

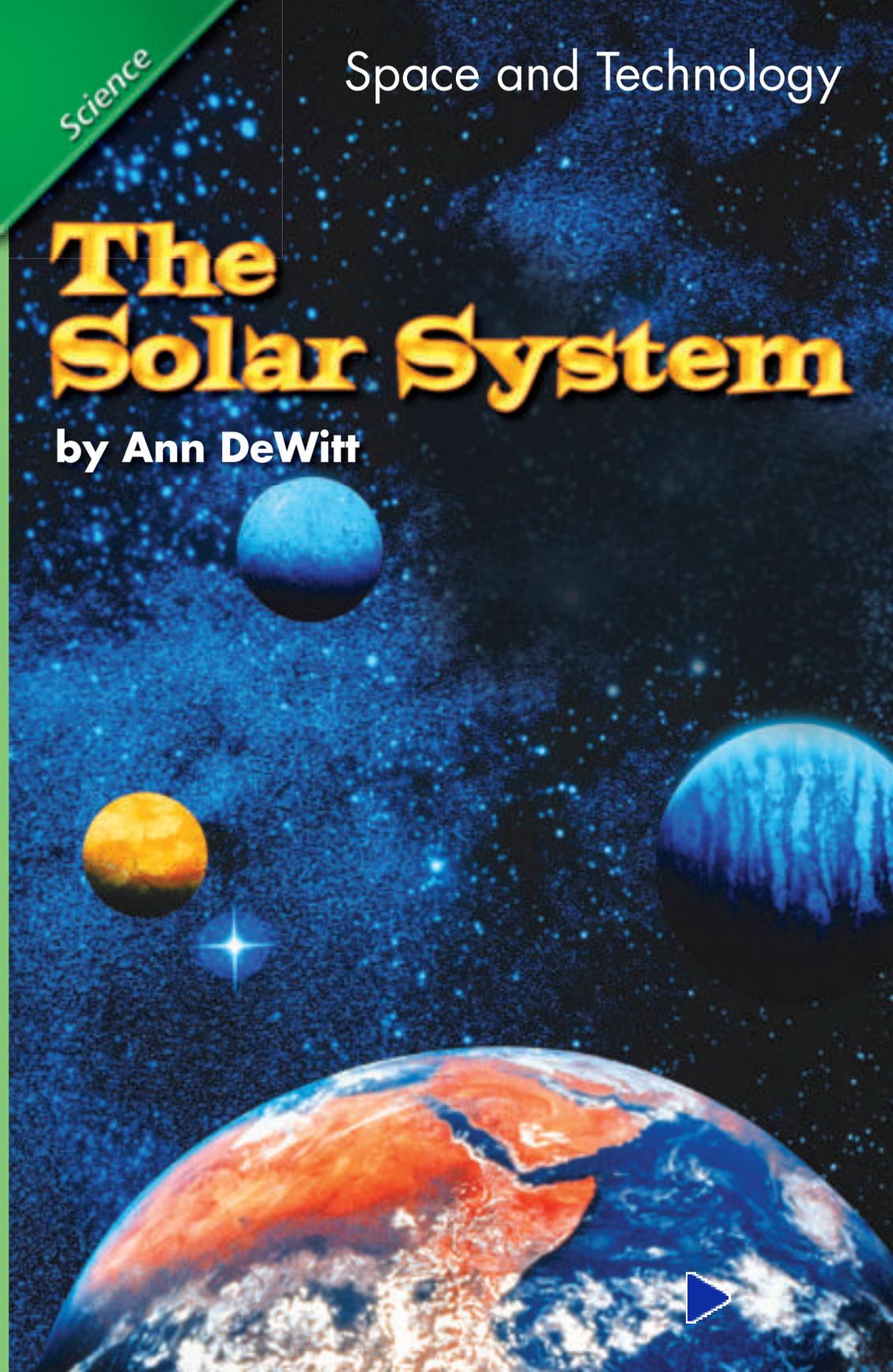
Science

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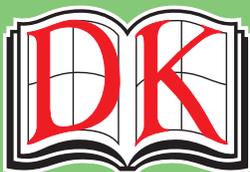
# The Solar System

by Ann DeWitt



Genre	Comprehension Skill	Text Features	Science Content
Nonfiction	Compare and Contrast	<ul style="list-style-type: none"> <li>• Captions</li> <li>• Diagram</li> <li>• Labels</li> <li>• Glossary</li> </ul>	Solar System

