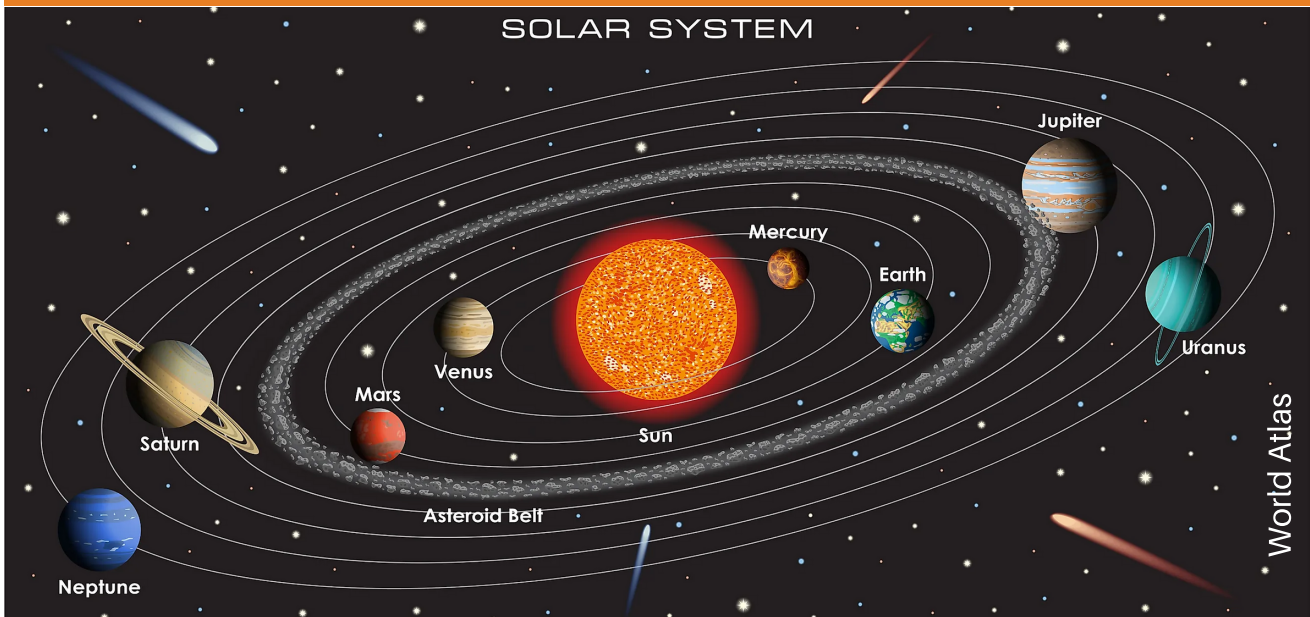


The Solar System



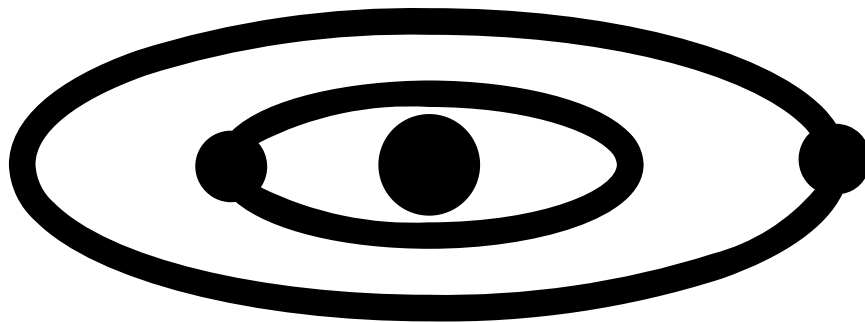
Informative Reading

Grades: 3-5

Objective: Through this reading comprehension activity students will gain a basic understanding of the solar system and its component parts.

Sources: Britannica Kids, CILC Maker Space

THE SOLAR SYSTEM



INTRODUCTION

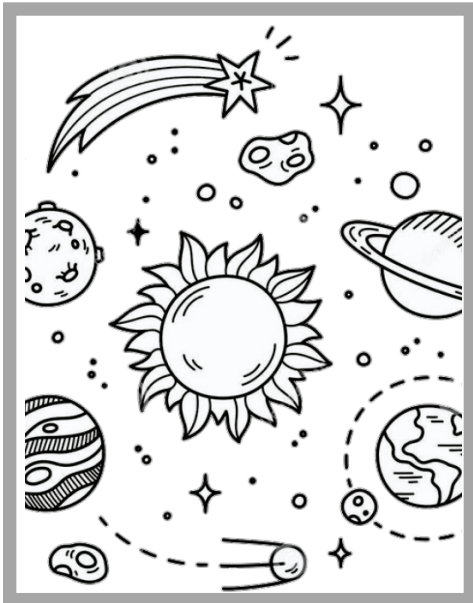
The **solar system** consists of the **Sun** and everything that orbits, or travels around, the Sun. This includes the eight planets and their **moons**, **dwarf** planets, and countless **asteroids**, **comets**, and other small, icy objects. However, even with all these things, most of the solar system is empty space.

The solar system itself is only a small part of a huge system of stars and other objects called the **Milky Way galaxy**. The solar system orbits around the center of the galaxy about once every 225 million years. The Milky Way galaxy is just one of billions of galaxies that in turn make up the universe.

The Sun

At the center of the solar system is a star called the **Sun**. It is the largest object in the solar system. Its diameter, or distance through its center, is 865,000 miles (1,392,000 kilometers). In addition, the Sun contains more than 99 percent of all the material in the solar system. The Sun is a very hot ball of hydrogen and helium gases. It has a temperature, at its core, of more than 28,080,000° F (15,600,000° C). It constantly changes the hydrogen in its core into helium. This process gives out huge amounts of radiation, or energy. Living things on Earth depend on this energy, in the form of light and heat.

