

Glossary

axis An imaginary line that Earth spins around, that passes from the North Pole to the South Pole through Earth's center. When you ride a carousel, you can see the axis that it spins around. The Earth's axis is invisible. It is the straight line around which the whole planet spins. Each planet and moon has its own axis around which it spins.

Celsius A scale for measuring temperature, used by many people in the world and by most scientists worldwide. The Celsius temperature scale is based on water. Water freezes at 0°C and boils at 100°C. People in many other countries use Celsius. Scientists all over the world use Celsius so they can share data.

constellation A group of stars that seems to form a pattern in the sky. Ancient people found pictures in the sky and made up stories about them. Today, we use the constellations as a map of the night sky. Unlike planets, the stars in constellations do not change position in the sky compared with each other. So constellations help scientists describe where stars and planets can be seen.

eclipse A darkening of part of a planet or a moon when another object blocks the Sun and casts its shadow on that planet or moon. The Sun provides all of the light for both the Moon and Earth. When the Moon blocks sunlight from reaching Earth, or when Earth blocks sunlight from reaching the Moon, an eclipse occurs.

Fahrenheit A scale for measuring temperature, used by most people in our country. People in the United States use Fahrenheit to talk about everyday temperatures, such as weather, cooking, and a person's body temperature. On the Fahrenheit scale, water freezes at 32°F and boils at 212°F.

flyby A flight close by a planet to collect observations. Many space probes never land. Instead, they make images of planets as they pass by in space. They send the images back to Earth. Computers decode the images.

gibbous A phase of the Moon between the full moon and a quarter moon, or between a quarter moon and new moon. A gibbous phase is not exactly half a circle and it is not exactly a whole circle. It occurs twice a month: when the Moon is going toward full, and when it is going away from full.

hemisphere One half of a sphere, or one half of Earth. Earth is divided, at the equator, into a Northern and Southern Hemisphere. When a hemisphere is tilted toward the Sun, it has summer. When it is tilted away from the Sun, it has winter.

light year A unit of distance equal to the distance light travels in one year. Light travels at a speed of 300,000 kilometers (186,000 miles) per second. Imagine how far light travels in a year at that speed! Our closest star, Centauri Proxima, is 4.5 light years away.

lunar eclipse A darkening of the Moon when Earth's shadow falls on the Moon. When Earth passes between the Sun and the Moon, it blocks the light that usually lights up the Moon. The Moon passes through Earth's shadow, and that is a lunar eclipse. A lunar eclipse can happen only during a full moon.

orbit The path an object follows when it travels around another object. Earth follows its orbit as it revolves around the Sun. The Moon follows its orbit as it revolves around Earth.

phase One of the changing ways that the Moon appears, as seen from Earth. The brightest Moon is the full moon. The dark Moon is called the new moon. Other phases are crescents, nearly round, or half circles.

Glossary (continued)

planet A large object that orbits a star. The planets in our solar system are round or nearly round. Earth and the other three inner planets (Mercury, Venus and Mars) are made of rock. The large outer planets (Jupiter, Saturn, Neptune, and Uranus) are made of gas. Pluto is a mix of rock and ice.

revolve To travel in a circle or oval around another object. Earth revolves around the Sun about every $365\frac{1}{4}$ days (one year). The Moon revolves around Earth about every 27 days (about four weeks).

rotate To spin around a straight line that holds still. To rotate means to spin around. The wheels on a car rotate. A basketball spinning on a player's fingertip rotates. Earth rotates once every twenty-four hours. The straight line around which it rotates is called its axis.

satellite An object that revolves around a planet. The Moon is a natural satellite. People have also put many satellites in orbit around Earth. Some satellites collect information about weather. Some do research. Others photograph Earth's surface or help send phone and TV signals.

solar cell A device that changes light energy into electricity. A solar cell uses materials called semiconductors. Light knocks electrons loose so they can flow. Flowing electrons make electricity. People use solar cells to run light bulbs, calculators, and other devices.

solar eclipse A darkening of part of Earth, when the Moon's shadow falls on Earth. When the Moon passes between Earth and the Sun, it blocks the view of the Sun from people on Earth. The Moon's shadow passes across the surface of Earth. It is dark where the Moon's shadow passes. A solar eclipse can happen only during a New Moon.

solar system The Sun and all of the objects that move around it. In our solar system, nine planets revolve around the Sun. Moons revolve around their planets, so they also travel around the Sun with their planets. Our solar system also contains rocks called asteroids that orbit the Sun.

space probe A spacecraft that explores the solar system and carries instruments, but not people. Some space probes land on planets and send back information. Others fly past planets and never land.

star An object in space that produces its own heat and light. The stars we see look very small because they are far away. Some stars are many times bigger than our star, the Sun. The stars that make up a constellation are usually many light years apart.

summer solstice The day with the most hours of sunlight in the year. The summer solstice occurs when a hemisphere is tilted most toward the Sun. The summer solstice is on June 21 or 22 in the Northern Hemisphere. This same day is the winter solstice in the Southern Hemisphere.

tilt To lean in one direction. Earth's axis is tilted compared to its orbit. The tilt stays the same as Earth revolves around the Sun. The tilt is the reason Earth has seasons. In the winter, our hemisphere is facing slightly away from the Sun. In the summer, our hemisphere is facing slightly toward the Sun.

winter solstice The day with the fewest hours of sunlight in the year. The winter solstice occurs when a hemisphere is tilted away from the Sun. The winter solstice is on December 21 or 22 for the Northern Hemisphere. This same day is the summer solstice for the Southern Hemisphere.