

Exercise 4: Using the Sky (the planetarium software)

The Sky (version six) is a software package published by Software Bisque. It, along with CCD Soft, will be used to guide our telescope remotely. This lab is designed to help you understand how the software works and what its capabilities are.

Obtain a laptop computer from the cart (remember to leave the AC adapter in the cart), turn on the computer and, once the Windows desktop is displayed, click on the Start button → Programs → TheSkySix → TheSkySix.

Once The Sky is open, go to Data → Location and confirm the location is Seattle, Washington (if not, you can choose this from the predefined list). Next go to Data → Time and set the time for 9 p.m. tonight.

If you have time, you may wish to play with some of the following controls: on the second line of menu icons (the line above the text field that reads "1x (real time)", the buttons from left to right are Show Display Explorer, 3D Solar System Mode (shows a model of the solar system), Daytime Sky Mode (turns on the Sun), Equatorial Grid (shows RA/Dec), Horizon Grid (shows alt/azimuth), Constellation Lines, Constellation Boundaries, Field of View Indicators, Show Names of Common Objects (very useful), and Show Extended Labels.

Click on the "Horizon Grid" and see the red grid lines of alt/azimuth.

A nifty feature of The Sky is, unlike me, its encyclopedic knowledge of the stars and planets and other astronomical objects. For instance, looking towards the south, click on the **big, bright star toward the lower right corner of the display**. A window titled "Object Information" should pop up.

1. What is the object's **name**?
2. What is its **magnitude** (a measure of its apparent brightness)?
3. What is the object's **azimuth**? Give a rough **compass direction** that this azimuth corresponds to.
4. What is this object's **altitude**? Given that objects below 20° altitude are often lost in the haze and light pollution near the horizon, is this object **visible** to us at this time?
5. What is the **right ascension** (RA) and **declination** (dec) of this object? Please pay attention to the **units** and **signs** of these coordinates! Note that they are not the same as the alt/azimuth. Turn off "Horizon Grid" and turn on "Equatorial Grid". What is another name for the 0° declination line?

6. Turn on “Constellation Lines”. Notice that this object is at the corner of a constellation. What constellation is it? Hint: If nowhere else, look under “alternate names” for the object or use View → Labels → Setup and check off “Constellations”.

7. Are there any planets visible in the sky tonight? You know along what line they should be located! Fill in the information below:

Planet name	Altitude	Azimuth	Magnitude	In which constellation?

8. Write a general qualitative rule about object **magnitude**. In other words, start off with “The larger (more positive) the magnitude is...”

You can locate objects using Edit → Find. Type in “moon” in the Find field and hit the “Center and Frame” button.

9. a. What **phase** is the moon?

b. What **percentage** of the moon’s face is lit?

The problem with “Center and Find” is that the field of view shrinks to a few arc-minutes or seconds. Click the Expand Field of View command (the icon of a magnifying glass with a minus sign) until the Sun is visible.

10. a. Is the moon visible at this time from Seattle?

b. What constellation is the Sun in? Is this accurate, according to the Sun signs of astrology?