera is dubbed the "2x" camera, though Apple mostly calls it the "portrait" camera.

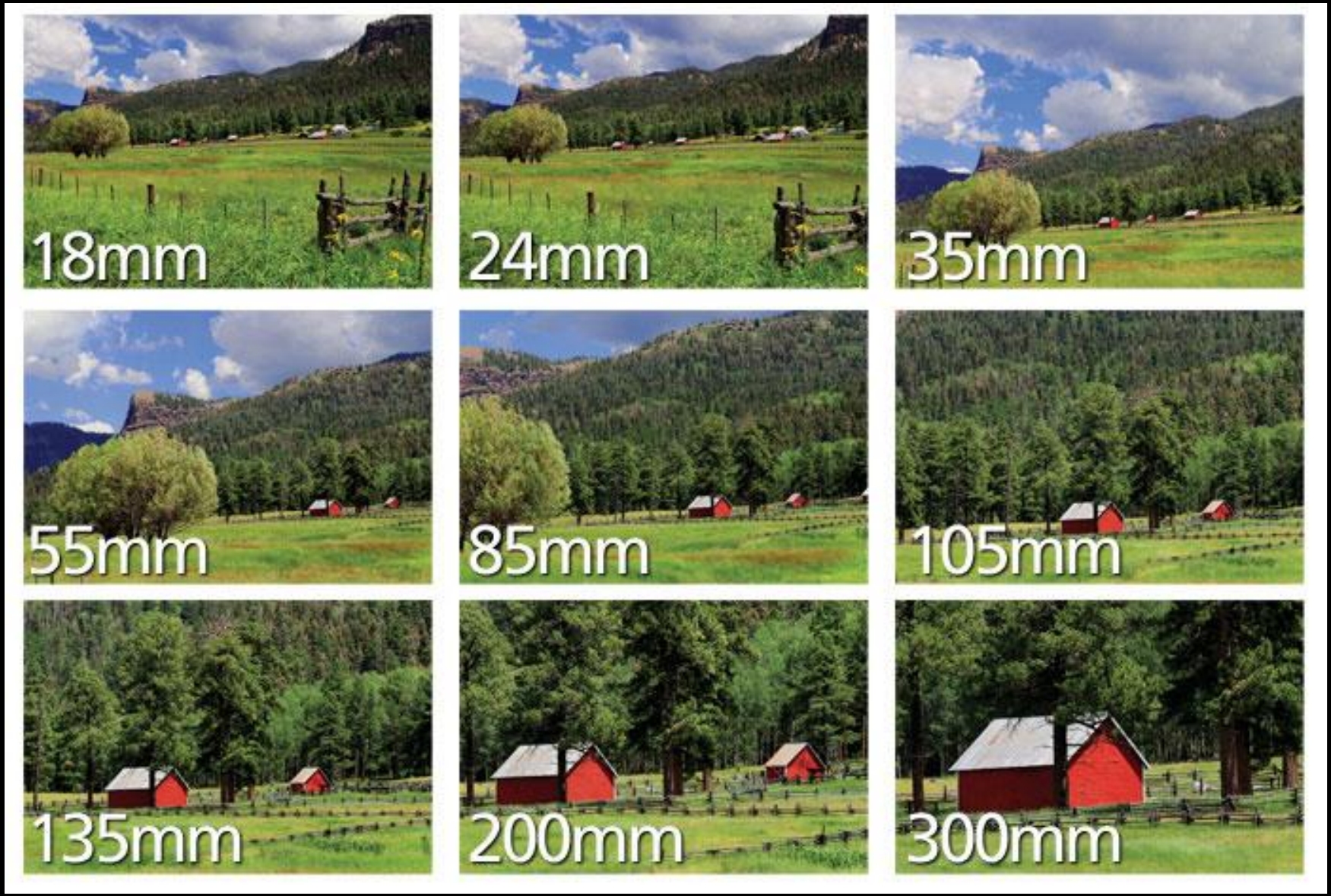
3. Appropriate Sharpness

Focal Distance (Focal Length)

Lens focal length tells us the angle of view — how much of the scene will be captured — and the magnification — and how large individual elements in the scene will be.

The longer the focal length, the narrower the angle of view and the higher the magnification of an element.

The shorter the focal length, the wider the angle of view and the lower the magnification of elements in the scene.



