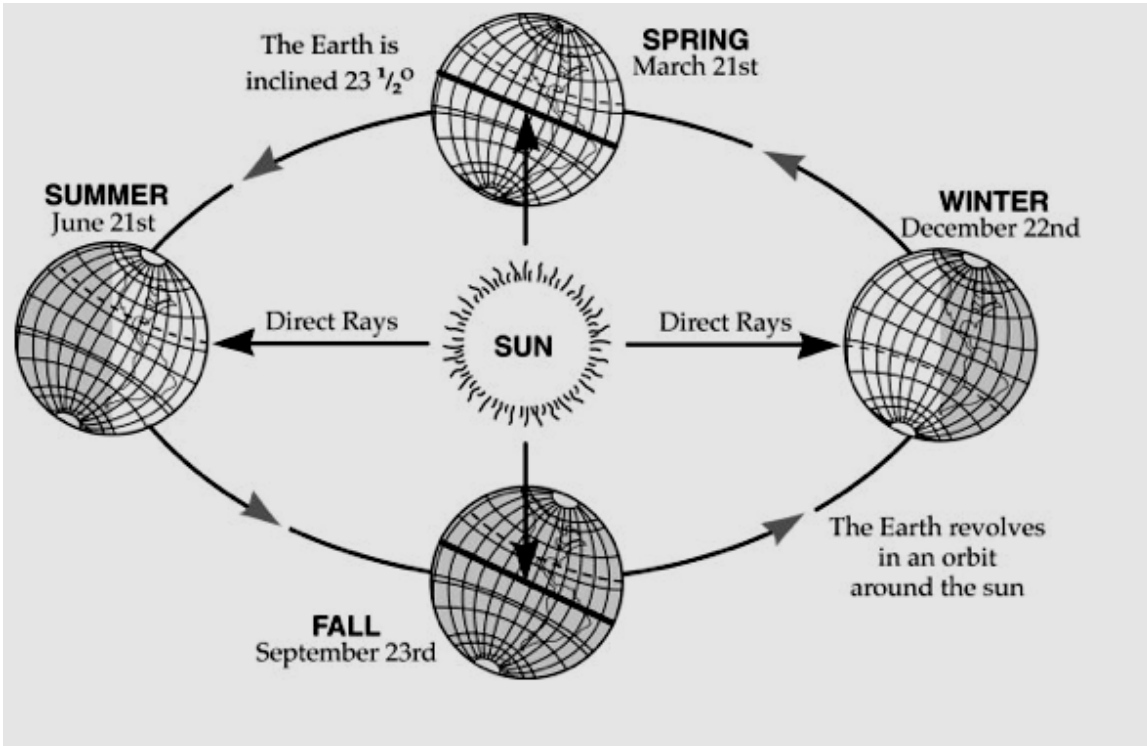


# MiSP Astronomy — Seasons Assessment L2

Name \_\_\_\_\_

Date \_\_\_\_\_

Review the diagram below that shows (not to scale) the relative position of the Earth as it revolves around the sun. Gray shaded areas show the half of the Earth in shadow. The white areas are illuminated by sunlight. In all positions, the Northern Hemisphere is the top of the Earth. The data is shown in the chart below.



Use the diagram above to help you answer questions 1–2.

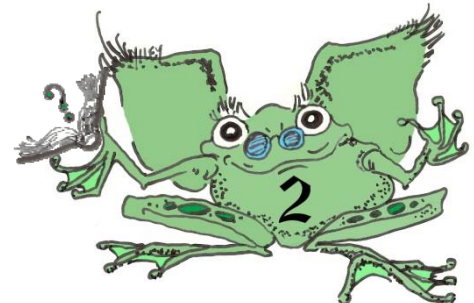
1a. On what date do locations in the Northern Hemisphere have the longest durations of daylight?

\_\_\_\_\_

1b. Why do locations have the longest durations of daylight on the date you gave in 1a?

\_\_\_\_\_

\_\_\_\_\_



2a. \_\_\_\_\_ On March 21 at 12:00 noon, where is the sun's altitude the highest (approximately 90°)?

- 1) north of the equator
- 2) at the equator
- 3) south of the equator

2b. As you travel north from the location named in your answer in 2a, what happens to the sun's altitude at 12:00 noon?