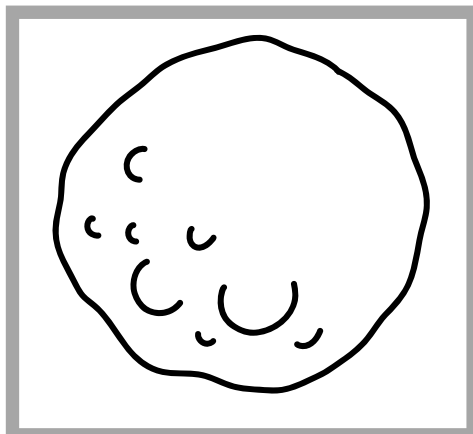
The Planets



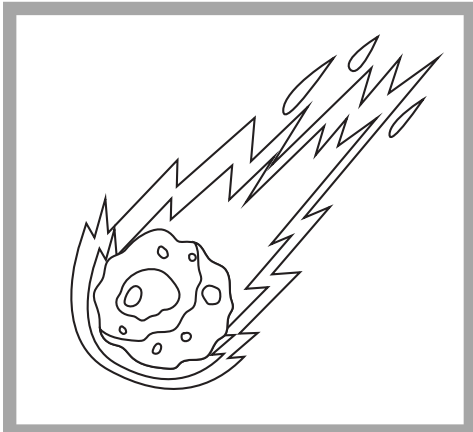
After the Sun, the largest objects in the solar system are the planets. In order from closest to the **Sun**, these planets are **Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus,** and **Neptune**. Most of them orbit the Sun in paths shaped like circles. Most of the planets have at least one moon. However, they vary widely in size, temperature, and makeup.

Scientists used to call **Pluto** the ninth planet. But in 2006 scientists decided that several objects in the solar system, including Pluto, should be called dwarf planets.

Asteroids and Comets



Millions of small chunks of metal and rock called **asteroids** also orbit the Sun. Most asteroids are found in a ring between Mars and Jupiter. They are believed to be debris, or bits of material, left over from collisions between other bodies in the solar system. The largest asteroids are hundreds of miles in diameter, but most are much smaller. Small asteroids regularly fall to Earth or burn up in the sky as glowing meteors.



Comets are small chunks of dirt and ice. Billions of them orbit the Sun in very long paths shaped like ovals. When they are closest to the Sun, the Sun's radiation causes them to glow. Most comets are too small or too distant ever to be seen from Earth. Comets come from two parts of the outer solar system: the Kuiper Belt and the Oort Cloud.

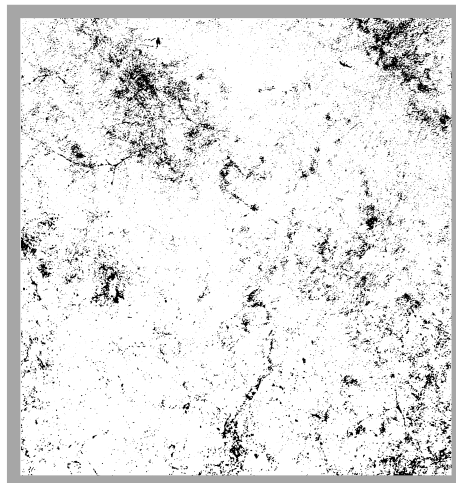
Outer Regions



Beyond Neptune lies the **Kuiper Belt**, a flat ring of millions of small, icy objects. These objects orbit the Sun at a very great distance. They are mostly 30 to 50 times farther from the Sun than Earth is.

At the outer reaches of the solar system is the Oort Cloud. It is a huge cloud of countless small, icy objects. The **Oort Cloud** surrounds the rest of the solar system.

How the Solar System Formed



The solar system was formed about 4.7 billion years ago. It probably started as a loose cloud of gas and dust. Scientists think that a force called gravity pulled parts of the cloud together into clumps. The largest clump was squeezed together so tightly that it got very hot. This clump eventually became the **Sun**. Over millions of years the other clumps became the **planets**. The Sun's strong gravity eventually pulled the planets into their orbits. Over time some of the leftover clumps became asteroids, comets, and other small, icy objects.

Exploring the Solar System

In 1957, a Russian **satellite** called Sputnik 1 became the first human-made object to orbit Earth. Since then, scientists have sent many spacecraft to explore various parts of the solar system. **Spacecraft** have carried **astronauts** into orbit around Earth, to the moon, and to human-made space stations. Other spacecraft, called probes, have carried cameras and scientific equipment but no astronauts. Space probes have landed on the planets Mars and Venus, on asteroids, and on Titan, which is one of Saturn's moons. Space **probes** have taken many photographs and collected much valuable information about all the planets.

Other Planetary Systems

The **solar system** is also known as a **planetary system**. Since the 1990s scientists have found many planetary systems beyond our solar system. In these systems, one or more planets orbit a star—just as the eight planets in our solar system orbit the Sun. These planets are called extrasolar planets. Finding other planetary systems is not easy, however, because **extrasolar** planets appear much dimmer than the stars they orbit. As space probes travel farther away from Earth, they are likely to discover more extrasolar planets.

Vocabulary

asteroid

comet

dwarf planet

galaxy

Kuiper Belt

moon

Oort Cloud

planet

satellite

solar system

space probe

spacecraft

Sun

Name _____

Taking Notes

Directions: Use this organizer to take notes on the essay.

list of key words

words I need to define

summary of main points

interesting facts

questions I have