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## Vocabulary

asteroids

orbit

planet

solar system

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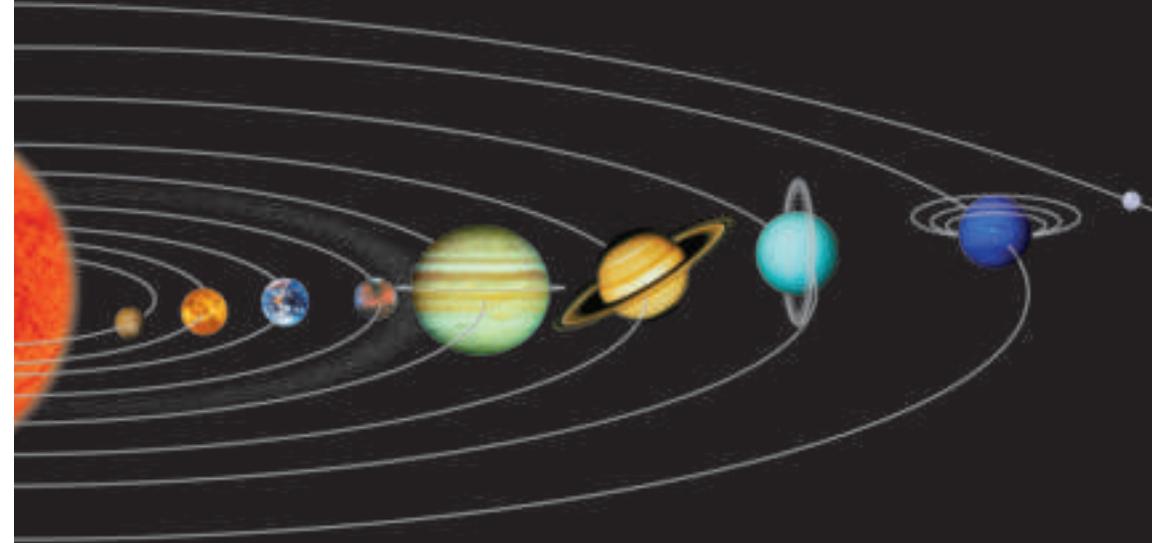
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# The Solar System

by Ann DeWitt





# What are the parts of the solar system?

## The Sun

Hot, glowing gases called plasma make up the Sun. It is the closest star to Earth. It looks brighter and larger than any other stars you see at night. That is because it is closer to Earth.



The Sun is huge. It is wider than the length of 15,000,000 football fields. The Sun is so large, one million Earths could fit inside it.

The Sun's temperature is 5,500°C on the surface. Its gas particles are tightly packed together. This gives it lots of energy. Some of the Sun's energy travels through space as sunlight.



**The Sun is much nearer to Earth than other stars.**





## How Objects In the Solar System Move

You live on Earth. Earth is one of nine planets. A **planet** is a large body that revolves, or travels, around the Sun. Many planets have moons. The Sun, all the planets and their moons, and other objects that revolve around the Sun make up the **solar system.**

The path an object travels as it revolves around the Sun is its **orbit.** The Sun's gravity keeps planets in their orbits.



The nine planets are divided into two groups called the inner and the outer planets. The four inner planets are Mercury, Venus, Earth, and Mars. They are close to the Sun. The outer planets are Jupiter, Saturn, Uranus, Neptune, and Pluto. They are farther from the Sun.

Thousands of rocky objects called asteroids orbit the Sun too. **Asteroids** are chunks of rock of different sizes.



**Mercury**  
Mercury is about 58 million kilometers from the Sun.

**Earth**  
Earth is about 150 million kilometers from the Sun.

**Jupiter**  
Jupiter is about 778 million kilometers from the Sun.

**Mars**  
Mars is about 228 million kilometers from the Sun.



**Saturn**  
Saturn is about 1 billion, 500 million kilometers from the Sun.

**Pluto**  
Pluto is usually about 5 billion kilometers from the Sun.

**Venus**  
Venus is about 108 million kilometers from the Sun.

**Asteroid Belt**  
Most asteroids orbit the Sun between Mars and Jupiter.

**Uranus**  
Uranus is about 3 billion kilometers from the Sun.

**Neptune**  
Neptune is about 4 billion kilometers from the Sun.

In this diagram, sizes and distances are not true to scale.