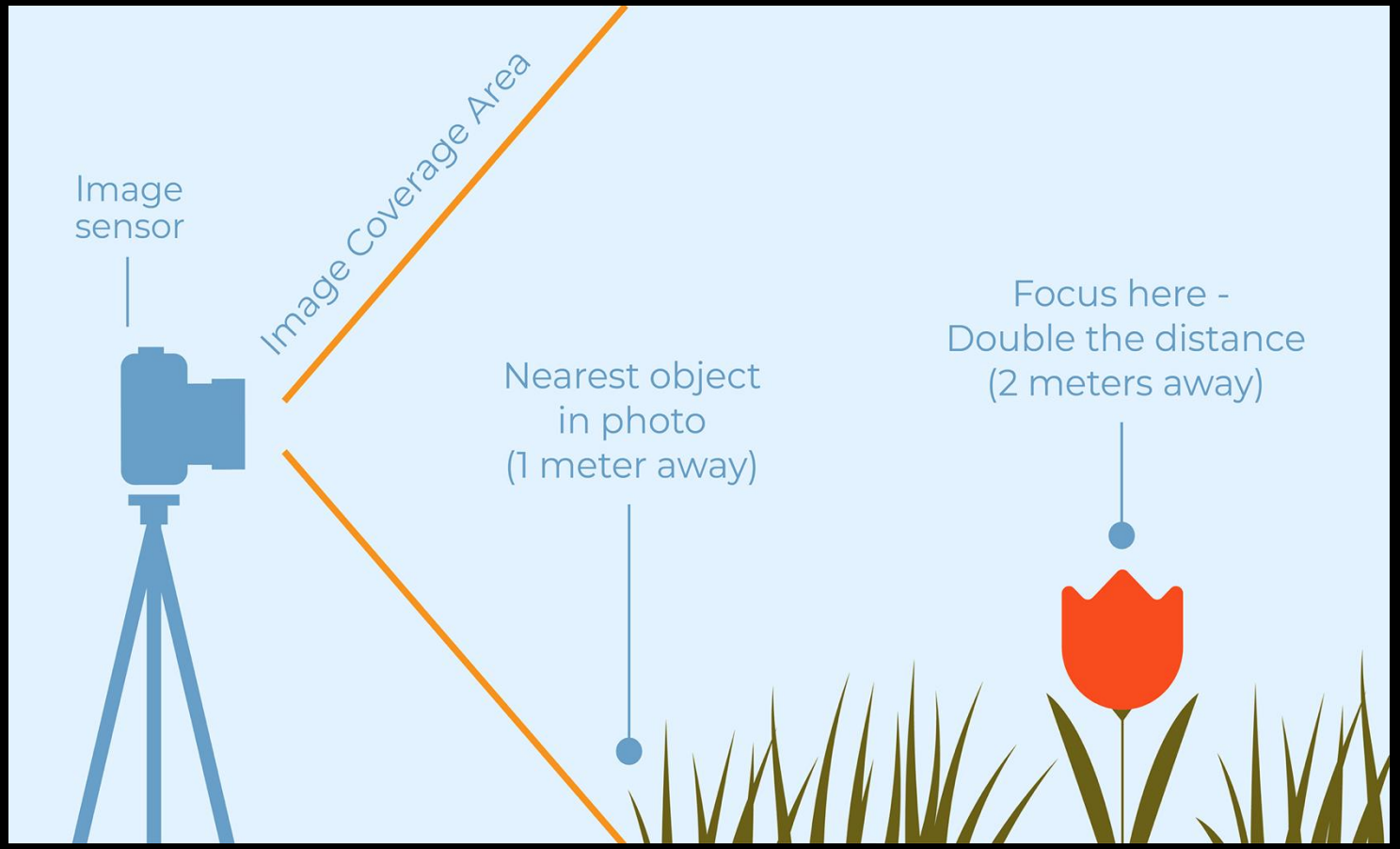
3. Appropriate Sharpness

Double the Distance

The double the distance method is a way to maximize a photo's depth of field by focusing at the proper distance in a scene. Your goal is to equalize the photo's foreground and background sharpness.

It is a relatively easy technique to apply in the field. To start, look at the closest object in your photo and ask yourself how far away it is, specifically from the plane of your camera sensor. Then, focus at twice that distance.

You can estimate these distances; they don't have to be perfect. And you don't need to use metres, or feet, or any other standard of measurement. If it's easier, just visually double the distance. You can even walk into the scene and count paces for the same result.



