Macro Photography
Getting Closer
“Macro Photography” used to mean “a picture in which the image is at least as big as the subject size.” Given that digital sensors do not produce images in the same way that film did, the term may be obsolete in digital photography. It has, in fact, come to mean “extreme close-up photography.”

Since all cameras (lenses, to be accurate) have a minimum distance at which they can focus, we can think of macro photography as the set of tools and techniques we use to change that distance, to allow us to take pictures from much closer than we otherwise could.
Tools for Macro Photography

Things you need to get started in macro photography:

A camera—DSLR or a compact. Many compact cameras have good macro modes, but to get really good results, you’ll need to think about a DSLR. Compact cameras suffer from an inability to change lenses, as well as inconsistent levels of control over features such as aperture and shutter speed, which are critical to macro photography. I’m going to assume that you have a DSLR for the rest of this guide.

Lenses—you can start with your standard lens, but may want to consider a dedicated macro lens. These can be quite expensive, which is why many amateur macro photographers use close-up filters and other attachments.

Attachments—these are mainly made up of close-up filters and extension tubes or teleconverters. We’ll look at these in detail in the next section.

Lights—Lighting can be a big issue for macro photography, so specialized lights or lightboxes can help

Tripod—helps with focusing and with making longer exposures for extremely close photography.
First, make sure that you understand your camera and all its settings—automatic modes rarely work well for macro photography\textsuperscript{1}, so you’ll need to be comfortable setting things manually. Read your manual, and be sure you understand how aperture affects depth of field, as well as its effect on exposure\textsuperscript{2}. Make sure you know what ISO your camera is set at, as well as how to change the ISO. For macro photography, you’ll probably want to keep the ISO as low as possible to avoid too much grain in your pictures.

\textsuperscript{1}The exception is the dedicated macro mode on many compacts.

\textsuperscript{2}For an explanation of exposure, the manual http://support.dasnr.okstate.edu/reference-materials/training-manuals/website-plone/Understanding\%20Exposure.pdf may be useful.
In what order should I get accessories for my camera to do better macro photography? Good question.

The first thing to get, simply because it’s the cheapest and easiest to use, is a set of close-up filters. Make sure to get a set that has the same diameter as your DSLR lens; usually between 49-55mm. Sets usually come with a 1X, 2X and 2 or more others, ranging from 4X up to 10X or greater. These can be used individually or in combination; that is, you can screw together the 1X and 2X filters to get a 3X filter, and so on.
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The next thing you’ll want (assuming you don’t already have it) will be a tripod and a cable release/remote switch. These are useful for more than just macro photography, and should be part of any photographer’s kit. They are invaluable any time you need to do longer exposures than can be done hand-held.
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A teleconverter or extension tube is another good option, and allows for serious macro photographers to get extremely close to the subject. (the image of a penny that appears on the cover of this guide was taken with a 3X teleconverter.) Using a teleconverter will almost certainly also require a tripod, both to hold the camera steady and to enable focusing at extreme close range.
Here’s an example of a first picture done with close-up filter.

You can see that it has several issues, among them that it is too dark and there is very little depth of field in the image. The two things are related. The picture was taken with a handheld camera with no additional lighting, and so required a very wide aperture in order to get a usable image.
This one was shot from a tripod, which allowed for both a smaller aperture and a longer exposure. The picture has much better contrast, and more of the image is in focus due to the greater depth of field produced by stopping down.
This is a basic, improvised setup for tripod macro photography. The built-in desk lighting provides sufficient light for long exposures, the computer tower allows the subject to be close to both the lights and the lens, and the paper serves as a reflector for some of the light. Old DVDs were used as stacking risers to adjust how close the subject was to the lens.
First Steps

One other thing which is almost a must-have is a good image editor, whether Photoshop, Lightroom, GIMP or something else. Using a photoeditor will allow you to shoot in RAW format, which will give you a great deal more control of your images. The amount of things that can be (easily) manipulated when you are editing the RAW files is simply astounding, and you’ll find that many shots that otherwise might be discarded can be used once they’ve been processed.
First Steps

A better solution would use dedicated photo lights, and perhaps an art desk with an angled top to keep the subject parallel to the plane of the lens. This makes it easier to get more of the subject in focus, as the back-to-front distance is minimized. Sheets or other diffusers could be placed in front of the lights to make the light more even and less harsh. A lightbox can also be very useful here.
First Steps

For outdoor photography, you’ll probably have to rely on adding light to your pictures. You may be able to use the tripod, but wind or other movement (if photographing living subjects) can ruin longer exposures. Look for south-facing subjects, shoot when the light is strong, and add reflectors or other lights when possible. A ring flash or an LED light ring that mounts to the lens can be a useful item here.
Lastly, experiment! Macro photography gets easier the more you do it. As you get used to working in closeup, your pictures will get better and better, and you’ll find that your work is something you’re proud of.