

- ① Read the pages outlined and/or follow the instructions given.
- ② Unless space has been given, answer the questions on a separate sheet and then staple it to this sheet.
- ③ Use complete sentences when necessary (i.e. explain, describe, why, ...). Also, watch your spelling and grammar and be sure to write neatly!

A. Definitions/Check & Reflect on Your Reading (P.322-331)

- {10} 1. Define each of the following astronomical phenomena, and neatly sketch the positions of the Earth, Sun, and Moon to illustrate your definition.
- (a) solar eclipse & lunar eclipse (include umbra & penumbra in diagram)
 - (b) new moon, half moon, and full moon.
- {3} 2. What Earth motion causes the following phenomena?
- (a) Earth's 24 hour day
 - (b) why the Sun appears to rise in the east and set in the west everywhere in the world
 - (c) Earth's changing seasons
- {6} 3. Most coastal areas on Earth experience two high tides and two low tides every day.
- (a) Explain what a tide is and then describe the function of the Moon in generating these tides. Be sure to include a sketch.
 - (b) Predict how the tides would be affected if the Moon orbited closer to Earth than it does now.
- {4} 4. With the aid of a diagram, explain why, when it is summer in the northern hemisphere, it is winter in the southern hemisphere.

B. Activity #1 (Sunrise/Sunset Times)

Scientists conduct investigations in a variety of ways. Sometimes they construct experiments to measure and collect their own data. At other times they take previously published data, analyze it, and extract new information. In both cases they ask questions, develop hypotheses, and use many of the skills of planning and conducting an investigation. You can apply the same skills they use as you perform your own search.

Question

How do the times of sunrise and sunset vary in your area throughout the year?

Prediction

The day-to-day differences in sunrise and sunset times are the same throughout the year.

Materials

- sunrise/sunset data (as provided)

Procedure

- {8} 1. Use the graph on the next page and a ruler to plot a LINE graph of both the sunrise and sunset data on the same graph. Be sure to include labels, a title, and a legend.

Analysis

- {3} 1. Answer the initial question.
- {3} 2. Do your results support the prediction? If not, write a new prediction.
- {3} 3. Explain how the number of hours of sunlight might affect the demand for electricity across various regions of Canada.

DATE (2005)	SUNRISE (am)	SUNSET (pm)
Jan 1	7:42	4:30
Jan 15	7:39	4:45
Jan 29	7:27	5:05
Feb 12	7:21	5:43
Feb 26	6:59	6:02
Mar 12	6:36	6:19
Mar 26	6:10	6:36
Apr 9 *	5:46	6:53
Apr 23 *	5:23	7:09
May 7 *	5:03	7:26
May 21 *	4:47	7:41
Jun 4 *	4:38	7:53
Jun 18 *	4:36	8:01
Jul 2 *	4:41	8:02
Jul 16 *	4:51	7:56
Jul 30 *	5:05	7:43
Aug 13 *	5:20	7:25
Aug 27 *	5:35	7:03
Sep 10 *	5:51	6:38
Sep 24 *	6:07	6:13
Oct 8 *	6:23	5:48
Oct 22 *	6:40	5:24
Nov 5	6:58	5:04
Nov 19	7:16	4:50
Dec 3	7:32	4:42
Dec 17	7:45	4:42

NOTE:

- ① The data was collected from the website www.sunrisesunset.com
- ② * indicates data that was modified with respect to Daylight Savings Time.