# What are the planets?

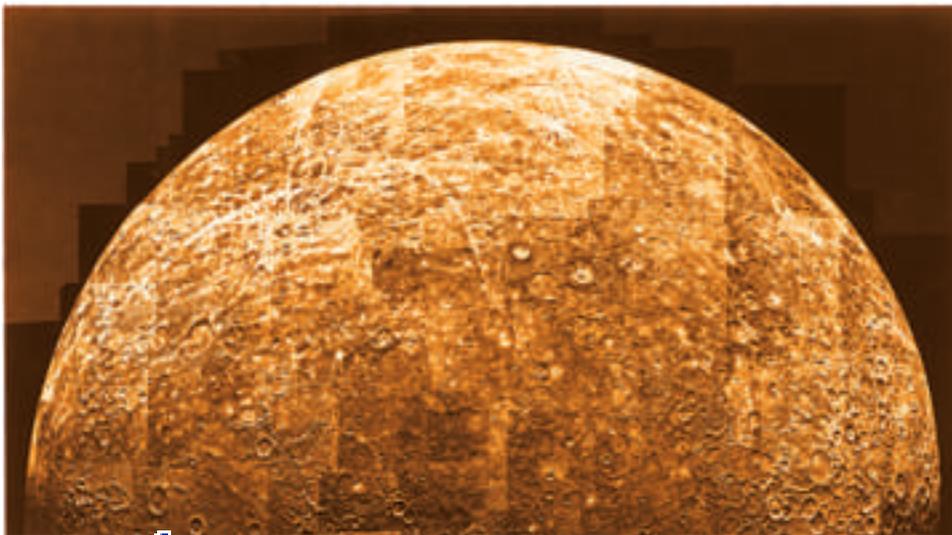
## The Inner Planets

Mercury, Venus, Earth, and Mars are the inner planets. They are alike in some ways. They are rocky planets. They are closest to the Sun. They are also different in some ways.

Mercury has many craters. It is dry and very hot. It is the closest planet to the Sun. Mercury is the second-smallest planet. It is less than half the size of Earth. It rotates, or turns once on its axis, in 59 Earth days. It takes 88 Earth days to revolve around the Sun. Mercury has no moons.

