The Sun

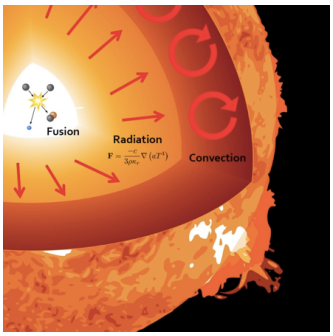
The Sun is a Star

Our sun is not unique in the universe. In fact, it is a normal, average-sized yellow star. There are trillions of other stars just like our sun. Many of those stars have their own solar systems with planets, moon and asteroids too.

Figure 1: The Sun and

Composition of the Sun

Like all stars, the sun is a ball of superhot, glowing gas. Even though the sun is incredibly hot, it is not on fire. The sun does not have a solid surface. Three fourths of the sun is made of hydrogen (a gas) and one fourth of the Sun is made of helium (also a gas). These gases are the same in almost all stars in the universe.



Nuclear Fusion

The sun is the main source of energy in the Solar System and life on Earth. The sun is constantly producing energy. The sun's energy comes from **nuclear fusion**. In the process of nuclear fusion, two hydrogen atoms join together to form helium. A tremendous amount of heat and light is produced when this happens. This heat and light travels towards the surface of the Sun and is released into the universe.

The Sun and the Solar System

Even though the sun isn't a unique star, it is very important to our Solar System. One reason is that the sun's gravity is by far the most powerful force in the solar system. Its gravity is strong enough to hold all of the planets in orbit! The sun's gravity is so strong because the sun's mass is very large. If fact, 99.8% of all the mass in the solar system is in our Sun.

The Solar System

Planets

The Sun isn't the only thing in the solar system. Orbiting the Sun are the 8 planets of our solar system. Some of the planets are small and rocky. Other plants are enormous and made of gas. Plants can have atmospheres, moons, oceans, storms and even volcanoes. While planets look very different, they have one thing in common, they all orbit the Sun.

Other Solar System Objects

Planets are not the only things to orbit the Sun. The Solar System is FILLED with billions of other solar system objects. Some of these objects are small rocks. Others are enormous objects that look like planets. All these objects orbit the Sun.

An **asteroid** is a chunk of rock and metal in outer space that is in orbit around the Sun. Asteroids vary in size from just a few feet across to hundreds of miles across. Most asteroids are not round, but are lumpy and shaped like a potato. As they orbit the Sun, they tumble and spin.

The most obvious solar system objects are comets. **Comets** are lumps of ice, dust and rock that orbit the Sun. As a comet nears the Sun its ices will begin to heat up and turn into gases and plasma. As the comet speeds through space, the gases will trail behind the comet forming a tail.

A final solar system object is a meteor. Meteors look like comets. Many people call meteors shooting stars. A **meteor** is a small piece of rock or metal that enters Earth's atmosphere. As the meteor enters the atmosphere it heats up and burns brightly.