Name _____ Date _____

Here Comes the Sun....

Objective: The objective of this laboratory is to see how the Sun appears to move across the sky during the day and how its position can be measured?

Vocabulary:

altitude:	azimuth:
apparent motion:	rotation:

Questions: *(Answer in complete sentences)*

1. What causes the Sun to appear to move across the sky the way it does?

2. What is the rate at which the Sun appears to move across the sky?

3. Where does the Sun appear to rise and where does is appear to set?

Name _____ Date _____

Here Comes the Sun…

Introduction: Throughout your life (like this morning) you can remember those times when the Sun was peering into your room, catching the corner of your eye as you roll over to shut off the blaring alarm that wakes you for school. You may also have noticed that during the afternoon the Sun is higher in the sky, but it eventually drops below the horizon. A long time ago people believed that the Sun was actually moving across the sky, but today we know that the Sun's motion is only an apparent one. The Sun's apparent rising and setting is a direct result of actual motion of the Earth. In this lab you will observe the changes in the Sun's apparent path through the sky using models of the celestial sphere.

Objective: At the end of this laboratory you will be able to understand the apparent motion of the Sun and make measurements of the Sun's altitude, azimuth, and motion along an arc path at different times during the day.

Materials:

plastic hemisphere azimuth circle chart external protractor

Procedure A:

I WILL DEMONSTRATE HOW TO CORRECTLY FIND THE ALTITUDE OF A CELESTIAL OBJECT – PLEASE PAY CAREFUL ATTENTION. THANK YOU.

1. Using the plastic hemisphere and the external protractor, measure the altitudes of the Sun at the labeled points on the celestial sphere. Record your findings on Report Sheet I.

2. Place the azimuth chart in the center of the circle aligning it correctly with the directions labeled.

3. Using the azimuth chart, determine and record the azimuths (both the degrees and the direction) of the Sun at the labeled points on the celestial sphere. Record your findings on Report Sheet I.

REPORT SHEET I

Position of Sun	Altitude	Azimuth (direction)	Azimuth (degrees)
Sunrise			
Sun at 10 a.m. position			
Point A			
Point B			
Point C			
Sunset			

Procedure B:

ONCE AGAIN, I WILL DEMONSTRATE HOW TO CORRECTLY FIND THE ALTITUDE OF A CELESTIAL OBJECT – PLEASE PAY CAREFUL ATTENTION. ONCE AGAIN, THANK YOU BUNCHES.

1. Place the plastic hemisphere on the azimuth chart and align the northern side of the plastic hemisphere with 0 degrees azimuth as you did in Procedure A.

2. Use the external protractor and your knowledge of apparent motion to complete Report Sheet II. Remember, this time you will be measuring angles ***ALONG*** the arc path that is drawn on the celestial sphere.

Report Sheet II

1. Rate of Sun's apparent motion (a fact you should know …): _____
2. Degrees arc between Sun's position at 10 a.m. and point A: _____
3. Number of hours between 10 a.m. and point A: _____
4. Time at point A: _____
5. Degrees arc between 10 a.m. and point B: _____
6. Number of hours between 10 a.m. and point B: _____
7. Time at point B: _____
8. Degrees arc between 10 a.m. and point C: _____
9. Number of hours between 10 a.m. and point C: _____
10. Time at point C: _____
11. Total number of degrees arc for one day (measure the entire arc path) _____
12. Total hours of daylight (yes it can be a decimal): _____
    2 bonus points for converting to hours and minutes