

# HOMEWORK #8 (due start of class Feb 5)

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## LEARNING GOALS:

1. Continue recording observations in your journal.
2. Understand the seasonal effects of the Earth's tilt on the altitude of the Sun and Moon.
3. Prepare to observe eclipses of the star Algol this week.

## 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. Build your Solar Motion Demonstrator (SMD) and bring to Wednesday's class.

Follow the directions given in class and the instructions described below:

<http://static.nsta.org/extras/pbl-earth-space/SolarMotionDemonstratorInstructions.pdf>

### 2. 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!

You will turn in your journal on Monday (Feb 10) for initial critique and grading.

### 3. Using your knowledge of "seasons", answer the following questions relating to the diagram below. In each case, explain your reasoning.

- a. What season is occurring in North America?
- b. The Moon is shown at Full Phase. How would its altitude above the horizon at midnight compare to the Sun's altitude at noon: Higher, lower, the same?
- c. Would the altitude of a New Moon, vs. the Sun, be higher, lower, or the same.
- d. If the Sun's altitude at noon is 36 degrees, what is the altitude of the Full Moon at midnight?
- e. Describe how the altitudes of the Sun and Full Moon would change six months later.

