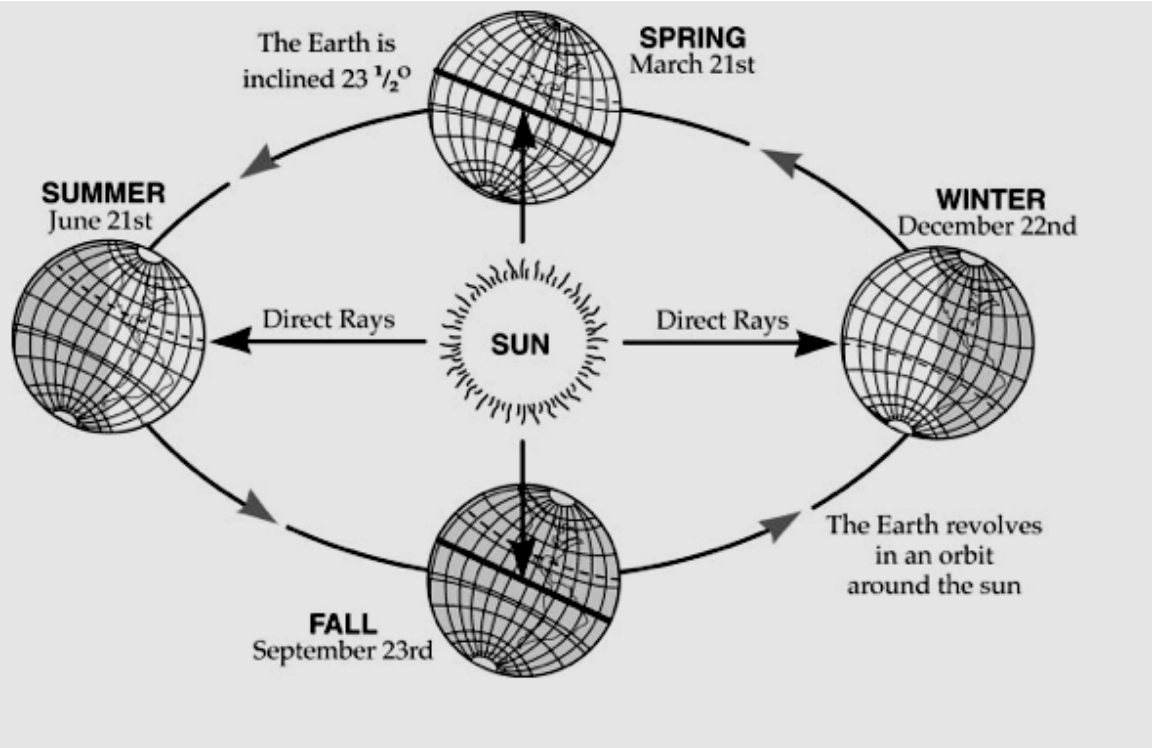
# MiSP Astronomy — Seasons Assessment L3

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.

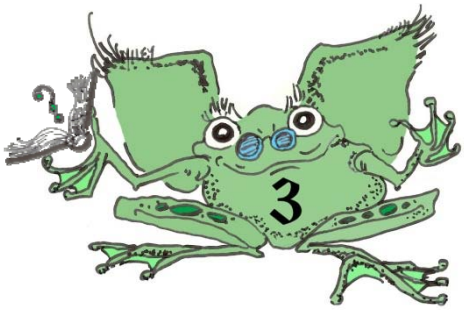
1a. On what date do locations in the Northern Hemisphere have the longest durations of daylight?

