

Ronald Wilhelm & Jennifer Wilhelm, University of Kentucky © 2007

# CONSTELLATION LESSON

Name \_\_\_\_\_

Time \_\_\_\_\_

How can I locate things in the sky?

## Stars and Constellations

We will begin observing with a tour of the night sky. This activity is intended to introduce you to the stars, planets, and constellations in the sky. It also introduces the concept of angular distances and how to make crude angular measurements.

1) Identifying Stars and Constellations - You will use your [skymap](#) to locate various constellations and stars. On the skymap the various stars are labeled. WHEN ASK ED TO DRAW CONSTELLATIONS, DRAW WHAT YOU SEE IN THE SKY, NOT WHAT IS ON THE SKYMAP. In order to begin using the skymap you will need to know the direction that you are facing. Locate North, South, East and West.

You will need to measure some angles in this activity. For this we will use the Fist Method. If you make a fist and hold it at arms length, with your elbow extended, then the angle that your fist covers is roughly 10 degrees.

Find and draw in the space below Ursa Minor, Cassiopeia, and Ursa Major. Label on the drawing the star, Polaris (The North Star).

Next find and draw Pegasus, Andromeda and Taurus. Label the star Aldebaran and the star cluster, the Pleiades.

Next find and draw Auriga, Gemini and Canis Minor and label the stars, Capella, Castor, Pollux, and Procyon.  
Altair.

Finally find and draw Orion and Canis Major, and label the stars Betelgeuse, Rigel and Sirius.

2) Estimating Angular distance - Use the fist technique to measure the angular distances between the following stars. We will be checking your results later so be as precise as possible. Each member of the group should make the measurement and then each group should average the measurements to get the best result.

Objects	Angle #1 (degrees)	Angle #2 (degrees)	Angle #3 (degrees)	Angle #4 (degrees)	Angle #5 (degrees)
Northern Horizon to Polaris					
Castor to Pollux					
Betelgeuse to Rigel					
Polaris to Sirius					

Which measurement above do you think is the most uncertain? Why?

Which measurement has the greatest spread between the values found by each student?

Do you think the average value is the "best" value? Why or why Not?

## Moon Observations -- Observing the terminator

The terminator is the name of the imaginary line between the bright portion of the Moon and the dark portion. If you remember that the Moon looks like a circle, then there is a dark portion and light portion of the Moon. The terminator is the line that separates the dark and bright portions.

You now know where to find the constellations of Gemini and Taurus. On the days when the Moon is located near Gemini and Taurus pay special attention to the shape of the terminator. In your Moon Journal carefully draw the Moon and pay special attention to the terminator. When you draw the Moon also draw the stars near the Moon that are in Gemini or Taurus.

On these days does the terminator look like a straight line? Or does it curve? If it curves does it curve to the West or does it curve to the East? Be careful to draw the terminator on your Moon exactly as it looks in the sky.