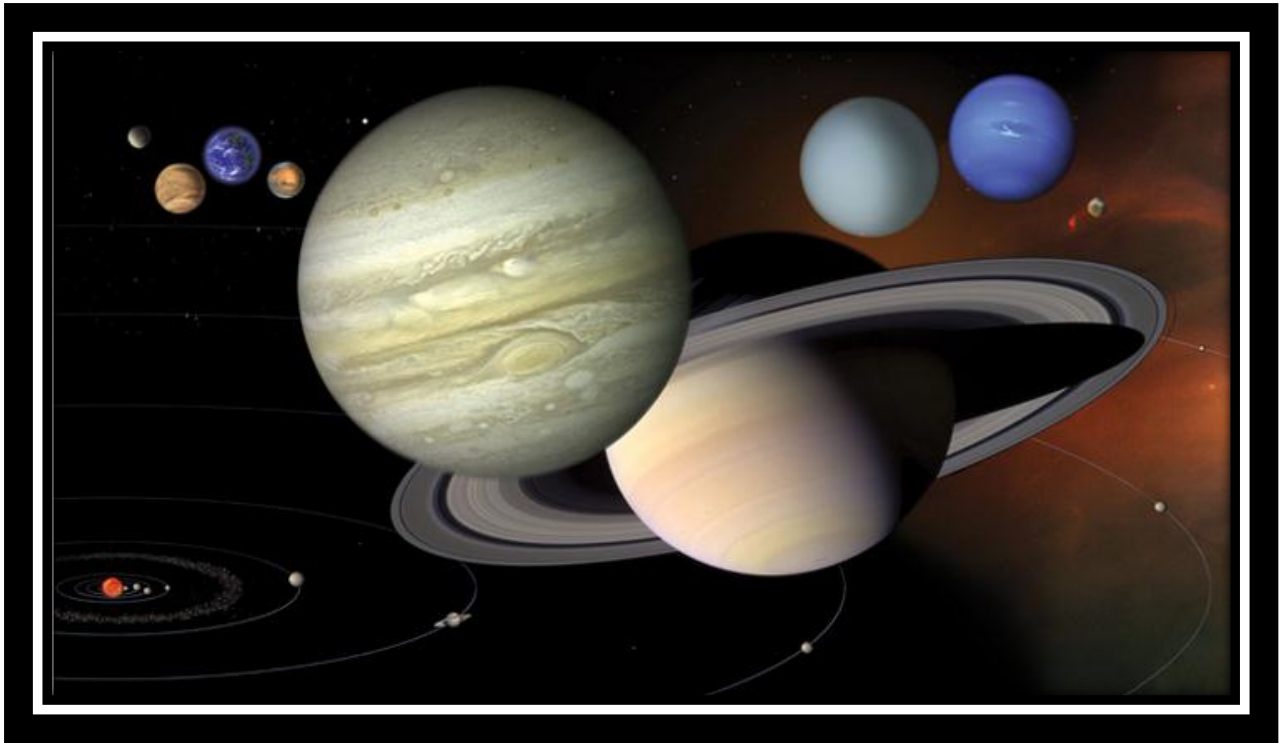


Our Solar System

Stars, or suns, can have their own solar systems. There are hundreds of planets orbiting these far away stars.

Our solar system is made up of a star -- the sun, eight planets, 146 moons, a bunch of comets, asteroids and space rocks, ice and several dwarf planets, such as Pluto.



Now think about galaxies. A galaxy is full of stars. Our sun is just one of at least 200 billion (!) stars in our own Milky Way galaxy. Just like our sun is one of many stars or suns, and our solar system is one of many solar systems, so is our galaxy. Our galaxy is in the the Local Group, a neighborhood of about 30 galaxies. And our nearest major neighboring galaxy is called Andromedea. The Local Group is also just a small piece of the Universe. There are believed to be hundreds of billions of galaxies in the Universe.

Our galaxy, the Milky Way, is spiral shaped, as are other galaxies in the Universe, but some are elliptical and a few look like toothpicks or rings. But how do we know what a galaxy looks like when the planet we live on is just a small part of the huge solar system that is one of many in the vast Milky Way galaxy? The Hubble Ultra Deep Field (HUDF) -- a very strong telescope -- can see beyond our galaxy and because it can, we have been able to see what other galaxies look like.

