

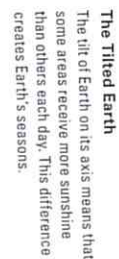
1.7 Earth and the Sun

For centuries, most people believed that Earth stood still in space. Today we know that our planet is in constant motion. That motion creates our years, months, and days. It also helps to create our seasons.

The Moving Earth Earth moves around the sun in a nearly circular path called an *orbit*. One round trip, called a **revolution**, takes about 365½ days. This is an Earth year.

As Earth revolves around the sun, it spins like a giant top on its axis. The axis is an imaginary line that runs from the North Pole to the South Pole through the center of Earth. The spinning motion of Earth is called **rotation**.

Earth makes one full rotation about every 24 hours. As Earth spins, it is daytime on the side facing the sun. On the side facing away from the sun, it is night.



The Tilted Earth
The tilt of Earth on its axis means that some areas receive more sunshine than others each day. This difference creates Earth's seasons.

Earth's Tilt Creates the Seasons Earth's axis is tilted at an angle relative to the sun. Because of this tilt, the Northern and Southern hemispheres receive different amounts of sunlight as Earth moves around the sun. These differences create Earth's seasons.

Look at the diagram on the next page to see the changing seasons in the Northern Hemisphere. During the north's summer, this half of Earth is tilted toward the sun. At this time the Northern Hemisphere receives more sunlight for more hours, and most places enjoy hot days. Winter comes when this hemisphere tilts away from the sun. Then the days are short and cool.

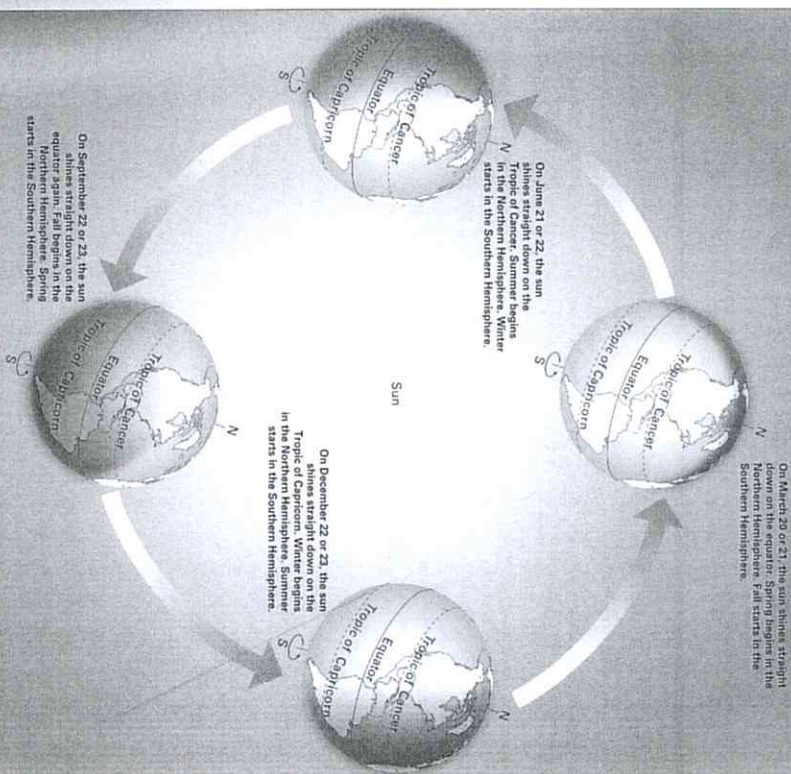
Of course, during these same months the Southern Hemisphere tilts toward the sun, so in the south it is summer. Similarly, when it is summer in the Northern Hemisphere, it is winter in Earth's southern half.

Tropics, Circles, and Zones Because of Earth's tilt, the sun never beats straight down on places in the far north and south. Two lines of latitude mark the northernmost and southernmost points where the sun's rays ever beat straight down. The northern line is called the **Tropic of Cancer**. The southern line is called the **Tropic of Capricorn**. The areas between these two lines and the equator are known as **tropical zones**. Tropical zones receive a lot of sunshine. They are hot all year round.

Two other lines of latitude mark the points farthest north and south where the sun doesn't shine at all on one day each year. On that day, night lasts a full 24 hours. These lines are the **Arctic Circle** and the **Antarctic Circle**. The areas between these circles and the North and South poles are known as **polar zones**. These zones receive little direct sunlight and are cold most of the year.

Between the tropical and polar zones lie the **temperate zones**. Generally, in these zones summers are warm and winters are cool.

The Revolution of Earth Around the Sun



Earth's Revolution and the Seasons

This diagram shows how Earth's tilt creates the seasons during our planet's year-long trip around the sun. Notice that the seasons are reversed in the Northern and Southern hemispheres.