

Macro Photography

Getting just a little bit closer...

Macro Photography is any photography in which the subject on the sensor is at least $\frac{1}{2}$ the size of the real object. In order to get this level of magnification, special tools are needed...

Macro Tools

Macro Lens

Pros

- a. Usually has above average glass
- b. Works for more than just close-up pictures
- c. Usually fairly fast
- d. Usually doesn't require attachments
- e. Can be combined with other macro tools

- Close-up diopter

- Teleconverter

- Extension tubes

- Macro Bellows

- Lens Face Coupler

Cons

- a. Expensive
- b. Usually does not zoom
- c. Sometimes needs attachment to get 1:1 reproduction

55mm f/2.8 Micro Nikkor



Close- Focusing Telephoto Lens

Pros

- a. Usually costs less than true macro lens
- b. Good for more than just macro
- c. Some zoom lenses work well
- d. Helps put distance between subject and camera
- e. Can be combined with other macro tools

- Close-up diopter
- Teleconverter
- Extension tubes
- Macro Bellows
- Lens Face Coupler

Cons

- a. Can cost more than similar lenses that do not focus as close
- b. Tend to be larger and heavier
- c. Long lenses can interfere with on-camera flash when very close to subject.

135 f/2.8 Nikkor



Close-Up Diopters

Pros

- a. Inexpensive
- b. Works on most lenses
- c. Does not affect exposure
- d. Light weight, easy to carry in bag or pocket
- e. Can be combined with other macro tools

-Teleconverter

-Extension tubes

Cons

- a. Not always top-notch glass
- b. Adds optics between subject and camera
- c. Makes lenses unable to focus on infinity while attached

50mm f/1.8 Nikkor w/ Vivitar +2 Diopter



Reversing Ring

Pros

- a. Very inexpensive \$12-\$15
- b. Has no optics
- c. Light weight, easy to carry in bag or pocket
- d. Does not affect exposure
- e. Accepts any lens that will screw onto it, regardless of mount
- f. Provides dramatic magnification
- g. The shorter the lens, the greater the magnification
- h. Can be combined with other macro tools

-Teleconverter

-Extension tubes

Cons

- a. Has no electronic contacts and may not work with some cameras
- b. Eliminates availability of most automation
- c. Must get **VERY** close to subject and use a tripod
- d. Can be difficult to focus
- e. Slow to operate
- f. Limits focusing distance to only an inch or so
- g. Can not control aperture on most lenses
- h. Makes use of flash difficult without ring light or reflectors

35mm f/2 Nikkor, Reversed →



Vivitar 19mm f/3.8, Reversed

←

W/Kalimar 2x Teleconverter

Teleconverters

Pros

- a. Cheaper than a long lens
- b. Does not affect close-focusing ability
- c. Usually works with several different lenses
- d. Works for more than just close-up pictures
- e. Can be combined with other macro tools
 - Close-up diopter
 - Extension tubes
 - Lens Face Coupler

Cons

- a. Not always top-notch optics
- b. Magnifies any weakness in the lens attached to it
- c. Loses one stop per multiplication of focal length
- d. Adds optics between subject and camera
- e. Can adversely affect auto focus



135 f/2.8 Nikkor w/Nikon TC-
200 Teleconverter

Extension Tubes

Pros

- a. Can be home made!
- b. No optics
- c. Creates dramatic magnification
- d. Can be stacked for greater magnification
- e. Cheaper than a macro lens
- f. Can be attached to a macro lens for even more magnification
- g. Can be attached to most lenses
- h. Usually light weight, easy to carry in bag or pocket
- i. With long lenses, allows distance between camera and subject
- j. Comes in different sizes for different magnifications
- k. Turns the Zoom ring into a focusing ring
- l. Can be combined with other macro tools

-Close-up diopter

-Teleconverter

Cons

- a. Significantly reduces depth of field
- b. Can not be focused on infinity
- c. Difficult to hand-hold , slow to work with
- d. Affects exposure calculations, may confuse auto exposure flash if not TTL
- e. Usually must be focused manually
- f. May not work with some cameras
- g. Turns the Zoom ring into a focusing ring



