

# HOMEWORK #14 (due start of class March 2)

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## LEARNING GOALS:

1. Continue recording observations in your journal.
2. Use the tools you either built, or were provided, to observe environment.
3. Read about the basic properties of telescopes.
4. Measure the magnification and resolution of several astronomical images.

## TO RECEIVE FULL CREDIT:

1. If you submit multiple pages, staple them together.
  2. To receive any credit on these problems, you must **show how** you derived your answer by writing all the logical steps that led you to it.
  3. All sentence responses must be **typewritten and in complete sentences**. You may handwrite any arithmetic. Use good English grammar.
  4. **If you work more than three hours on this assignment, you should stop, record your work here, and contact Dr. McCarthy.**
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## **1. Continue observing the sky (day & night) and record notes, pictures, and measurements in your journal.**

Dr. McCarthy has updated the link describing journal content and requirements, on our Web site. Stay up-to-date!

You should be observing the sky and your local environments with the following tools and recording results in your journal: cardboard tube telescope; UV beads; spectral glasses; paper spectrometer

## **2. Reading:**

*“The Five Numbers that Explain a Telescope”*

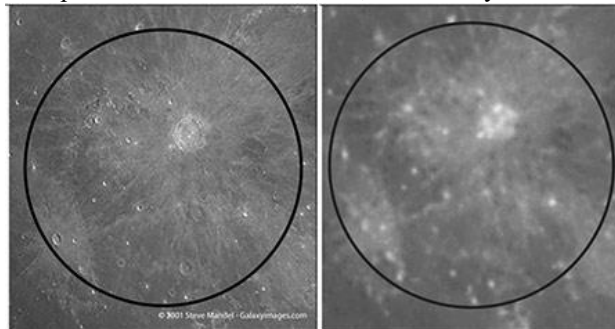
<https://cosmicpursuits.com/943/telescopes-explained/>

## **Resolution vs Magnification:**

<http://www.differencebetween.net/language/words-language/difference-between-magnification-and-resolution/>

## **3. Questions:**

**a.** Compare the two images of the Moon’s surface (below), in terms of magnification and resolution. Use different lunar features to estimate the quantitative improvement in resolution, i.e., “how many times better is the resolution”?



**b.** The display below shows four images of the Moon at different magnifications. Compare specific lunar features to determine which image displays the highest resolution and then estimate the amount of resolution improvement. Feel free to magnify the images further by “zooming” or downloading them into another program like Photoshop. The original image is available online:

<https://www.firstpost.com/tech/science/breathtaking-high-resolution-photo-of-the-moon-leaves-reddit-users-crooning-6103661.html>