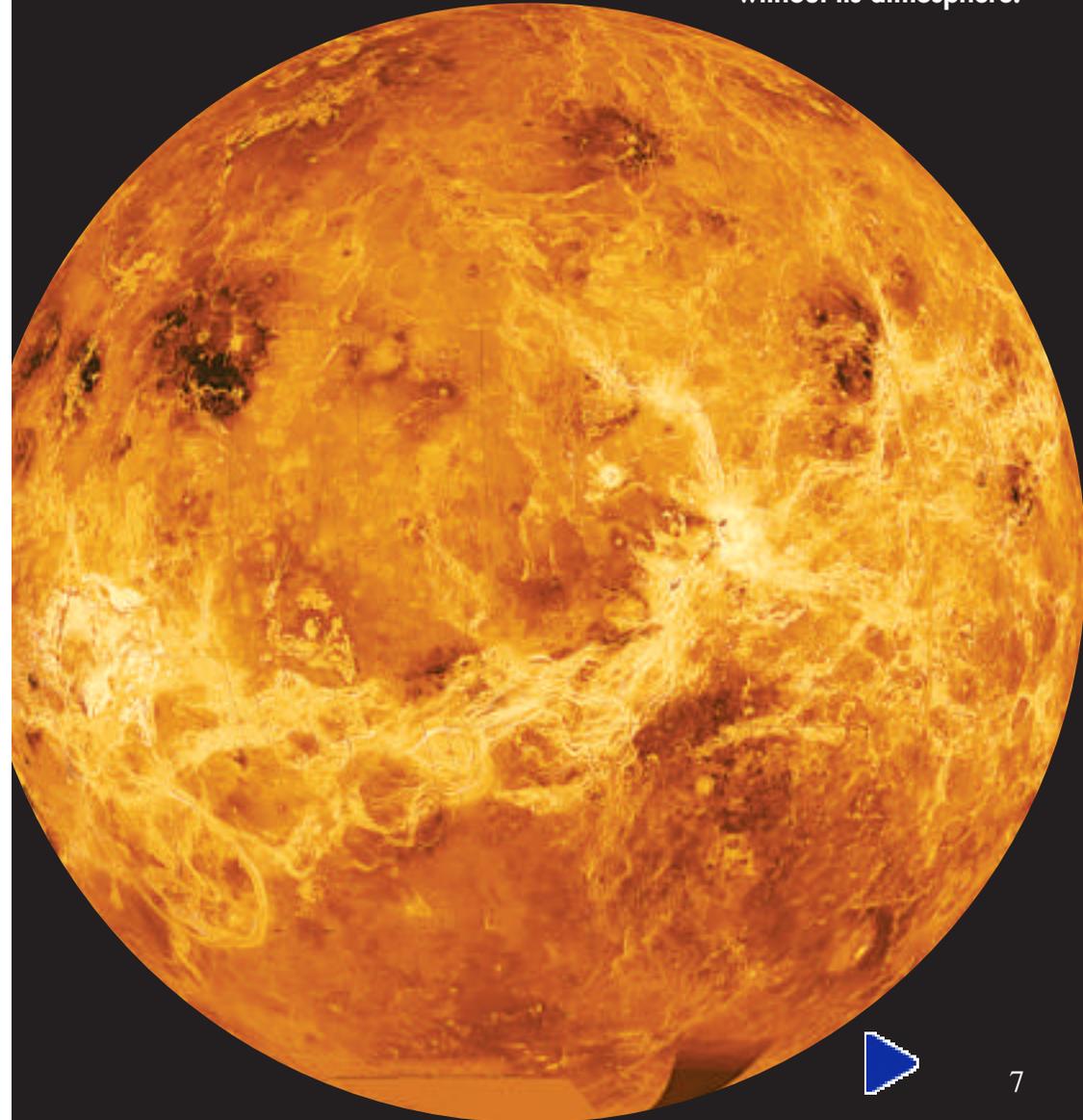


It is easy to see Mercury's craters because it has no atmosphere.



Venus is also very hot and rocky. Its surface has craters, mountains, and valleys. It has an atmosphere. Thick clouds cover Venus and trap heat, which keeps it hot. It takes 225 Earth days to go around the Sun. It rotates, or turns, once in 243 Earth days. It is larger than Mercury. Venus has no moons.

Venus is shown here without its atmosphere.