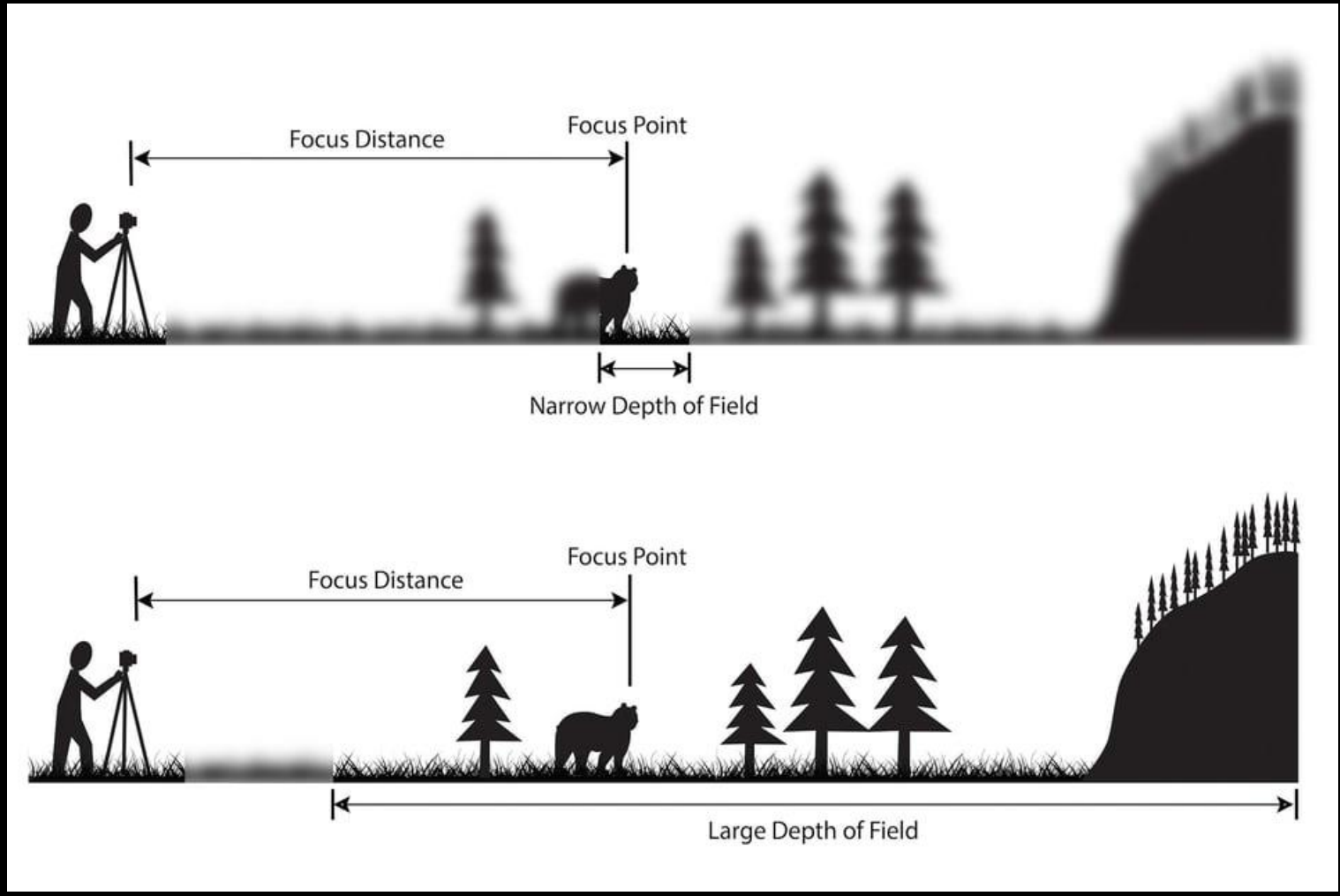
When performed correctly, you'll capture a photo with equal sharpness between the foreground grass and the most distant horizon.

3. Appropriate Sharpness

Focal Distance - Depth of Field (DoF)

The depth of field (DoF) is the distance between the nearest and the furthest objects that are in acceptably sharp focus in an image captured with a camera.

Photographers have a dilemma. If you want a photo to have the largest possible depth of field – from the foreground to infinity in a single photo – a small aperture is absolutely necessary. At the same time, though, a small aperture causes your photograph to lose sharpness from diffraction. So, where's the sweet spot?



3. Appropriate Sharpness

Focal Distance - Depth of Field (DoF)

To achieve a shallower DoF you can either:

1. move closer to your subject or;
2. open up your aperture.

