

Key Concept Summaries

Earth in Space

How Does Earth Move?

Earth moves in space in two major ways: rotation and revolution. **Rotation** is the spinning of Earth on its axis. Earth's **axis** is an imaginary line that passes through Earth's center and the North and South poles. The rotation of Earth causes day and night.

one year. Earth's path, or **orbit**, around the sun is an ellipse. The ellipse brings the planet closest to the sun in January.

People of many cultures have used the motions of Earth and the moon to establish calendars.

A **calendar** is a system of organizing time that defines the beginning, length, and divisions of a year.

Revolution is the movement of one object around another. One revolution of Earth around the sun is

What Causes Seasons?

Near the equator, sunlight hits Earth's surface from almost overhead. Near the poles, sunlight arrives at a steep angle. As a result, near the poles sunlight is spread out over a greater area. That's why it is warmer near the equator than near the poles.

The sun appears farthest north or south of the equator twice each year. Each of these days is called a **solstice**. In the Northern Hemisphere, the summer solstice occurs around June 21. That is the longest day of the year in the Northern Hemisphere and the shortest day in the Southern Hemisphere.

If Earth's axis were straight up and down relative to its orbit, temperatures in an area would remain fairly constant year-round. There would be no seasons. However, Earth's axis is tilted at an angle of 23.5° from the vertical. So as Earth revolves around the sun, the north end of its axis is tilted away from the sun for part of the year and toward the sun for part of the year. **Earth has seasons because its axis is tilted as it revolves around the sun.**

Similarly, around December 21, the winter solstice occurs in the Northern Hemisphere, while the summer solstice occurs in the Southern Hemisphere. Halfway between the solstices, neither hemisphere is tilted toward the sun. Each of these days is called an **equinox**. On an equinox, the noon sun is directly overhead at the equator, rises due east, and sets due west.

On a separate sheet of paper, identify the two major ways Earth moves in space. Then, explain how the tilt of Earth's axis affects the seasons.