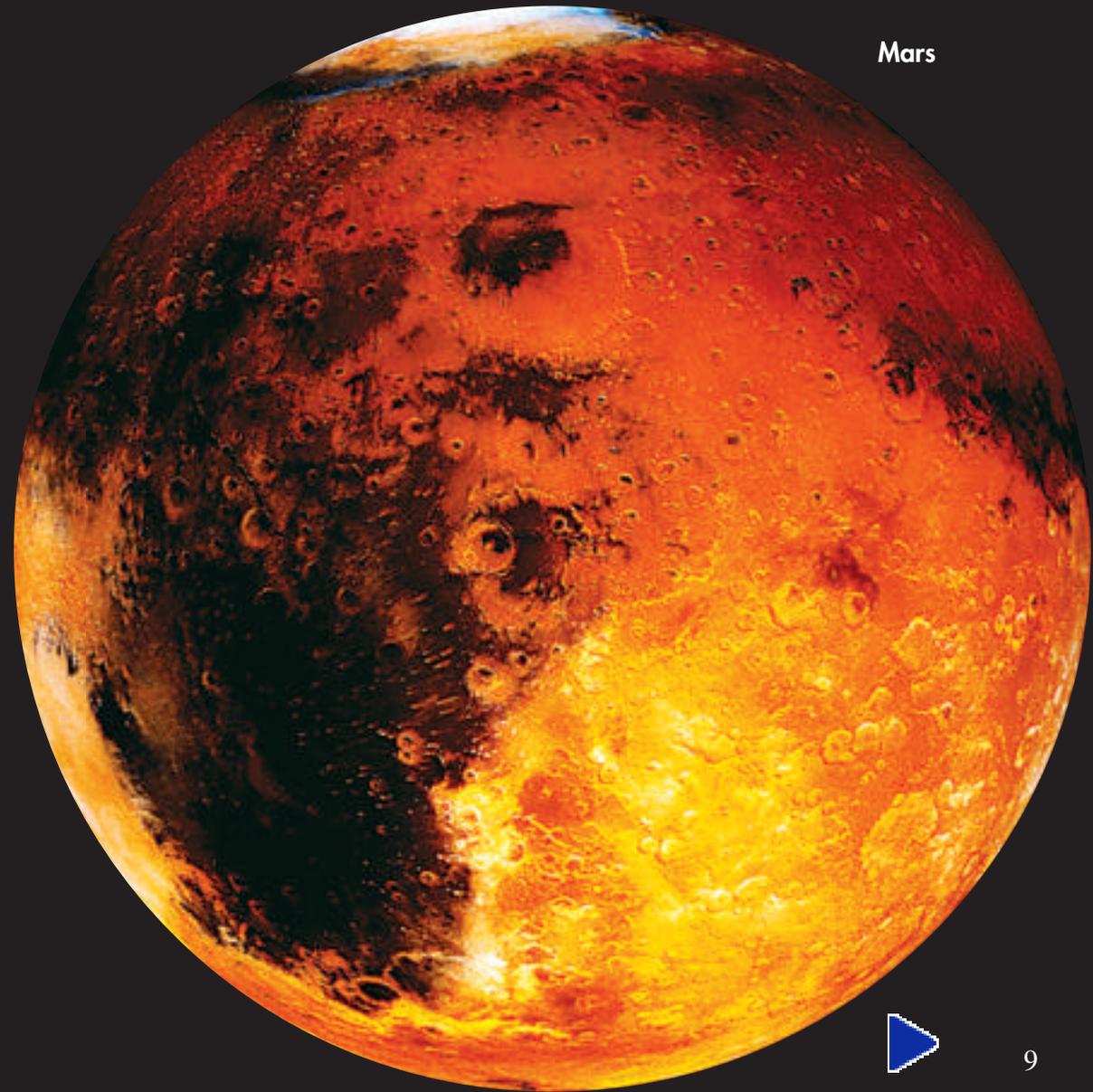
Earth



Earth is the third planet from the Sun. It is a bit larger than Venus. The time Earth takes to revolve around the Sun equals one Earth year. One Earth year is 365 1/4 days. One Earth day is equal to the amount of time it takes to rotate on its axis. One Earth day lasts 24 hours. Earth has one moon that is called the Moon.



Mars is the fourth planet from the Sun. It is called the “red planet.” It has a reddish-orange, rocky, and dusty surface. Mars has volcanoes and deep canyons. It is smaller than Earth, about half its size. It takes 687 Earth days to revolve around the Sun. It only takes 25 Earth hours to rotate. It has two moons.



Mars





## Earth Supports Life

Earth is very different from the other planets. Earth has large areas of blue water, white clouds, white ice caps, and solid continents.

Earth is the only planet in the solar system that supports a wide variety of living things. Mild temperatures and plenty of water make life possible. The atmosphere has the right mix of oxygen and carbon dioxide for living things to breathe. The atmosphere also takes in most of the Sun's rays that can harm living things.

