

Name _____

Date _____

The Solar System

Key Words		
asteroid	comet	dwarf planet
galaxy	gaseous	meteoroid
orbit	planet	revolve
rotate	Solar System	star
sun	terrestrial	theory

We live on the planet Earth which is part of the **Solar System**. The solar system is part of the Milky Way galaxy which is part of the universe. For thousands of years, people have gazed at the night sky and wondered about the things they see. Scientists have had many **theories** about the universe. Some thought that the Earth was the center of the universe. Others believed that an invisible shield surrounded the solar system, keeping all the **planets** from floating off into space. Today we know that the **sun** is the center of our Solar System.

The Milky Way Galaxy is a group of stars, gases, and dust held together by gravity. The Milky Way Galaxy is made up of millions of stars. A **star** is a huge ball of hot gases that produces its own light. Our sun is just one of the stars found there! The Milky Way Galaxy is a spiral-shaped galaxy. It looks like a giant pinwheel. The stars in the middle of the galaxy are older, cooler stars that are red or yellow in color. The spiraling “arms” of the galaxy contain many hot, young stars. Our solar system lies on the inner edge of one of the arms.

The word *solar* means “sun”. Eight planets, one **dwarf planet**, at least sixty-three moons, and many other objects **revolve** around the sun, making up our Solar System. The sun is the largest object in the Solar System. It is about eleven times bigger than the Earth. The sun also has the most mass of an object in the solar system. Therefore, the sun has the strongest gravitational pull of any object. This force is so strong that it keeps the planets and other space objects traveling in a curved path, or **orbit**, around the sun.

There are many stars that are larger and brighter than the sun, which is an average-sized star. The sun is the nearest star to the Earth, so it appears very large to us. Many of the tiny stars in the night sky are a thousand times larger than the sun but look so small because they are very far away. Temperature also affects a star's brightness. Stars have different surface temperatures. Some stars such as our sun are yellow stars. Others are white, blue, or red. A star's color can tell us its temperature and its size.

The four planets closest to the sun are called the Inner Planets. Mercury, Venus, Earth and Mars are known as the **terrestrial planets** because they are solid and made mostly of rock. Mercury, the closest planet to the sun, has the shortest year because it has the smallest orbit (time it takes the planet to go completely around the sun one time). Venus and Earth, the second and third planets, are very similar in composition and size. Mars, the fourth planet, is sometimes called the "red planet" because it appears to be covered with red dust when viewed through a telescope.

The Outer Planets are also called the Jovian planets because they are **gaseous**, or made of gas. They are much larger than the terrestrial planets. Because they are much farther from the sun, they are colder than the terrestrial planets and have longer years due to their large orbital paths. Jupiter, the fifth planet from the sun, is the largest planet. It has a giant red spot believed to be an ongoing storm. The sixth planet from the sun, Saturn, has great rings made of ice and dust. Uranus and Neptune are the seventh and eighth planets. Scientists have not learned much about these planets, but they do know that Uranus is the only planet that rotates, or spins, on its side. The final planet in our solar system is Pluto, a dwarf planet. Pluto is smaller than the Earth's moon. Since it is so far away, we have never sent spacecraft to explore Pluto.