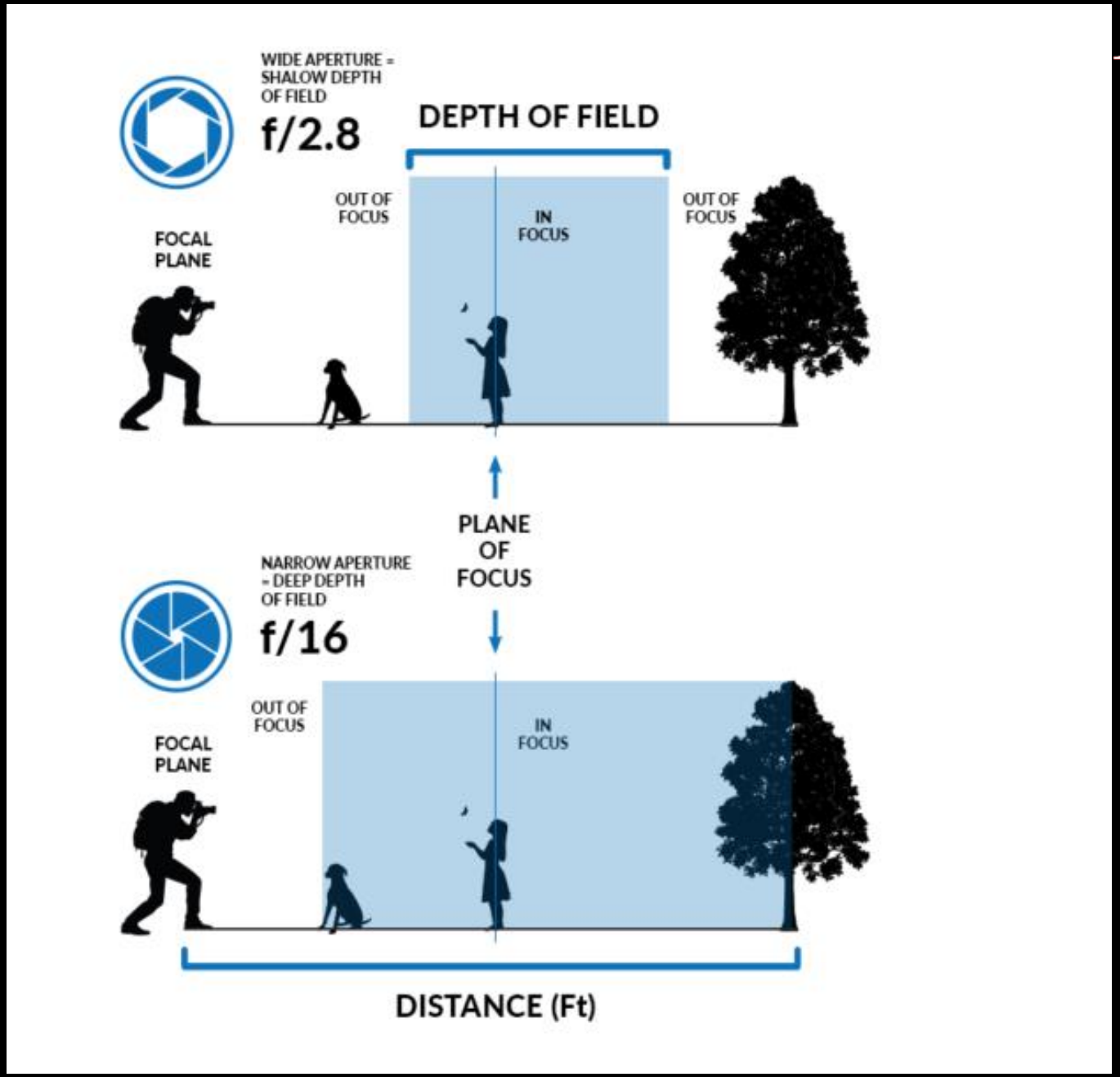
For a greater DoF you can either:

1. move away from your subject or
2. close down your aperture.

For example:

f/4.0 will give a narrow depth of field and allow plenty of light

f/11 will give a deep depth of field, but will allow less light to enter the camera



3. Appropriate Sharpness

Focal Distance - Depth of Field (DoF)

So, decision time!

Do you want the background blurred to highlight the foreground object, but maintain a landscape image?

Or do you want the background in focus and the foreground blurred, but keep foreground interest?

3. Appropriate Sharpness

Hyperfocal Distance

3. Appropriate Sharpness

Hyperfocal Distance

The technical definition is ***the closest focusing distance that allows objects at infinity to be acceptably sharp***. (By “infinity”, this refers to any distant object – the horizon, for example, or stars at night.)

3. Appropriate Sharpness

Hyperfocal Distance

If you focus at the hyperfocal distance, your photo will be sharp from half that point out to infinity. So, if your hyperfocal distance for a given aperture and focal length is ten feet, everything from five feet all the way until the horizon will appear sharp.

So, you need to decide what you need to be, or what you want to include, in focus. Do you need a closer, focal image while including the background, or do you want the whole image to focus on the background by making the foreground blurred?

In this image, the focal point is beyond the foreground plant…

3. Appropriate Sharpness

Long Exposures

Long exposures are easiest in the daytime, but dusk or night time shots can be more spectacular.

Long exposure daytime landscape photography:

If you're shooting in harsh broad daylight, make sure you have ND lens filters to block the light, and choose the right settings as if you were taking a normal landscape image.