

HOMEWORK #13 (due start of class February 24)

(copyright D. McCarthy)

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 two new phenomena relating to light sources in our environment.
4. Test your understanding of spectra and of telescope optics.

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.**
-

1. Keep observing the sky (day & night) and record notes, pictures, and measurements in your journal. Dr. McCarthy has posted a new link, describing journal content and requirements, on our Web site. Stay up-to-date!

Use your personal, cardboard spectrometer to observe different light sources. Record the results in your journal. Be creative!

2. Reading

Read Section 5.3 in our online textbook about “spectroscopy.”

3. Questions:

- a.** If you could use your personal spectrometer to observe the spectrum of the twilight sky, would you expect to see absorption lines in any direction (zenith, east or west horizons)? Why or why not? [You are strongly encouraged to do this experiment as well.]
- b.** If you could use your personal spectrometer to observe the spectrum of the Moon at night, what characteristics would you expect the spectrum to display? Draw a schematic example.
- c.** Imagine holding a lens, so that you create an image as shown in the examples below. If you could cover the bottom half of the lens, would you expect the final image to change in any respect?