50mm f/1.8 Nikkor
w/30mm Ext. Tube



55mm f/2.8 Micro Nikkor
w/30mm Ext. Tube

Lens Face Coupler

Pros

- a. Light weight, easy to carry in bag or pocket
- b. Very inexpensive
- c. Works with most lenses, depending on filter size
- d. Can be combined with teleconverters

Cons

- a. Clumsy and slow to work with
- b. Difficult to hand-hold
- c. Limits focus to only a few feet, depending on lenses used
- d. Very little depth of field
- e. Can interfere with on-camera flash
- f. May eliminate aperture control on reversed lens
- g. Adds a lot of optics to the picture
- h. Magnifies weaknesses in both lenses



200mm f/4 Nikkor Q
w/ 24mm f/2 Nikkor

Reversed



200mm f/4 Nikkor Q
w/ 24mm f/2 Nikkor

Reversed

On a 30mm Ext. Tube



200mm f/4 Nikkor Q
w/ 24mm f/2 Nikkor

Reversed

Macro Bellows

Pros

- a. Allows greatest range of magnification
- b. Allows most dramatic magnification
- c. Works with most lenses

Cons

- a. **VERY** expensive
- b. Radically affects exposure
- c. Very little depth of field
- d. Nearly impossible to hand-hold
- e. Very difficult to focus
- f. Very slow to operate
- g. Heavy, difficult to transport
- h. Delicate
- i. Requires maintenance
- j. Usually requires you to get very close
- k. Flash becomes complicated



135mm f/2.8 Rokkor on Bellows



55mm f2.8 Micro Nikkor

55mm f/2.8 Micro
Nikkor on Bellows



Microscope Adapter

Pros

- a. Allows dramatic magnification using your microscope
- b. Tends to render very sharp images
- c. Allows for really cool trans-flash shots

Cons

- a. You have to have a microscope
- b. Often requires a T-Mount adapter to attach the adapter to the camera
- c. Can be clumsy, especially with a heavy camera
- d. Usually proprietary to a specific microscope
- e. May cause metering complications
- f. May not work with auto exposure
- g. Tempts you with really cool trans-flash shots

Slide Duplicator vs Scanner

Pros

- a. Cheaper than a real film scanner
- b. Cheaper than a cheap film scanner
- c. Very easy to use
- d. Often allows better color accuracy
- e. Usually renders sharper image
- f. Does less damage to slides than a scanner
- g. Much faster than a scanner
- h. Allows you to create RAW files for more precise corrections
- i. Once you've copied all of your slides, you'll never need it again. You can sell it on eBay, which is where you probably got it in the first place.

Cons

- a. Fewer file size options than a scanner
- b. May not work with Medium Format Transparencies
- c. Not always as good as a professional lab scan
- d. Often requires special lighting
- e. May not work with all cameras
- f. May create metering complications
- g. Usually requires an adapter, not included in price
- h. Once you've copied all of your slides, you'll never need it again, you'll have to deal with eBay, which is where you probably got it in the first place.

Ring Flash

Pros

- a. Allows for very close focusing
- b. Allows better control of depth of field
- c. Can be combined with most other macro tools

-Just about any lens, macro or otherwise

-Diopters

-Reversing Rings

-Teleconverters

-Extension Tubes

-Macro Bellows

-Coupled lenses

Cons

- a. Expensive
- b. Creates killer red-eye
- c. Easy to overexpose
- d. Can hurt insects
- e. Eliminates shadows



Off-Camera Flash



On-Camera Flash



Ring Light



Bounced Flash



55mm f2.8 Micro Nikkor, Transmitted Flash



55mm f/2.8 Micro Nikkor on 9mm Ext. Tube, Transmitted Flash

Macro Photography

Get Close!

Find whatever subject appeals to you, and get very close. Here are few ideas:

1. Leaves and flowers-watch out for wind, be careful with your exposure.
2. Bugs-Be careful, some bugs bite or sting. Most bugs are less mobile in cold weather, so it's easier to get close without scaring them off.
3. Children's toys-They usually sit still longer, and the colors and minute detail can be fun to photograph
4. Cross-Sections of fruit- Slice apart a strawberry or kiwi or something that is translucent, put it on a piece of glass and back-light it.
5. If you have your own ideas, by all means, use 'em.
6. Don't forget to be beautiful next week for Portrait Class. At Shooters studio in Kitty Hawk.
7. If you have questions, call or email me.