---

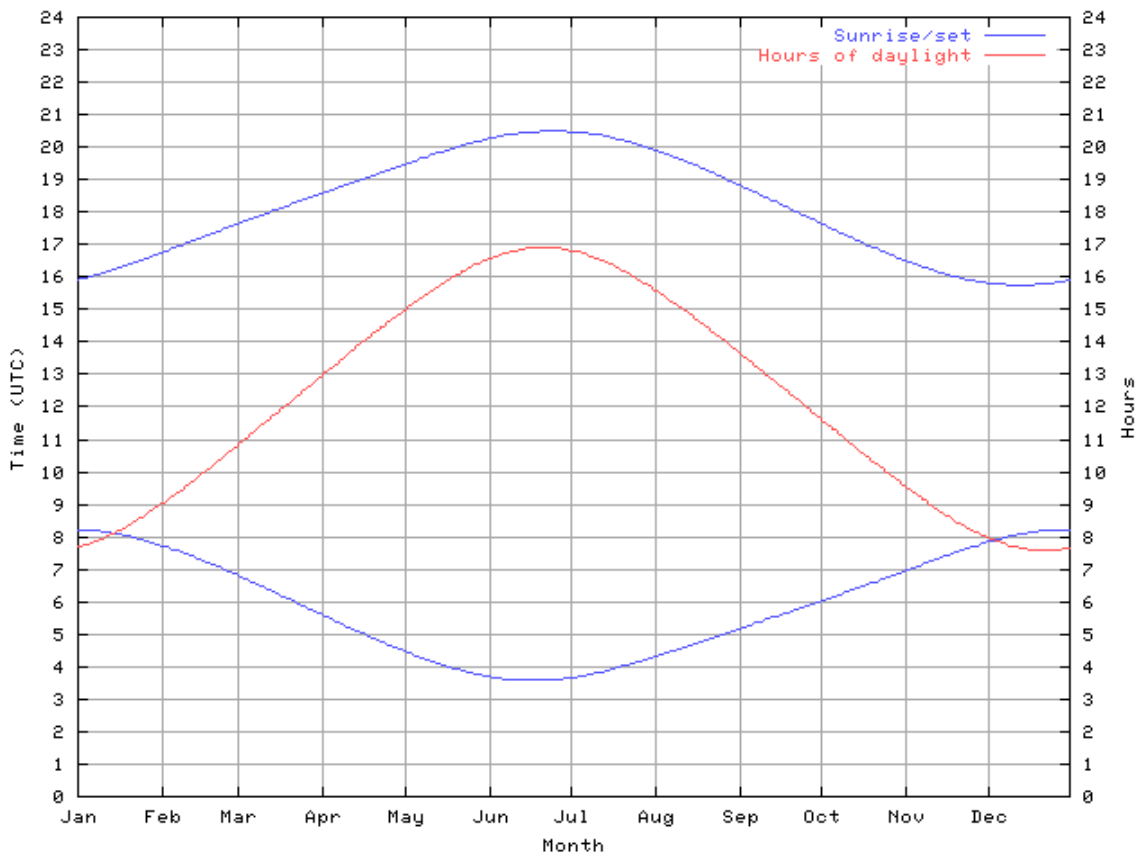


---

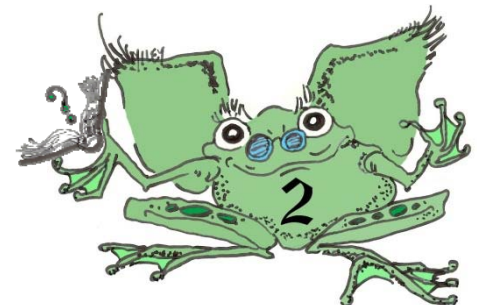


---

Examine the graph below. It shows the sunset times (top line), the hours of daylight (middle line), and the sunrise times (bottom line) of a location in Great Britain



Use the graph to answer questions 3–8.



3. What time is sunrise, what time is sunset, and how many hours of daylight are there on April 1?  
Note that the  $y$ -axis is using 24-hour time.

Sunrise: \_\_\_\_\_

Sunset: \_\_\_\_\_

Hours of daylight: \_\_\_\_\_

- 4a. How many months include one or more days when there are approximately 12 hours of daylight and 12 hours of darkness? \_\_\_\_\_

- 4b. List two days (month and day for both) when there are 12 hours of daylight and 12 hours of darkness. \_\_\_\_\_ & \_\_\_\_\_

5. When is the unit rate of change of the sunrise times graph a positive/+ number and when is it a negative/- number?

Positive: \_\_\_\_\_

Negative: \_\_\_\_\_

6. Determine the unit rate of change (time [hours]/day) of the best-fit line drawn between February 1 (day 32) and May 1 (day 121) on the hours of daylight graph (middle line). Use the days, not the dates, for your calculation. Show your work.