_____

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

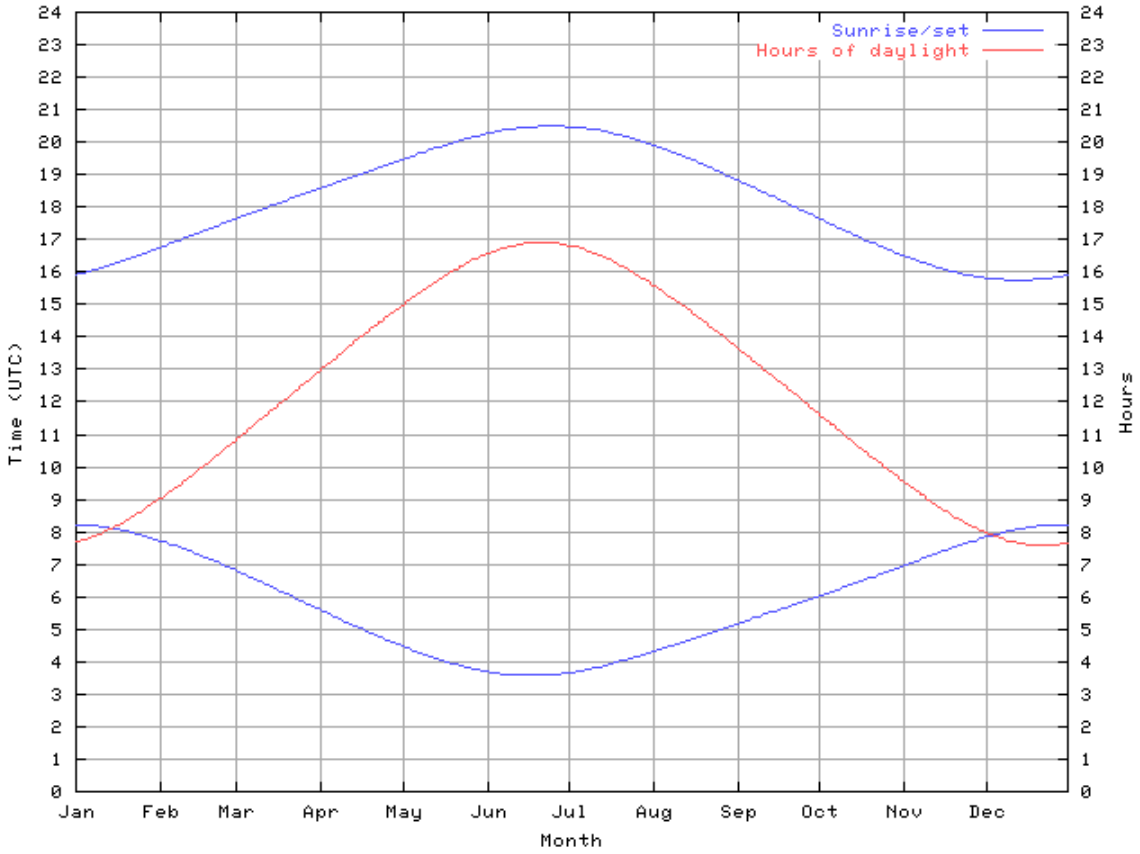
2b. As you travel north from the location named in your answer in 2a, what happens to the sun's altitude at 12:00 noon?

_____

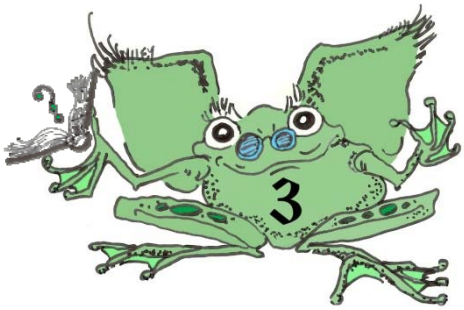
_____

_____

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? _____

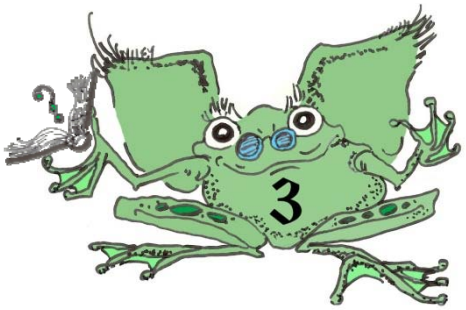
4b. List two days (month and day for both) when there are 12 hours of daylight and 12 hours of darkness. _____ & _____

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.



7. The *y*-intercept of the best-fit line from February 1 to May 1 on the hours of daylight graph is 7 hours.
   What is the equation for the best-fit line from February 1 to May 1?

8. Using the equation above, calculate the number of hours of daylight on February 9 (day 40 — use 40 in your calculations, not February 9). Show your work.