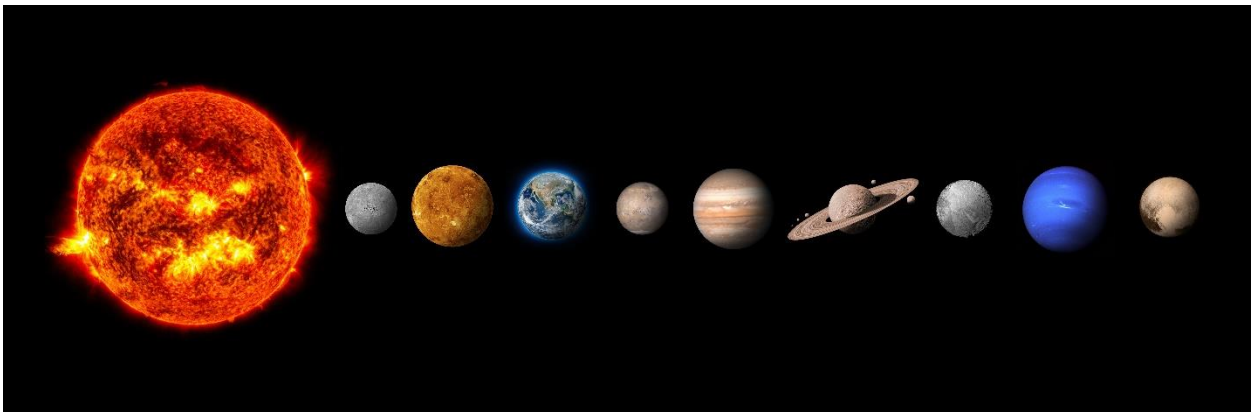
Our Solar System

The word *solar* is a combination of the root *sol*, meaning "sun," and the suffix *–ar*, meaning "related to." *System* means "an interacting group." The term *solar system*, then, means "an interacting group of objects related to our Sun."

Our solar system is populated by planets, moons, comets, asteroids, and other objects that have predictable (if sloppy) orbits around the Sun. You might say that the Sun is the solar system's assertive matriarch or patriarch, keeping the whole system together with its massive gravity. Our solar system is indeed wonderful.



The Sun is a star. Its size and brightness seem overwhelming, but it's actually not all that remarkable. Many stars are bigger and more powerful. We're lucky our Sun is the size it is; a larger Sun would make Earth too hot to inhabit, and a smaller one wouldn't give us the minimum amount of heat that we need to live.

Eight planets orbit our Sun. Mercury is both the closest planet to the Sun and the least interesting. It is small, and its slow rotation makes it very hot on one side and very cold on the other, and no life form we know of would be insensitive enough to temperature extremes to survive there.

The second planet, Venus, is very stingy with information about itself, due to a cloudy atmosphere that makes it impossible to see its surface. Those clouds hold in Venus' heat, making it the hottest planet in the solar system.

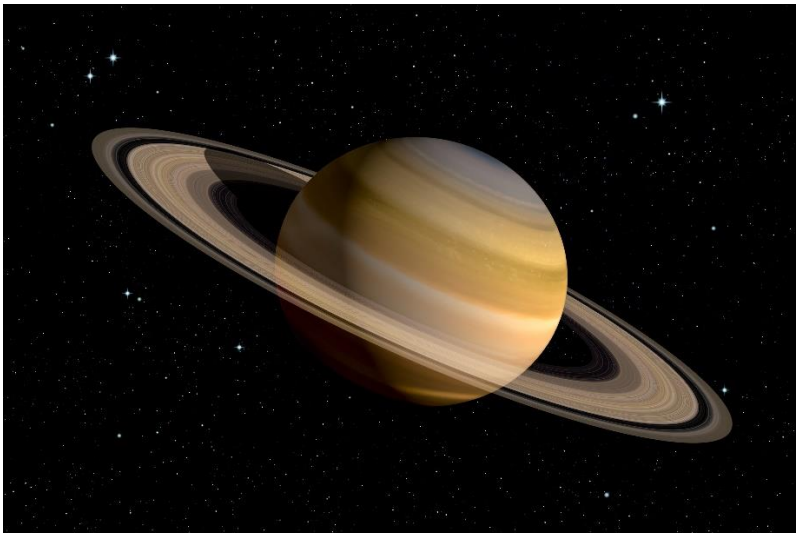
Earth, of course, is the planet on which we live. As far as we know, it's also the only planet with just the right combination of factors—proper atmosphere, temperature, weather conditions, and more—to support the countless forms of plant and animal life we find here. All of this makes our world the best planet in the universe.

Mars is somewhat similar to Earth, but the proper conditions for life do not seem to exist there. We know that its atmosphere was thicker in the past. It would be terrific to find out that it had once supported life, but at this time, it would cost too much money to send astronauts to find out.

Jupiter is the largest planet, and it, too, is boring compared to some of the others. It has no solid surface at all and consists entirely of gas and liquid. The gravity there is much stronger than we have here. For example, you would weigh almost twice as much there

than you do here. Jupiter also has the most moons of all the planets, more than sixty that we know of.

Saturn is smaller than Jupiter but still larger than Earth. Like Jupiter, it is made of gas and liquid. It is surrounded by thin, wide rings made of small rocks and chunks of ice. If you went there, you'd think those rings were awesome.


Saturn and its rings

Uranus is a strange planet when compared to the others. For one thing, it does not spin on a north/south axis like the other planets do. It rotates on its side — at a ninety-degree angle to the rotation of the other planets. It also has rings that are not very attractive.

The eighth planet, Neptune, is so far away that it wasn't discovered until 1846. We do not know very much about Neptune, but we do know that it has at least thirteen moons and that a huge storm has been raging there, probably for centuries. That monster storm would frighten anyone who tried to live there.

Pluto was considered a planet from its discovery in 1930 until 2006, when astronomers from all over the world agreed that it wasn't big enough. It is now considered a dwarf planet, rather than a planet. That seems really picky, however. We should still consider it a planet because nine planets are better than eight.

There are also thousands of asteroids, which are sometimes called minor planets, in our solar system. Most of them are simply large rocks; some of them contain chunks of ice. Space probes sent by Earth's nations must know where the asteroids are, so they can maneuver around the objects.

Like planets, asteroids orbit the Sun. Some asteroids have orbits that cross that of Earth. This makes collision with our planet a possibility, although it's a very, very small one. Since that's a scary thought, telescopes all over Earth keep a close watch on asteroids in an effort to keep us safe.

Comets are the most beautiful and interesting of our solar system's inhabitants. A comet is a big ball of dust and gas that, like most other bodies in our solar system, moves about the Sun. The orbits of comets, however, are less circular than those of planets,

asteroids, and other bodies. Many of them move in paths that take them further away than Pluto and then very close to the Sun.


A comet streaking through the night sky

Comets make their rounds through the solar system in an almost businesslike way. Astronomers can predict when they will be visible to us. When comets are near the Sun, they reflect the Sun's light. A glowing comet will often display a tail, which is a spray of debris, loosened by the Sun's heat, that trails the comet's main part. These tails are the best parts of comets; they are the most impressive things ever seen in our sky.

Scientists are always discovering other types of objects in our solar system. You should really consider being an astronomer or an astronaut when you become an adult. Every day, our cosmic neighborhood becomes more fascinating and worth learning about.