

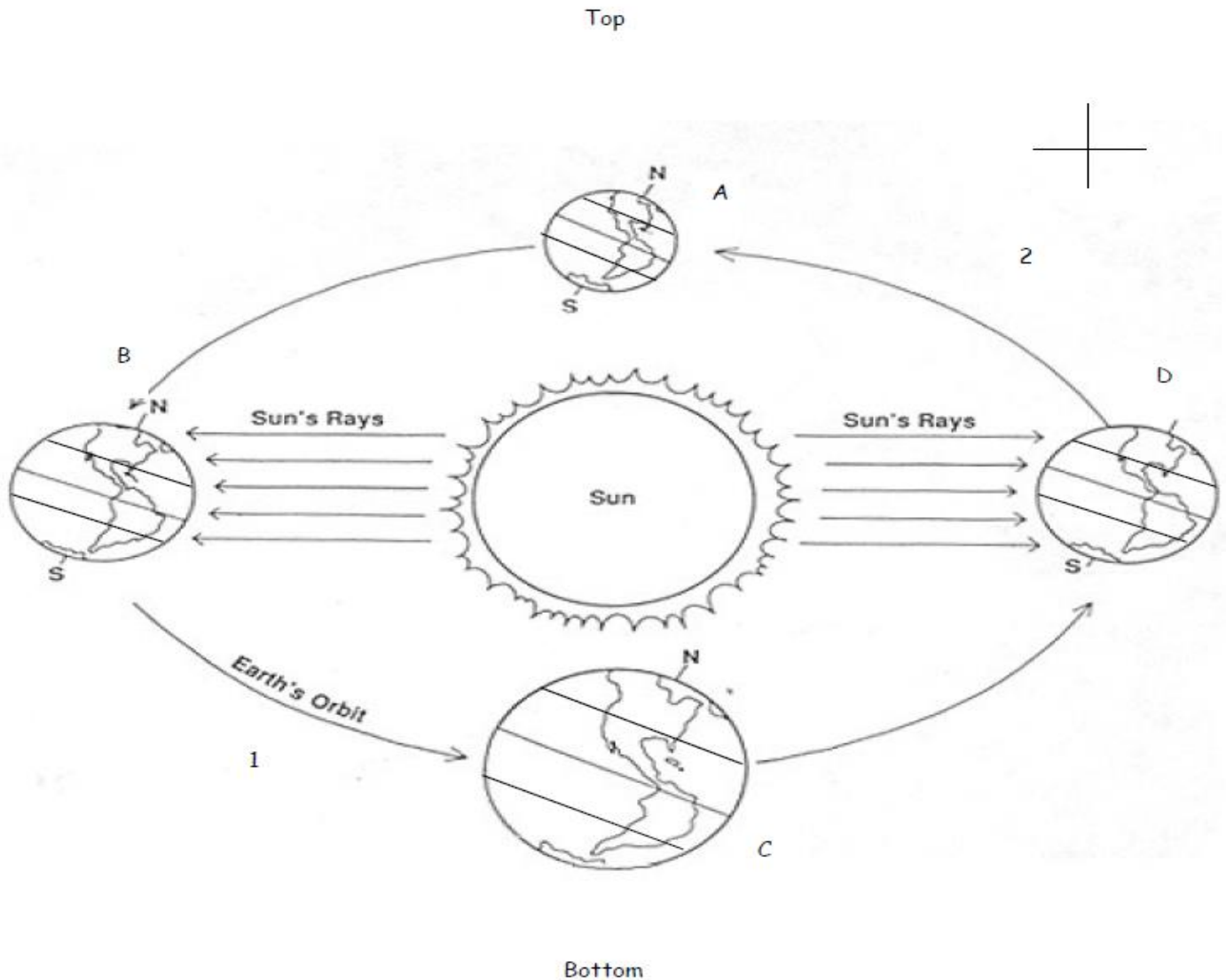
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## Analysis Questions

8. Did the amount of light coming out of the flashlight ever change?
9. What area had the most concentrated light? How do you know?
10. What area had the least concentrated light? How do you know?
11. Solar insolation has to do with the amount of solar radiation areas on Earth's surface receive. Which graph do you think would create the warmest temperatures? Explain your reasoning.

## Activity 2 – Seasons Diagram



Directions – Complete the season's diagram by following the directions below.

12. On the top right of the page, there is a compass rose that looks like a plus sign. A compass rose is used to identify directions on a map, such as north, south, east and west. Please set up the compass rose starting with north at the top of the page.
13. On the right side of the Earth that is labeled A, write the words "Vernal Equinox (Spring)" and the date it occurs, "March 20/21". This indicates the Sun is directly over the equator. At this time the North and South Poles are experiencing 12 hours of daylight and 12 hours of darkness.
14. On the left side of the Earth labeled B, write the words "Summer Solstice" and the dates it occurs, "June 21/22". The Sun is directly over the Tropic of Cancer in the northern hemisphere. At this time, the Sun's rays are also illuminating the entire North Pole where this region will experience 24 hours of daylight. On the opposite end of the Earth, the South Pole, will experience 24 hours of darkness.
15. On the left side of the Earth labeled B, write the words "Summer Solstice" and the dates it occurs, "June 21/22". The Sun is directly over the Tropic of Cancer in the northern hemisphere. At this time, the Sun's rays are also

illuminating the entire North Pole where this region will experience 24 hours of daylight. On the opposite end of the Earth, the South Pole, will experience 24 hours of darkness.

16. Just below the Earth labeled C, write the words “Autumnal Equinox (Fall)” and the dates it occurs, “September 22/23”. This indicates the Sun is again directly over the equator. This time the North and South Poles are experiencing 12 hours of daylight and 1 hours of darkness.
17. Just below the Earth labeled D, write the words “Winter Solstice” and the dates it occurs, December 21/22”. This indicates when the Sun is directly over the Tropic of Capricorn in the southern hemisphere. At this time, the Sun’s rays are illuminating the entire Southern hemisphere. The South Pole will experience 24 hours of daylight on this day. On the opposite end of the Earth, the North Pole will experience 24 hours of darkness on this date.
18. Find the location of the number 1 located on Earth’s orbit around the Sun. Place a dot on Earth’s orbital path and then write the word “aphelion” along with the date July 4. This is the point of Earth’s orbit around the Sun where it is farther from the Sun than any other time. Please write the number 152 million km, which is Earth’s distance from the Sun at this point.
19. Find the location of the number 2 located on Earth’s orbit around the Sun. Place a dot on Earth’s orbital path and then write the word “perihelion” along with the date January 3. This is the point of Earth’s orbit around the Sun where it is closest to the Sun than any other time. Please write the number 147 million km, which is Earth’s distance from the Sun.

### **Use the finished diagram to complete the following questions.**

20. Position A is the start of a new season. What season will St. George be experiencing at this point?
21. Position D is the start of a new season. What season will St. George be experiencing at this point?
22. At what point will St. George experience the season fall?
23. Some people think that the cooler temperatures in winter are the result of the Earth being farther from the Sun then than it is during the summer. According to the diagram, when is Earth farther from the Sun?
24. Looking at the diagram, does Earth’s distance from the Sun influence the change in seasons? Explain your answer.
25. Explain how solar insolation influences Earth’s seasons and not distance.