

Spinning in Circles

What determines the length of a day?

Each planet spins on its axis. Earth's imaginary axis (ih•MAH•juh•nair•ee ACK•sis) runs from the North Pole to the South Pole. The spinning of a body, such as a planet, on its axis is called **rotation**. The time it takes a planet to complete one full rotation on its axis is called a **day**.

Active Reading

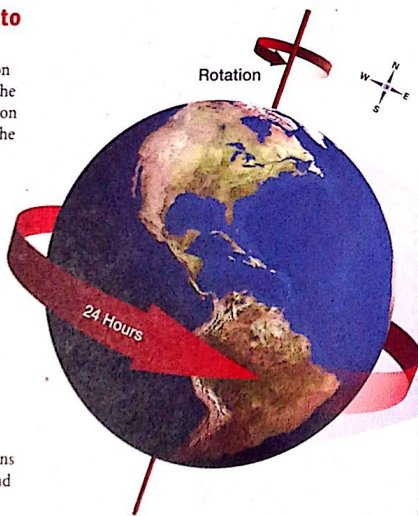
5 Identify As you read, underline the places on Earth's surface at which the ends of Earth's imaginary axis would be.

The Time It Takes for Earth to Rotate Once

Earth rotates in a counterclockwise motion around its axis when viewed from above the North Pole. This means that as a location on Earth's equator rotates from west to east, the sun appears to rise in the east. The sun then appears to cross the sky and set in the west.

As Earth rotates, only one-half of Earth faces the sun at any given time. People on the half of Earth facing the sun experience daylight. This period of time in daylight is called *daytime*. People on the half of Earth that faces away from the sun experience darkness. This period of time in darkness is called *nighttime*.

Earth's rotation is used to measure time. Earth completes one rotation on its axis in 24 hours, or in one day. Most locations on Earth's surface move through daylight and darkness in that time.



Earth's motion is used to measure the length of both an Earth day and an Earth year.

What determines the length of a year?

As Earth rotates on its axis, Earth also revolves around the sun. Although you cannot feel Earth moving, it is traveling around the sun at an average speed of nearly 30 km/s. The motion of a body that travels around another body in space is called **revolution** (reh•vuh•LOO•shun). Earth completes a full revolution around the sun in 365 ¼ days, or about one **year**. We have divided the year into 12 months, each month lasting from 28 to 31 days.

Earth's orbit is not quite a perfect circle. In January, Earth is about 2.5 million kilometers closer to the sun than it is in July. You may be surprised that this distance makes only a tiny difference in temperatures on Earth.

Think Outside the Book

6 Infer How is a leap year, in which a day is added to every fourth year, related to the time it takes Earth to revolve around the sun?

Visualize It!

7 Apply Imagine that Earth's current position is at point A below. Write the label B to show Earth's position 6 months from now in the same diagram.

This drawing is not to scale.

