

Field Activities for Chapter 5 ***The Cycle of the Sun***

N.B.: Many of these activities include making observations and recording data in tables over the same span of months. Therefore, review these activities before starting this chapter and work on them concurrently.

Research Activities

Make a table of rising and setting times for the Sun for your hometown at about weekly intervals for the span of one year. You can collect this information in advance from The Old Farmer's Almanac, or from the U.S. Naval Observatory web site, mentioned in the Instructions.

<i>Date</i>	<i>Sunrise</i>	<i>Sunset</i>		<i>Date</i>	<i>Sunrise</i>	<i>Sunset</i>

Chapter 5
Field Activities

Hours of Daylight

Make a chart of sunrise and sunset times at your location for one day a week for six months from the summer solstice to the winter solstice. Include a column for the number of hours of daylight. Find this by counting the hours between sunrise and 12:00 P.M., and from between 12:00 P.M. and sunset. Include a column for the time of “High Noon,” when the Sun reaches the meridian. Find this by dividing the number of hours in the day by two, and add that number of hours to the time of sunrise.

<i>Date</i>	<i>Sunrise</i>	<i>Sunset</i>	<i>Hrs. Daylight</i>	<i>High Noon</i>

From your chart on the previous page, notice the times of sunrise and sunset. In what months do these times change quickly from day to day? In what months do these times change slowly? Notice how there is little variation a month before and after the solstices, and how quickly the sunset times change for a month before and after the equinoxes. Make a double graph plotting these sunrise and sunset times for each week of the month from the summer solstice to the winter solstice.

Time	June				July				August				September				October				November				December							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
11:00 P.M.	<i>Time of Sunset</i>																															
10:00 P.M.																																
9:00 P.M.																																
8:00 P.M.																																
7:00 P.M.																																
6:00 P.M.																																
5:00 P.M.	<i>Time of Sunrise</i>																															
4:00 P.M.																																
3:00 P.M.																																
2:00 P.M.																																
1:00 P.M.																																
12:00 P.M.																																
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12:00 A.M.																																
Time	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
	<i>June</i>				<i>July</i>				<i>August</i>				<i>September</i>				<i>October</i>				<i>November</i>				<i>December</i>							

Flat Map Activity

Use the flat map on the next page as you did in Chapter 4. Draw small pictures of the Sun on the map as follows, or else get some small Sun stickers from a craft shop (these are usually easily available). Place a Sun on your map at the point of the vernal equinox in Pisces, and label it March 21. Place another sticker at the summer solstice in Gemini, and label it June 21. Repeat for the autumnal equinox and the winter solstice. After the four seasonal points are in place, add Suns to each of the other zodiac constellations, and label each the 21st of the respective month. (For example, label the Sun near Aries April 21 and the Sun by Taurus May 21.) This roughly shows the apparent position of the Sun on the ecliptic during each month of the year.

Excerpted from the Signs & Seasons Field Journal and Test Manual

Available from www.ClassicalAstronomy.com

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Solar System Map

Use the following overhead view maps of the solar system to show how the changing orbital position of the Earth results in the changes in the apparent position of the Sun against the background constellations of the zodiac. Behind each constellation outline, write the name of a month as follows: *Pisces – March, Gemini – June, Virgo – September, Sagittarius – December*. Fill in the other months.

Show the Earth's motion in each of the seasons. Label one of the maps "Spring." Draw the Earth on its orbit opposite the Sun from Pisces. Draw an arrow from the Earth to the Sun and extend it toward Pisces. This shows the Sun's apparent position on the ecliptic on the vernal equinox. Repeat for the months of April and May, and show the Earth's counterclockwise motion around the Sun. Repeat the above for all four seasons.

