

Name: \_\_\_\_\_  
Lab # \_\_\_\_\_

Date: \_\_\_\_\_

## THE SUN'S PATH FOR BELLMORE

### Directions:

1. Draw in the appropriate information on the celestial sphere diagram. As you complete each step check it off on the corresponding line.
2. *You must use a pencil.* You will lose points if you use a pen, etc...
3. **Please note:** The solid 'crossed' lines that go through the observer are only there to help you line up the protractor when you need it, they have no other significance.

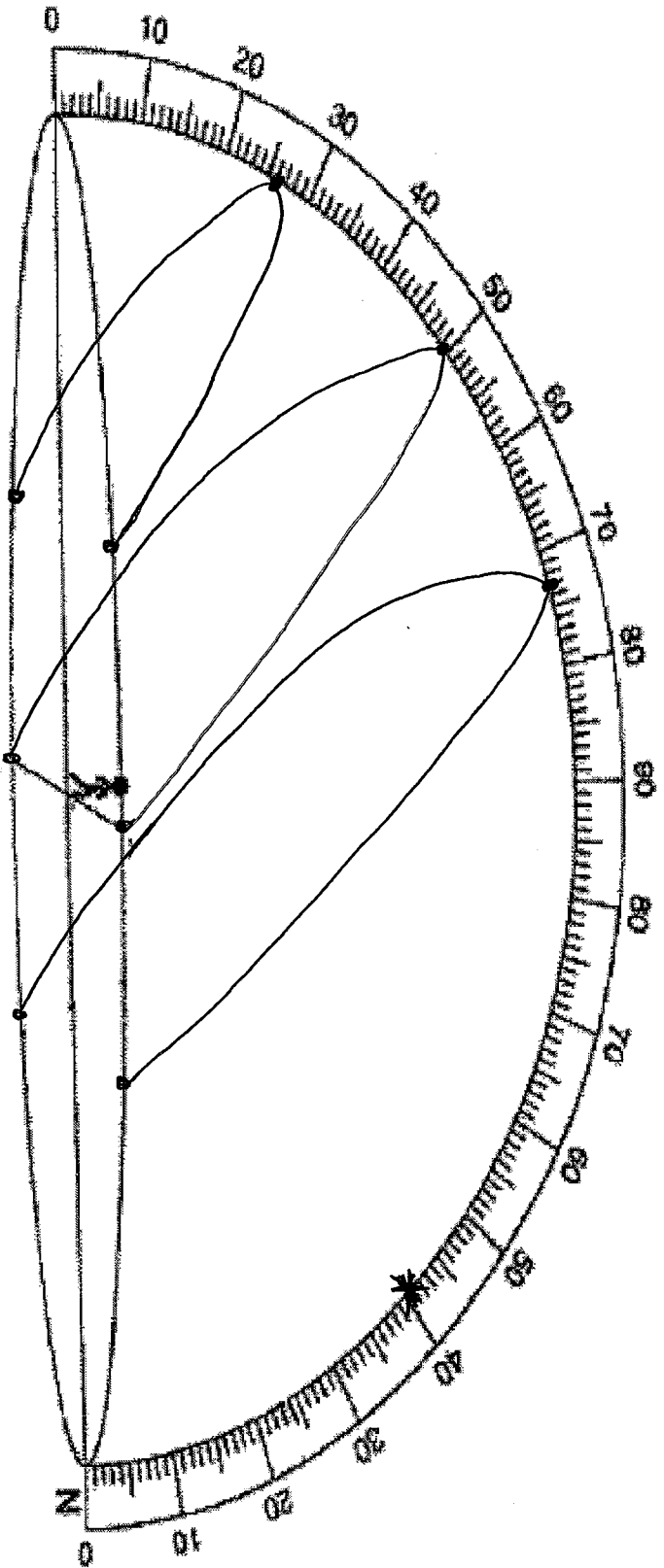
### Observations:

- \_\_\_\_\_ 1. Label the horizon, Polaris, and the zenith.
- \_\_\_\_\_ 2. Label North, South, East, and West.
- \_\_\_\_\_ 3. Draw arrowheads on the Sun's paths to show the direction of daily movement.  
(*Just put arrowheads on the lines already given to you.*)
- \_\_\_\_\_ 4. Label the lines for June 21<sup>st</sup>, December 21<sup>st</sup>, March 21<sup>st</sup> and September 23<sup>rd</sup>.
- \_\_\_\_\_ 5. Label the position of sunrise on the summer solstice, the winter solstice, and the equinoxes. (*Write the word "sunrise"*)
- \_\_\_\_\_ 6. Label the position of sunset on the summer solstice, the winter solstice, and the equinoxes. (*Write the word "sunset"*)
- \_\_\_\_\_ 7. Write the name of each season on the appropriate line. (Summer, Fall, Winter, and Spring)
- \_\_\_\_\_ 8. Use a protractor to determine the altitude of Polaris. Record the altitude next to Polaris.
- \_\_\_\_\_ 9. Label the positions of solar noon for each line.
- \_\_\_\_\_ 10. Using the protractor again, determine and record the altitude of the noontime Sun for each season.

**Discussion Questions:**

1. Is the noontime Sun ever directly overhead in Bellmore, NY? Explain.
2. What is the highest altitude the Sun gets in Bellmore over the course of the year?
3. Which date and season has the longest amount of daylight hours? How can you determine this by looking at your diagram?
4. Which date and season has the shortest amount of daylight hours? How can you tell by looking at your diagram?
5. What is the latitude for Bellmore, NY? How can you determine this by looking at the celestial sphere diagram?
6. What date(s) will the sunrise exactly due east and set exactly due west? (Please include the date, and season in your answer)
7. During which season does the sun rise North of East?
8. During which season does the sun rise South of East?
9. If the sun rises North of East, where will it set?
10. If the sun rises South of East, where will it set?

Bellmore, NY Latitude = 40.5° N



Highlight Equinox Path in Yellow

Highlight Summer Solstice Path in Green

Highlight Winter Solstice Path in Blue

