Beginning Lunar Photography

With today's digital photographic technology it is possible to obtain good photographs of the Moon (and a few bright planets) using a 6-inch telescope and your own digital camera, or even cell phone, hand-held.

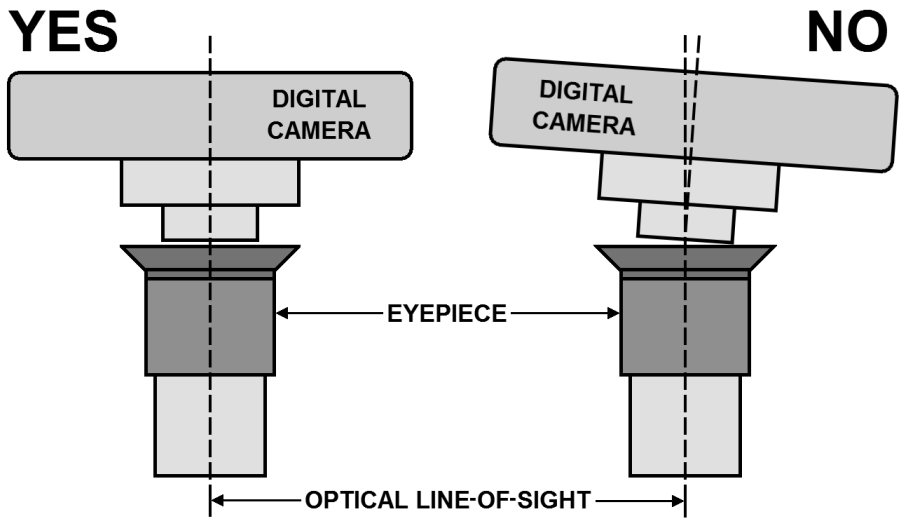
Part I: Photographing the Moon with your Digital Camera

Equipment Requirements:

- 6-inch Newtonian Telescope (tracking is not required, so a Dobsonian Mount is fine.
- 25mm eyepiece.
- Inexpensive (~$100) small, hand-held digital camera with 6-10 megapixel resolution, digital LCD viewing screen, and auto exposure setting. (A good example is the Nikon Coolpix L20.) But, even some cell phones are capable of producing acceptable lunar photographs.
- Note: Unfortunately, cameras with large expensive lenses that do not match the relative size of the eyepiece will not do well using this technique, and will cause vignetting.

Orientation and Focusing:

1. Set up the telescope on the Moon using the 25mm eyepiece.
2. First, focus on the Moon as best you can with your eye.
3. Place your camera up to the eyepiece so that the axis of the optical line-of-site of both the camera and eyepiece are directly aligned (*see the illustration below*.)



