

Macro photography is extreme close-up photography, usually of very small subjects, in which the size of the subject in the photograph is greater than life size. By some definitions, a macro photograph is one in which the size of the subject on the negative or image sensor is life size or greater. However in other uses it refers to a finished photograph of a subject at greater than life size.

The ratio of the subject size on the film plane (or sensor plane) to the actual subject size is known as the reproduction ratio. Likewise, a macro lens is classically a lens capable of reproduction ratios greater than 1:1, although it often refers to any lens with a large reproduction ratio, despite rarely exceeding 1:1.

Apart from technical photography and film-based processes, where the size of the image on the negative or image sensor is the subject of discussion, the finished print or on-screen image more commonly lends a photograph its macro status. For example, when producing a 6×4 inch (15×10 cm) print using 135 format film or sensor, a life-size result is possible with a lens having only a 1:4 reproduction ratio.

Reproduction ratios much greater than 1:1 are considered to be photomicrography, often achieved with digital microscope (photomicrography should not be confused with microphotography, the art of making very small photographs, such as for microforms).

Due to advances in sensor technology, today's small-sensor digital cameras can rival the macro capabilities of a DSLR with a "true" macro lens, despite having a lower reproduction ratio, making macro photography more widely accessible at a lower cost. In the digital age, a "true" macro photograph can be more practically defined as a photograph with a vertical subject height of 24 mm or less.

Macro" lenses specifically designed for close-up work, with a long barrel for close focusing and optimized for high reproduction ratios, are one of the most common tools for macro photography. (Unlike most other lens makers, Nikon designates its macro lenses as "Micro" because of their original use in making microform.) Most modern macro lenses can focus continuously to infinity as well and can provide excellent optical quality for normal photography.

True macro lenses, such as the Canon MP-E 65 mm $f/2.8$ or Minolta AF 3x-1x 1.7-2.8 Macro, can achieve higher magnification than life size, enabling photography of the structure of small insect eyes, snowflakes, and other minuscule objects. Others, such as the Infinity Photo-Optical's TS-160 can achieve magnifications from 0-18x on sensor, focusing from infinity down to 18 mm from the object.

Macro lenses of different focal lengths find different uses:

- Continuously-variable focal length – suitable for virtually all macro subjects
- 45–65 mm – product photography, small objects that can be approached closely without causing undesirable influence, and scenes requiring natural background perspective
- 90–105 mm – insects, flowers, and small objects from a comfortable distance
- 150–200 mm – insects and other small animals where additional working distance is required

Difference between macro micro and close up photography

Macro photography is that which is taken with a dedicated macro lens. A real macro lens has the capability of achieving in the least a 1:1 magnification. Just because a camera has the word macro written on it, doesn't make it a true macro lens.

Close up photography, is the act of photographing objects such as flowers or insects in close range so the subject you are photographing fills the frame. In other words, it's the act of photographing subjects close up. This is easily achievable with any lens, even a 300mm telephoto lens.

Macro photography is in essence close up photography as well. However, close up photography is not always considered as true macro photography. For example, if you have a lens that is NOT considered a real macro lens, yet offers a macro setting (as many do nowadays), this is usually referred to as being close up photography, and not true macro.