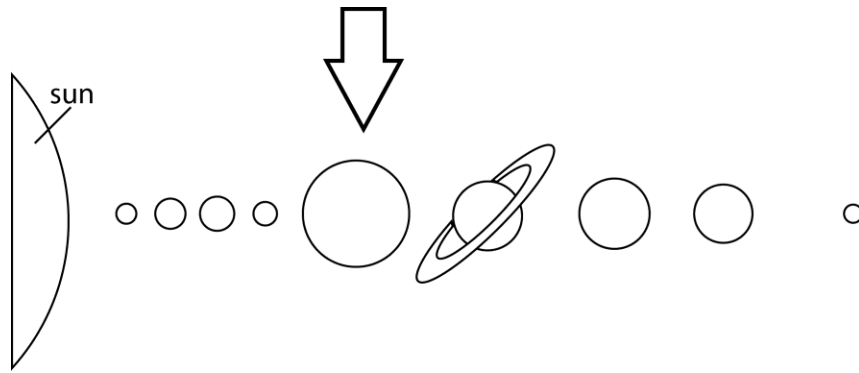
Between the Inner and the Outer Planets are billions of space rocks called **asteroids**. Scientists call this group of rocks the Asteroid Belt. Asteroids are pieces of rock that follow their own orbits around the sun. They range in size from tiny dust particles to more than 1,000 kilometers in diameter. **Comets** are another form of space matter that travels through the Solar System. Comets are bits of dust, frozen gas, and rock pieces. A comet's "tail", made of gas and dust, points away from the sun.

Meteoroids, also called shooting stars, are fragments of dust and rock that are traveling through space. These pieces of broken rocks were once part of a comet or an asteroid. Meteoroids that enter the Earth's atmosphere are called meteors. A meteor that strikes the Earth's surface is called a meteorite.

Astronomers (scientists who study space) use telescopes to observe the stars and the planets. A **telescope** is an instrument used for viewing distant objects. Today with the use of rockets and probes, telescopes can be sent into space to gather information about distant stars and galaxies. In 1990, the Hubble Telescope was launched into space. In 1995, the Hubble Telescope viewed a galaxy that is about 10 billion light years away!

1. What is the main idea of paragraph 1?
 - A People who lived long ago knew little about the Universe.
 - B Over time, there have been many theories about the Universe.
 - C The Earth is not the center of the Universe.
 - D An invisible shield keeps the planets from floating off into space.
2. Which of the following planets is closest to the sun?
 - A Venus
 - B Earth
 - C Mars
 - D Jupiter
3. What is the time it takes for a planet to complete one orbit or revolution around the sun called?
 - A Lunar cycle
 - B Inner Planets
 - C Day
 - D Year
4. What keeps the planets in order around the Sun?
 - A Inertia
 - B Magnetism
 - C Gravity
 - D Sunlight

5. In a model of our solar system, a golf ball is used to represent the sun. A tennis ball would not be a good representation of the Earth in this model, because—
- A the Earth is much smaller than the sun
 - B the sun is much smaller than the Earth
 - C the sun is made of gases
 - D the Earth has more mass than the sun
6. The sun would look the smallest if it could be observed from—
- A Saturn
 - B Uranus
 - C Venus
 - D Jupiter
7. The sun's surface is made up of—
- A hot gases
 - B light energy
 - C liquid hydrogen
 - D solid helium
8. The planets that are farthest from the sun are—
- A all considered to be gas giants
 - B warmer than the planets farther away from the sun
 - C the same temperature as the sun
 - D all smaller than the closer planets
9. The orbit of a planet around the sun is primarily due to the gravitational attraction between—
- A the sun and the moon
 - B the different planets
 - C the sun and the planet
 - D the Earth and the planets
10. NASA is planning to send an unmanned rover to the sixth planet from the sun. To which planet will the rover be sent?
- A Earth
 - B Saturn
 - C Neptune
 - D Jupiter



11. What planet is indicated by the arrow?

- A Mercury
- B Venus
- C Mars
- D Jupiter

You can often tell the meaning of a word by reading the words around it. Look at each number in parentheses. Find the paragraph in the passage with the same number. Then find the word that fits the given meaning. Write the words on the lines.

12. beliefs or ideas (1) _____

13. a group of stars, gases and dust held together by gravity (2) _____

14. a curved path around the sun (3) _____

15. planets made of rock (5) _____

16. closest star to Earth (5) _____

17. made of gas (6) _____

18. spins (6) _____

19. has a "tail" made of dust and gas (7) _____

20. instrument used for viewing distant objects (9) _____

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dwarf planet	galaxy
gaseous	meteoroid
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revolve	rotate
Solar System	sun
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