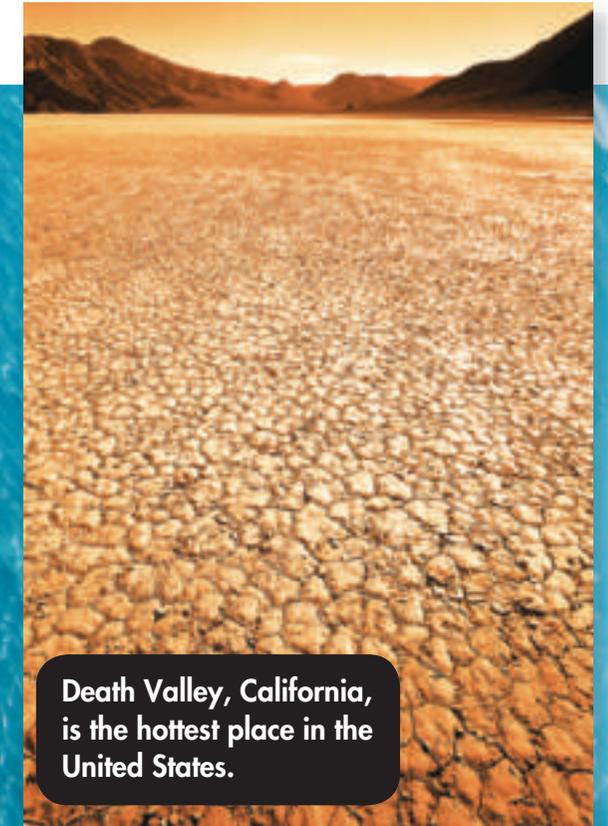


Antarctica is the coldest place on Earth.



Most of Earth's energy comes from the Sun. But only about half of the Sun's light reaches Earth's surface. The atmosphere absorbs some of the light. More is reflected off clouds. Gases in the atmosphere scatter much of the reflected light. This makes the sky look blue.

Earth is made up of giant sections, or plates. These plates move all the time. Volcanoes and earthquakes can happen where the plates touch. Movements of the plates change Earth's surface.



Death Valley, California, is the hottest place in the United States.





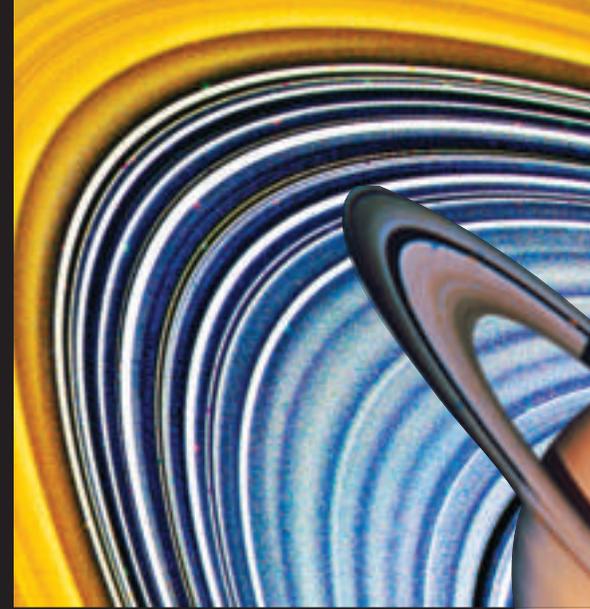
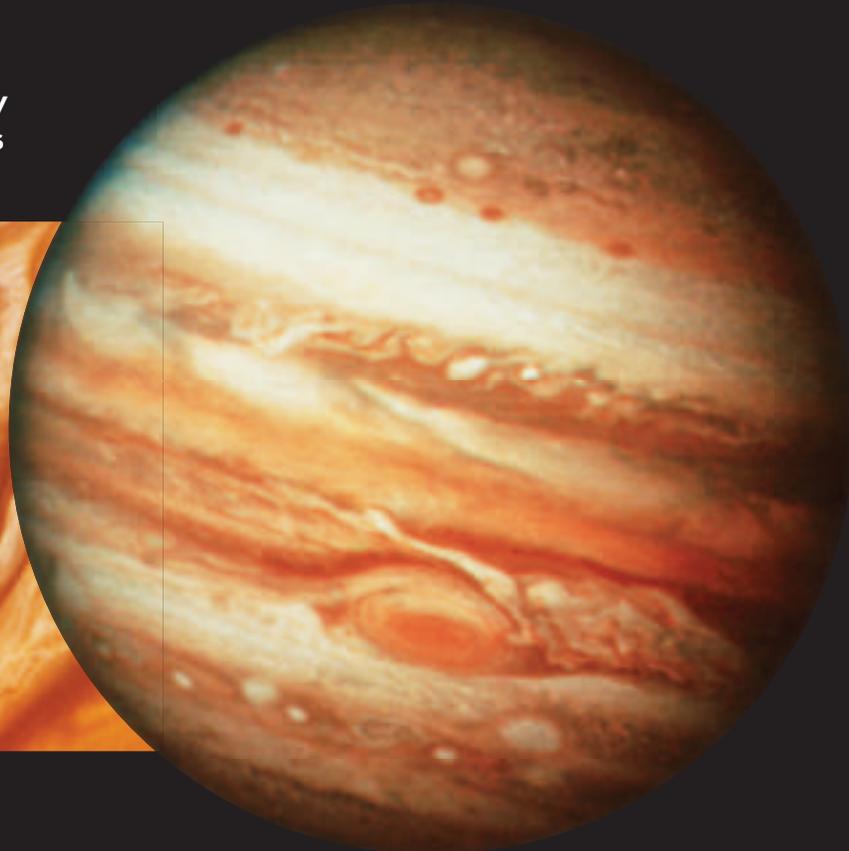
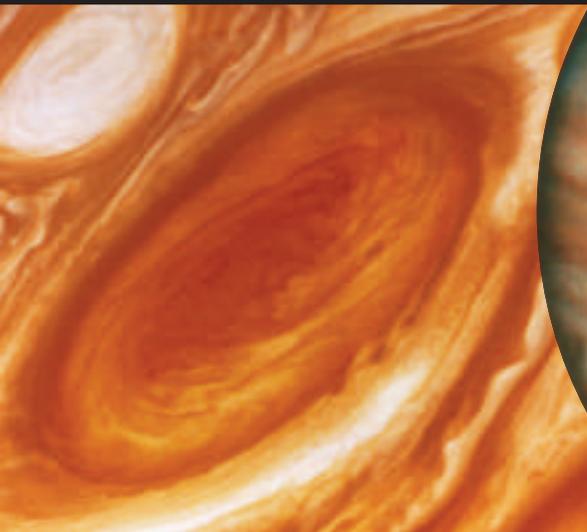
## The Gas Giants