The sun

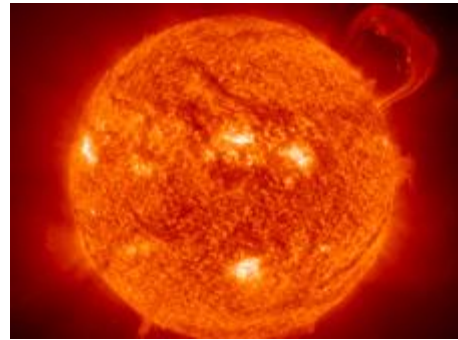
Our star -- the sun -- is the center of our solar system. Without our sun, there would be no life on Earth. It is the star that is closest to Earth. There are lots of stars like the sun. Some stars are bigger. Some are smaller.

Our sun is just right for us.

Like other stars, our sun is a ball of hot, glowing gases. The part we can see is about 11,000 degrees Fahrenheit (6,100 degrees Celsius). It gets hotter as you go deeper. The hottest the oven in your kitchen gets is 500 degrees Fahrenheit (260 degrees Celsius). The surface of our sun boils like a pot of soup. It also shoots flares of hot gas thousands of miles into space.

SUN CHALLENGE

Why do you think the sun is so much brighter than all the other stars you can see in the sky?



Eight planets, bunches of moons, asteroids, comets, dwarf planets and a whole lot of other things go around our sun. The path the planets take around the sun is called an orbit. Moons orbit, too, but they go around a planet.

WHAT'S IT LIKE ON THE SUN?

The sun is way too hot to visit. A person or spacecraft couldn't even get near it. Even if you could get close, powerful gravity would make one of your arms weigh as much as your whole body. It would be impossible to move.

Earth

Earth, our home planet, is the third planet from the sun. It is the fifth largest planet in our solar system. It is the only planet we know of where life exists. Earth has hundreds of names in many languages. It has one moon.

In some ways, Earth is similar to Mercury, Venus and Mars. They are all hard, rocky planets. All four have meteor impact craters. Like Mars and Venus, Earth has volcanoes, mountains and valleys.

EARTH CHALLENGE

How is Earth similar to Mercury, Venus and Mars
How is it different?



But Earth is different in very important ways. Most of our

planet is covered with water. The air is made of nitrogen, oxygen and a little carbon dioxide -- just right for us to breathe. Earth is home to people, plants and animals because it has both water and the right kind of atmosphere.

Earth's Moon is the brightest and most familiar object in the night sky. In many ways, the Moon is responsible for making Earth such a great home. It stabilizes our planet's wobble. Since the Moon stabilizes Earth's wobble the weather is nicer.

Our Closest Neighbor

Our Moon is a natural satellite. Unlike the robotic satellites that send TV signals and science data back to [Earth](#), natural satellites were there long before people. We just borrowed the name satellite when we first started launching spacecraft into space.

The Moon is smaller than four other moons in our [solar system](#) yet is larger than the dwarf planet [Pluto](#). Many spacecraft have been sent to the Moon and 12 astronauts have walked on it.

WHAT'S IT LIKE ON THE MOON?

From the Moon, Earth looks four times bigger than a full Moon. If you looked in the [right places](#) on the Moon, you would find pieces of equipment, American flags and even a camera left behind by astronauts.

MOON CHALLENGE
Find five books in the library with the word "moon" in the title. Pick one to read.



The Moon is covered with craters. Because it has no atmosphere to protect it, space rocks -- some as big as mountains -- have smashed into it. [Tycho Crater](#) is more than 52 miles (85 km) wide! The Moon's surface is rocky and covered with dust. It looks a lot like [Mercury](#).

The Moon's weak gravity means it is easy to move around, even in a heavy spacesuit. It is impossible for people to explore the Moon without a spacesuit. There is no air. And the radiation from the [sun](#) is very dangerous.

It gets very hot and very cold on the Moon. When the sun is shining, the Moon sizzles at 265 degrees Fahrenheit (130 degrees Celsius). It can drop down to 170 degrees Fahrenheit (110 degrees Celsius) below zero.

So what would your address be?

I live at _____ (fill in your street address), which is in the city of _____ (fill in your city), which is in the state/province of _____ (fill in your state or province), which is in the _____ (fill in your country), which is in _____ (fill in your continent), which is on the planet _____ (Earth), which is in the _____ (solar system), which is in the _____ (Milky Way galaxy), which is in the _____ (Local Group of galaxies) within the _____ (Universe).