SECTION 1

Days and Seasons on Earth

Have you ever noticed that a winter day has fewer hours of daylight than a summer day does? During the winter, a day may get dark as early as 6:00 P.M. However, in the summer, a day may not get dark until 9:00 P.M. What causes these differences in hours of daylight?

The answer to this question has to do with the motion of Earth as it revolves around the sun. Learning more about how Earth moves will help you understand why we have daylight and night and why we have the seasons of the year.

What You Will Learn

- Explain the cause of daylight and night.
- Explain how the tilt and movement of Earth cause changes in seasons and in the length of a day.
- Describe the causes of equinoxes and solstices.
- Describe how latitude affects the amount of seasonal change that an area experiences.

Vocabulary

day
equinox
solstice

READING STRATEGY

Reading Organizer As you read this section, create an outline of the section. Use the headings from the section in your outline.

TN **GLE 0607.Inq.3** Synthesize information to determine cause and effect relationships between evidence and explanations.

GLE 0607.Inq.5 Communicate scientific understanding using descriptions, explanations, and models.

GLE 0607.6.3 Explain how the positional relationships among the earth, moon, and sun control the length of the day, lunar cycle, and year.

GLE 0607.6.6 Illustrate the relationship between the seasons and the earth-sun system.

The Earth-Sun System

You now know that Earth revolves around the sun in an ellipse, or elongated circle. It takes 1 year, or $365\frac{1}{4}$ days, for Earth to revolve once around the sun. But it is Earth's rotation that is a direct cause of daylight and night.

Earth's Rotation

It takes Earth 23 hours and 56 minutes to rotate once on its axis. Earth's axis is an imaginary line that runs through Earth's center from the North Pole to the South Pole. **Figure 1** shows Earth's rotation on its axis and revolution around the sun.

We usually think of a day as the hours of light that we experience. But a **day** is also the time required for Earth to rotate once on its axis. A day includes the time of light and dark. Earth's rotation causes daylight and night. Because Earth rotates counterclockwise as seen from above the North Pole, the sun appears to rise in the east and set in the west.

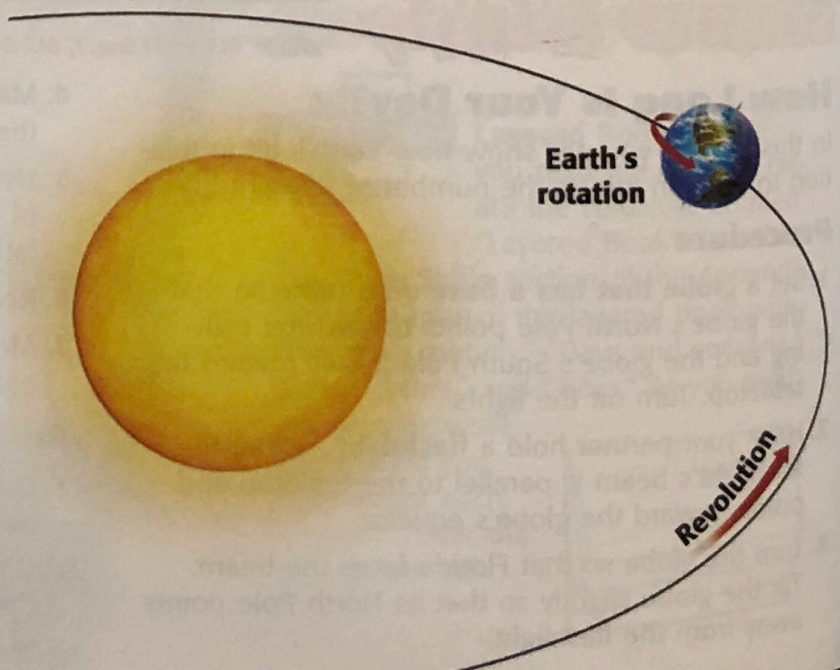

Figure 1 *The side of Earth that faces the sun is light, which is daylight. The side of Earth that faces away from the sun is dark, which is night.*