The outer planets are much farther apart than the inner planets. Most outer planets are huge. Most are made up mainly of gas. They do not have solid surfaces.

Jupiter is the largest planet. It is more than 11 times bigger than Earth. It takes almost 12 Earth years to revolve around the Sun. But it rotates in only 10 Earth hours. It has bands of clouds, strong winds, and storms. Jupiter has more than 60 moons. Jupiter's rings are hard to see.



Jupiter's Great Red Spot is actually a huge storm. This storm is always present, but it changes in size.



Saturn's rings are very bright and easy to see. Gravity holds the rings in orbit around Saturn.



The sixth planet from the Sun is Saturn. It is the second-largest planet. Saturn is known for its rings. They are made up of chunks of ice and rock. The rings circle Saturn. Saturn takes 29 Earth years to revolve around the Sun. But it rotates in just 10 Earth hours. Saturn has at least 30 moons.





## Uranus, Neptune, and Pluto

Uranus and Neptune are also gas giants. Pluto is the only outer planet not made up of gas.

The seventh planet from the Sun is Uranus. It is about 4 times bigger than Earth. It takes Uranus 84 Earth years to revolve around the Sun. But it rotates in just 17 Earth hours. It is blue-green in color with rings and has at least 21 moons.

Neptune is as big as Uranus. Because it is so far away, it takes 165 Earth years to revolve around the Sun. Neptune rotates in 19 Earth hours. It has at least 13 moons.



Uranus is the only planet that rotates on its side.

Pluto



Pluto's moon is named Charon. It is about half the size of Pluto.



Neptune is light blue. Its rings are hard to see.



Pluto is so far away that it takes 248 Earth years to revolve around the Sun. Pluto takes 6 Earth days to rotate. It is the smallest planet in the solar system. It is even smaller than Earth's Moon. Pluto has 1 moon, but no rings.

### Is it a planet?

On March 15, 2004, a tenth planetlike object was discovered far beyond Pluto. This new object is called Sedna. It may be made up of rock and ice. Sedna is often called a "planetoid."



## Glossary

<b>asteroids</b>	chunks of rock of different sizes that orbit the Sun
<b>orbit</b>	the path an object takes as it revolves around the Sun
<b>planet</b>	a large body that revolves around the Sun
<b>solar system</b>	the Sun, the nine planets and their moons, and other objects that revolve around the Sun

## What did you learn?

1. What else orbits the Sun other than the planets?
2. What is Sedna?
3. Why does it take some planets only days to revolve around the Sun and other planets more than one hundred years?
4. **Writing in Science** In this book you have read about the planets. Write to explain what makes Earth different from all the others. Use details from the book as you write.
5.  **Compare and Contrast** How are the inner and the outer planets alike? How are they different?

