

Investigating annual daylight patterns

Step 1: Research daylight data

- **Software:** Microsoft Office Excel 2007, Microsoft Office Word 2007

- **What to do:** Collect data on daylight, create a chart for your data, and begin analyzing your data

1. Collect and chart sunrise and sunset times for your hometown over a period of one year. There is a Web site where you can get the sunrise and sunset times so you don't have to wait a year to collect the information.

2. Open Internet Explorer and go to <http://www.usno.navy.mil/USNO/astronomical-applications/data-services/rs-one-day-us>

3. **Open the Office Excel 2007 Template and sample.** Look at how the sunset and sunrise times are recorded and the bar chart. This will help you fill in the data on your own spreadsheet and create your own chart.

4. Open a new Office Excel 2007 spreadsheet. Using the data from the Navy Web site, record the sunrise and sunset data for the first day of each month for one year for your hometown.

Notes

- When you enter the time, be sure to use this format: 7:05 AM, 5:08 PM.

- The amount of daylight will automatically be calculated for you in column D.

5. Check to make sure all your data is in the right format.

6. When you have finished entering the data, use Office Excel 2007 to create a bar chart of the daylight column (column D).

7. Modify the bars with shading, colors or fill with pictures of your choice. Do not leave anything generic.

8. Open a new Office Word 2007 document and, **in your own words**, explain the pattern you see for the daylight data. Include why you think this pattern occurs. Be sure your finished Office Word 2007 document includes your data, chart, and written explanation.

9. Save your Office Word 2007 document as your username_Daylight.docx.

Step 2: Analyze and interpret your data

- **Software:** Office Word 2007

- **What to do:** Analyze your data and interpret it

1. In the Office Word 2007 document you saved in Step 1, write notes that explore the following questions in as much detail as possible:

- What is the pattern for the amount of daylight during the course of a year for your hometown?
- Why do some days have more daylight than others?
- What roles do the earth and sun play in determining the amount of daylight?
- What is the daylight pattern for the North Pole?
- What is the daylight pattern for the South Pole?
- What is the daylight pattern for a location near the equator?

2. Open Internet Explorer and go to

<http://www.amnh.org/education/resources/rfl/web/antarctica/seasonal.html> .

3. View the online demonstration and read the information on the Web site.

4. Now that you have seen the online demonstration, go back to your Office Word 2007 document.

Review the notes you made about the six questions above, and revise your answers if necessary.

Be sure to write your answers in your own words and in complete sentences.

Be sure to save your document in your Semester One folder.