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Unit 9

The Solar System

DID YOU KNOW THAT . . . ?

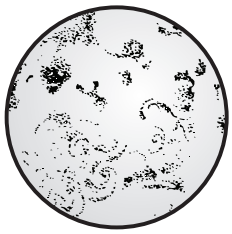
- *The Sun is almost 25 trillion miles from the next nearest star.*
- *The temperature at the center of the Sun is almost 27 million degrees Fahrenheit.*
- *The Sun will expand and die 5 billion years from now.*
- *The gravitational pull of the Sun has a range of more than three-and-a-half billion miles.*

Our solar system is dominated by the Sun. It is a globe of burning gas, primarily hydrogen, which provides the energy that heats and lights planets. The Sun exerts a gravitational pull, which keeps the planets rotating in regular orbits around the Sun. The four inner planets have rocky surfaces and are relatively small. The four outer planets and one dwarf planet include four very large gas giants. They are gigantic balls of liquids and gases held together by gravity. The dwarf planet, Pluto, is covered with rock and ice. Most asteroids are rocky, metallic chunks of many different sizes that orbit the Sun in a belt between Mars and Jupiter. Many planets have orbiting moons. Comets are huge ice lumps that travel through space and occasionally come near the Sun.

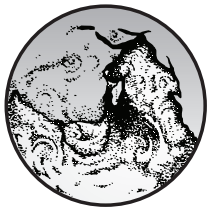
THE INNER PLANETS

Mercury
Diameter: 3,029 miles
Distance from the Sun: 36,000,000 miles
Length of Year: 88 days
Length of Day: 59 Earth days
Highest Temperature: 810°F
Number of Moons: 0
Interesting Fact: Mercury has the fastest orbiting speed around the Sun.

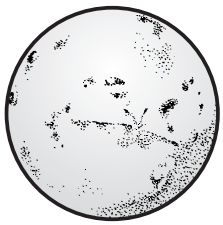
Venus
Diameter: 7,521 miles
Distance from the Sun: 67,200,000 miles
Length of Year: 225 days
Length of Day: 243 Earth days
Highest Temperature: 867°F
Number of Moons: 0
Interesting Fact: Venus has the hottest temperatures of any planet.



Earth
Diameter: 7,926 miles
Distance from the Sun: 93,000,000 miles
Length of Year: 365 days
Length of Day: 1 day (24 hours)
Highest Temperature: 133°F
Number of Moons: 1
Interesting Fact: Earth is the only known planet to support life.



Mars
Diameter: 4,221 miles
Distance from the Sun: 141,500,000 miles
Length of Year: 687 days
Length of Day: 24.5 hours
Highest Temperature: 77°F
Number of Moons: 2
Interesting Fact: Mars is called the red planet.



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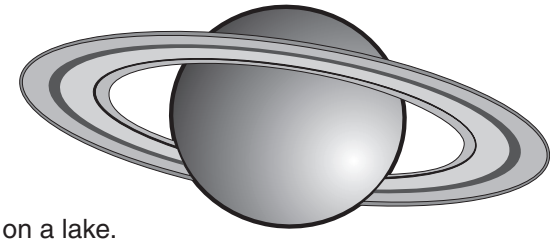
Unit 9

The Solar System

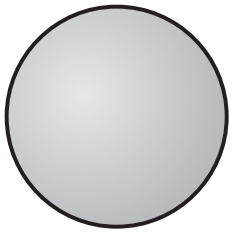
OUTER PLANETS

Jupiter
Diameter: 88,846 miles
Distance from the Sun: 483,300,000 miles
Length of Year: 11.9 years
Length of Day: 10 hours
Highest Temperature: –238°F
Number of Moons: at least 63
Interesting Fact: Jupiter is so large it could hold 1,300 Earths.

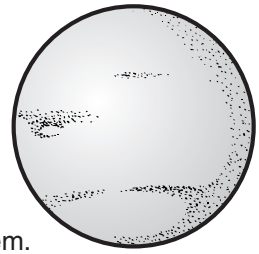
Saturn
Diameter: 74,898 miles
Distance from the Sun: 886,700,000 miles
Length of Year: 29.5 years
Length of Day: 10.6 hours
Highest Temperature: –292°F
Number of Moons: at least 47
Interesting Fact: Saturn is so light that it would float on a lake.



Uranus
Diameter: 31,763 miles
Distance from the Sun: 1,782,000,000 miles
Length of Year: 84 years
Length of Day: 17 hours
Highest Temperature: –353°F
Number of Moons: at least 27
Interesting Fact: Uranus spins on its side.



Neptune
Diameter: 30,775 miles
Distance from the Sun: 2,774,000,000 miles
Length of Year: 164.9 years
Length of Day: 16 hours
Highest Temperature: –364°F
Number of Moons: at least 13
Interesting Fact: Neptune has the fastest winds in the solar system.



Pluto (dwarf planet)
Diameter: 1,432 miles
Distance from the Sun: 3,672,000,000 miles
Length of Year: 248.6 years
Length of Day: 6.4 days
Highest Temperature: –382°F
Number of Moons: 1
Interesting Fact: Pluto was reclassified as a dwarf planet after a vote by astronomers on August 24, 2006.

Comparing the Size of Planets

Materials

- *butcher paper*
- *metric ruler*
- *meter stick (if available)*
- *compass (for making circles)*
- *string*
- *tape*

Directions

On the chart below, round the diameter of each planet to the nearest thousand miles. Use pages 60 and 61 to complete the chart. Drop the last three zeroes from the rounded number to find the centimeter scale.

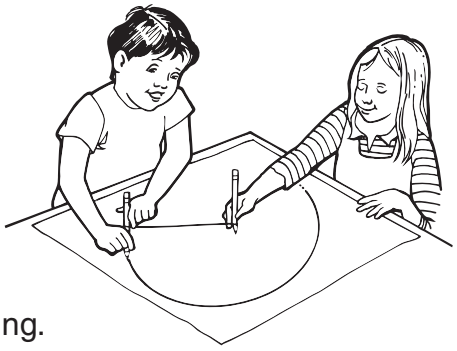
Planet	Actual Diameter	Rounded Diameter	Centimeter Scale
Mercury	3,029 miles	3,000 miles	3 cm
Venus	7,521 miles	8,000 miles	8 cm
Earth	_____	_____	_____
Mars	_____	_____	_____
Jupiter	_____	_____	89 cm
Saturn	_____	_____	_____
Uranus	_____	_____	_____
Neptune	_____	_____	_____
Pluto (dwarf)	_____	_____	_____

Directions

You may complete this project with a partner. (Using a compass is helpful.)

1. Carefully cut out a paper circle with a diameter (distance across the circle in any direction) of 3 cm. Label it "Mercury."
2. Cut out a circle with a diameter of 8 cm. Label it "Venus."
3. Use the same procedure for each of the remaining planets. Be sure to use the centimeter scale. You will need a meter stick or several rulers for the larger numbers.
4. Display your planets on a bulletin board with the smallest on top and the largest on the bottom.

Making Large Round Circles



You can use this trick for making large, round circles on big pieces of butcher paper. (*Note:* You can also use a compass to draw a circle.)

1. Measure a piece of string the length of the centimeter scale—for 89 centimeters, for example.
2. Tape or hold both ends of the string on one pencil in the center of the paper where you want to draw a circle.
3. Tape or hold a second pencil in the loop made by the string.
4. Keep the string tight and draw the circle around the paper.