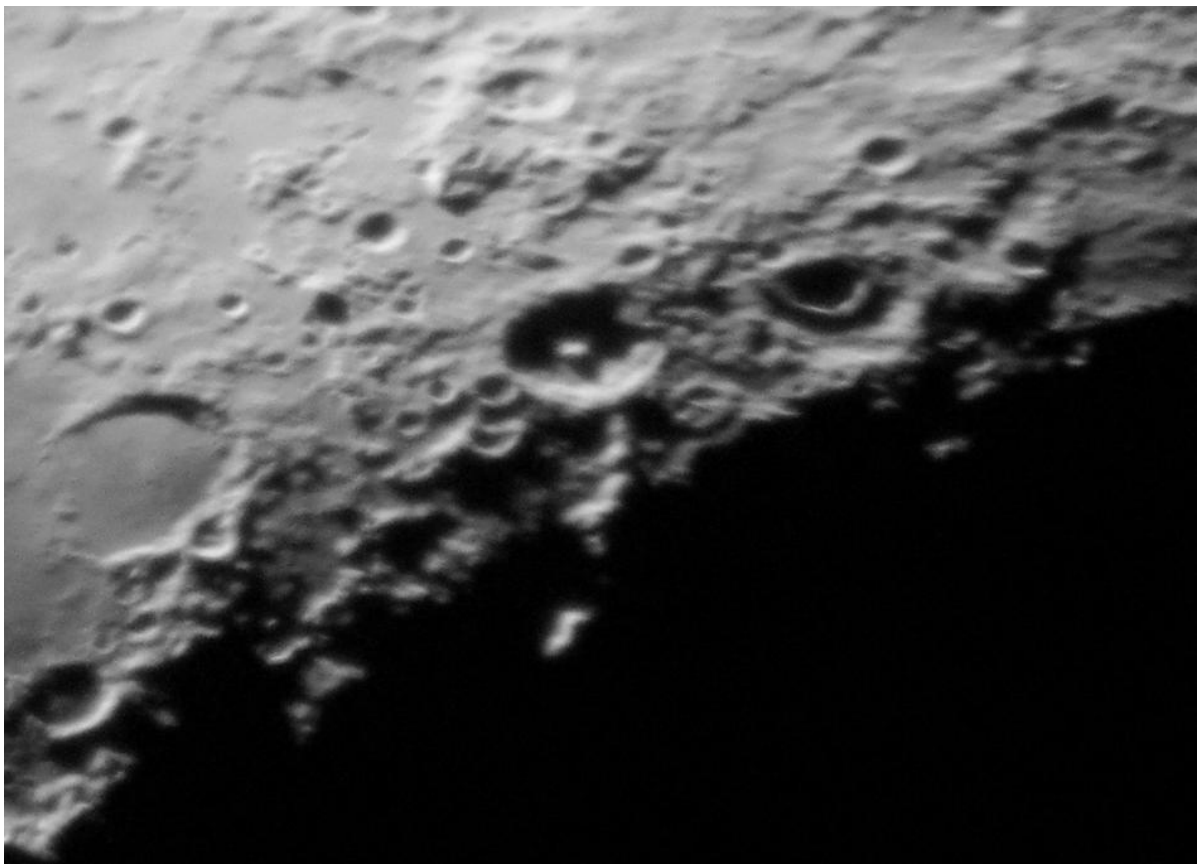
CAMERA – TELESCOPE ORIENTATION

4. With your camera on, and set to auto, the image of the Moon should appear on the digital screen of the camera.
5. Using the focusing knob of the telescope, adjust the image of the Moon onto the LCD viewing screen so it is as clear as possible.
6. With a steady hand, carefully depress the shutter button to take the picture. (If you move while taking the image, it will come out a little blurry. So, take as many shots as you need to give you a good selection of images from which to choose.)

Notes:

a. Camera Lens Size: A small lens size about the diameter of the 25mm eyepiece lens is best. As stated before, large lenses will cause the image to vignette.
b. Exposure: Your camera should have a small rectangular area on the LCD viewing screen ([ ]) that meters the exposure. If you move the rectangle over a bright area of the Moon, it should give the best contrast for the craters along the Lunar Terminator.
c. Flash: If your camera has an auto flash that cannot be turned off, cover the flash with your finger to avoid any stray bright light from affecting the image.
d. Zoom: If your camera has a zoom feature, you can use it to bring the image in a little closer. However, do not try to zoom in too close. It will be much more difficult to obtain a clear image.
e. Checking Image Clarity: Most digital cameras allow you to use the zoom feature to check the clarity of the images just taken.
f. Best Results are obtained during crescent to gibbous phases due to the prominent terminator.

For presentation, copy and paste your best image into an MS Word Document, or equivalent. Expand the image to fill the page, and print the image. If you have an art program that allows you to cut out a section of an image, you can make close-up photos such as the picture below of Piccolomini Crater.



Part II: Photographing Bright Planets

Photographs of planets are more difficult to obtain because they are much smaller and dimmer objects in the sky. The best way to image a planet is to set your camera to movie format (avi) and use the same procedures as with the Moon. Since the angular view of the planets is much smaller than the Moon, the smaller format of the movie is better suited for these smaller objects.

Once a short movie of, for instance, Jupiter and its' moons, is taken, view the individual avi frames to find the clearest one to use for individual placement into a word document and printing.