

## Test Review – Earth Orbit and Seasons

1. **What is the approximate diameter of the Earth?** 12,700 km.
2. **What is the approximate circumference of the Earth?** 40,000 km.
3. **What is the approximate average distance from the Earth to the Sun?** 150,000,000 km.
4. **On what day is the Earth closest to the Sun?** January 3<sup>rd</sup>.
5. **On what day is the Earth farthest from the Sun?** July 4<sup>th</sup>.
6. **What is the Earth doing when it revolves?** Orbiting around the Sun.
7. **What is the Earth doing when it rotates?** Spinning on its axis.
8. **What is the Earth's period of rotation?** About one day (23 hours, 56 minutes).
9. **What is the Earth's period of revolution?** One year (365 days, 6 hours, 9 minutes).
10. **In what direction, viewed from the North Pole, does the Earth rotate?** Counter-clockwise.
11. **In what direction, viewed from the North Pole, does the Earth revolve?** Counter-clockwise.
12. **What is the Moon's period of rotation and revolution?** 27.3 days.
13. **In what direction does the Moon rotate and revolve?** Counter-clockwise.
14. **How long does it take for the Moon to complete one cycle of lunar phases?** 29.5 days.
15. **What time unit of measurement on a calendar is approximately the Earth's period of rotation?** One day.
16. **What time unit of measurement on a calendar is approximately the Earth's period of revolution?** One year.
17. **What time unit of measurement on a calendar is approximately the time it takes to complete one cycle of lunar phases?** One month.
18. **Why does the Earth have seasons?** Because the Earth's axis is tilted. If the Earth's axis were not tilted, the Earth would not have seasons.
19. **Why is it hotter in the summer and colder in the winter?** During the summer, the Sun is up for a longer period and it is more directly overhead, so it heats up the ground more. During the winter, the Sun is up for fewer hours, and is lower in the sky, so it does not heat up the ground as much.
20. **What is the tilt of the Earth's axis (as compared to the Sun's axis)?** 23.5°.
21. **What is the latitude of the Equator?** 0°
22. **What is the latitude of the Tropic of Cancer?** 23.5° N.
23. **What is the latitude of the Tropic of Capricorn?** 23.5° S.
24. **On what days of the year is the Sun directly over the Equator?** March 21<sup>st</sup> and September 21<sup>st</sup>.
25. **On what day of the year is the Sun directly over the Tropic of Cancer?** June 21<sup>st</sup>.
26. **On what day of the year is the Sun directly over the Tropic of Capricorn?** December 21<sup>st</sup>.
27. **What is the Arctic Circle, and at what latitude is it located?** The Arctic Circle is the line of 66.5° North latitude, where the Sun does not set on June 21<sup>st</sup>. In other words, it is the most

southerly point where at least one day of 24 hour daylight occurs. As you go north towards the North Pole, the number of days with 24 hour daylight increases. At the North Pole, there is 6 months of daylight and 6 months of darkness.

28. **What is the summer solstice, and on what day does it occur in the Northern Hemisphere?** The summer solstice is the day of the year when the longest period of daylight and shortest period of darkness occurs. In the Northern Hemisphere, it occurs on June 21<sup>st</sup>.
29. **What is the winter solstice, and on what day does it occur in the Northern Hemisphere?** The winter solstice is the day of the year when the shortest period of daylight and longest period of darkness occurs. In the Northern Hemisphere, it occurs on December 21<sup>st</sup>.
30. **What is the equinox, and on what two days does it occur?** The equinox is the two days of the year when the Earth's axis is tilted exactly 90 away from the Sun, causing all of earth to have exactly 12 hours of daylight and 12 hours of night. On the equinox, the Sun rises exactly in the east and sets exactly in the west. It occurs on March 21<sup>st</sup> and September 21<sup>st</sup>.
31. **In the Northern Hemisphere, what day has the shortest period of daylight and longest period of darkness?** The winter solstice, December 21<sup>st</sup>.
32. **In the Northern Hemisphere, what day has the longest period of daylight and shortest period of darkness?** The summer solstice, June 21<sup>st</sup>.
33. **On what two days of the year is there 12 hours of daylight and 12 hours of darkness everywhere on Earth?** The equinoxes, March 21<sup>st</sup> and September 21<sup>st</sup>.
34. **In Dallas, in what direction does the Sun rise on March 21<sup>st</sup>?** East.
35. **In Dallas, in what direction does the Sun rise on June 21<sup>st</sup>?** Northeast.
36. **In Dallas, in what direction does the Sun rise on December 21<sup>st</sup>?** Southeast.
37. **In his classroom, a teacher uses a 12" globe and an electric spotlight as a model of the Earth and the Sun? What is the main flaw with this model?** The scale of the Earth is different from the scale of the Sun—the Sun should be much bigger than the Earth. Also, the scale of the distance between the Sun and Earth is different from the scale of the Earth. The Earth is only 12,700 km in diameter, but the Earth is 150,000,000 km from the Sun. Models of the solar system have to compress the Sun and planets together to fit in a room.
38. **Where on Earth is there the greatest difference in daylight hours between summer and winter?** At the North and South Poles.
39. **Where on Earth is there the least difference in daylight hours between summer and winter?** At the equator.
40. **What happens on the Arctic Circle on June 21<sup>st</sup>?** The Sun does not set—it completely circles the horizon.