

## CLOSE-UP PHOTOGRAPHY

- Definition – Close-up photography is often called “macro” photography. The classical definition has been an image on the film (or digital sensor) that is close to the same size as the subject (1:1). However, most macro lenses achieve just ½ life size (1:2), and lately marketing geniuses have decided that a lens qualifies as macro if it can produce a life-size image on a 4x6 print (about 1:4).

- Lens options:

1. True macro lenses range from about 50mm to 200mm. Macro zoom lenses usually will not get as close as 1:2. Short lenses, i.e. 50mm, have more depth of field than longer lenses, but lighting can be difficult because the photographer needs to get so close that the camera, lens, and photographer blocks the light. Longer lenses allow you to get fairly close shots of small animals that won't let you get near them.



**LONG LENS**

2. Screw on close-up lenses work like a filter on the front of the lens and generally come in an assortment of strengths. Advantages are low cost and minimal loss of light, but they don't produce very sharp images.

3. Extension tubes and bellows are devices that mount between the camera and lens and work by changing the area of the image that falls on the film or sensor. They have no glass at all, so they produce images as sharp as the lens, but with a significant loss of light.

4. Teleconverters work like an extension tube, but have a glass element to increase magnification. Many produce low quality images, but some lenses have matched teleconverters that are a little better. Like extension tubes, they have significant light loss.

5. Reversing rings allow a lens to be mounted on the camera backwards, producing very high magnification, but with loss of all automatic exposure.

- Depth of Field – To review: the distance in focus from front to back is the depth of field. The larger the  $f$  stop number, the greater the depth of field. Close-up photography has huge depth of field problems:

1. The closer you get to your subject, the shallower the depth of field.
2. Depth of field at macro magnification approaches ZERO.
3. Focusing at macro distances is super-critical.



**NO DEPTH OF FIELD**

- Lighting – Macro photography has special lighting problems. When you get very close to your subject your shadow gets in the way. If you try on-camera flash your lens gets in the way causing a shadow. Solutions include:

1. Off-camera flash connected to the camera with a flash cord, wireless off-camera flash, or brackets to hold one or more flashes away from the camera.

2. Ring flash which attaches to the front of the lens.

3. Reflectors to redirect existing light onto the subject.



**FLASH SHADOW**

- Focus techniques – Depending on your subject:

1. Move your subject to a controlled environment where it can be braced in position.

2. Use a tripod. A focusing rail on a tripod adds critical control.

3. Focus with your toes. Seriously! A photographer named David Cavagnero teaches this technique when taking macro pictures on his belly. He props his body on his elbows, aims, and focuses by moving forward or backward tiny distances by flexing his feet.

4. Maneuver your camera into position so that you are absolutely parallel to your subject.
5. Use manual focus. At shallow depth of field, your camera won't know what to focus on.
6. Try different camera angles and focus on different areas of irregular subjects like flowers.
7. Stop down to increase your depth of field so that more of the subject is in focus, unless you are trying for an intentionally soft photo.
7. Take lots of pictures. You are sure to miss focus often, so try again.



**PARALLEL TO LENS**

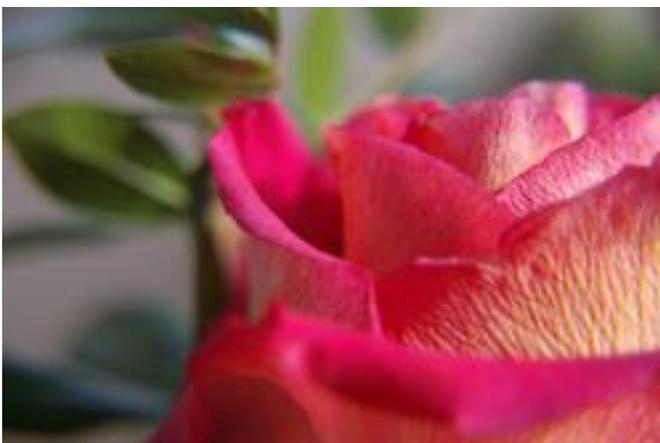
- Backgrounds – Pay attention to unwanted highlights, skies cutting through the photo, and unwanted partially out-of-focus objects.



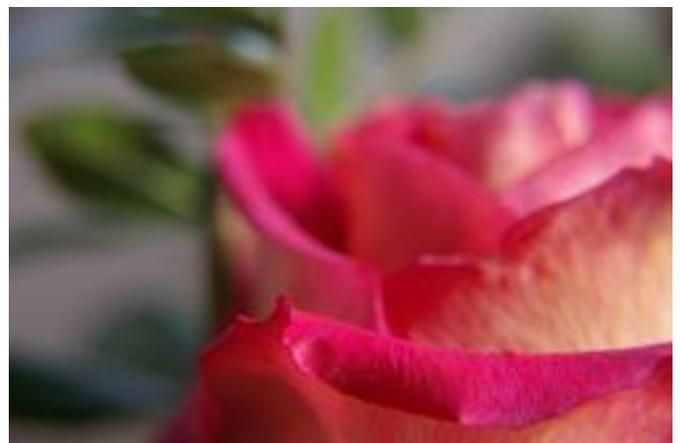
***f*45 GOOD DEPTH OF FIELD**



***f*6.2 SHALLOW DEPTH OF FIELD**



***f*5.6 FOCUS IN CENTER**



***f*5.6 FOCUS ON FRONT PETAL**