

Astronomy for Kids - How Big is the Solar System?

It's very hard for us to understand just how large the solar system is. Scientists tell us that the largest number our minds can really comprehend, or grasp, is about a hundred thousand (100,000). When you begin talking about the distances between planets, which are measured in millions, or billions, of miles, our minds just don't keep up very well. When you add the habit that adults have of making things more complicated than they need to be, it gets even harder. What we are going to try to do here is explain the size of the solar system in a way that you can understand it, as well as get some idea of how far apart our planetary neighbors are.

We are going to try to show you the size of the solar system by taking an imaginary "walk" from the Sun to all the planets of our neighborhood. This is going to be a special walk, since each "step" you take will equal one million miles! For the first four planets, Mercury, Venus, Earth and Mars, you will be able to actually take this walk if you have a large field, such as a football or soccer field. After that, the distances are just too great, unless you live in a very wide open area. If you do decide to walk the distances for the first four planets, make sure you have one of your parents go with you. When you walk off the distances, each step you take should be about three feet long. If you take your walk on a football field, start with the Sun at the center of the back of one of the end zones. We will tell you the yard lines where the first three planets will be.

In addition to our walk through the solar system, we will also tell you how long it would take to drive to the planets in your car at seventy miles per hour, as well as fly there in a jet plane going 600 miles per hour. Remember, the planets are not in a straight line going out from the Sun. They are always moving around the Sun, so they are hardly ever lined up in a row. The distances we use are from the Sun to the planets' average distance from the Sun.

Mercury

The first stop on our walk will be Mercury, which is the closest planet to the Sun. Mercury is about 35 million miles from the Sun, so you will take 35 steps from your Sun. If you are using a football field, Mercury will be at the 25 yard line (don't forget that the end zone is ten yards deep). If you got on a jet and flew at 600 miles per hour from the Sun to Mercury, it would take seven years! Driving the same distance in a car would take 57 years.

Venus

The second stop on our walk through the planets is Venus. The planet named for the Roman goddess of love and beauty is about 65 million miles from the Sun, which means that Venus will be 65 steps away from your Sun. If you are on a football field, Venus will be at the 45 yard line on the other side of the 50 yard line from your Sun. If you got on a jet and flew at 600 miles per hour from the Sun to Venus, it would take twelve years. If you could drive the same distance, it would take 106 years.

Earth

The third stop on our walk through the solar system is our home planet of Earth. Earth's average distance from the Sun is 93 million miles, which means you will have to take 93 steps from your Sun. If you are on a football field, Earth would be at the opposing team's 17 yard line. By the way, scientists use the Earth's distance from the Sun as a type of shorthand to show distance. This distance is called an astronomical unit. If you got on a jet and flew at 600 miles per hour from the Sun to Earth, it would take 18 years. If you could drive the same distance, it would take 152 years.

Mars

The fourth stop on our stroll through the solar system is Mars, the Red Planet. This is also the last stop that will be practical to actually step off. Mars' average distance from the Sun is about 137 million miles, or about 137 steps on our walk. If you are using a football field, Mars will be seventeen steps beyond the end of the end zone on the other side of the field from your Sun. If you got on a jet and flew at 600 miles per hour from the Sun to Mars, it would take 26 years. If you could drive the same distance, it would take 223 years.

Jupiter

Jupiter, the largest planet, is the fifth planet from the Sun, and is the first of what are called the Outer Planets. Its average distance from the Sun is almost 467 million miles. If you tried to step off this distance, you would be over a quarter of a mile away from your Sun. We don't recommend that you do this unless you have a parent with you and a lot of open space. If you got on a jet and flew at 600 miles per hour from the Sun to Jupiter, it would take 89 years. If you could drive the same distance, it would take 762 years.

Saturn

Saturn, the Ringed Planet, is the sixth planet from the Sun. This giant planet is over nine times as far away from the Sun as Earth. Its average distance is over 850 million miles away from the Sun. If you tried to step off this distance, you would be almost half a mile from your Sun when you reached Saturn. You would also probably be tiring out. If you got on a jet and flew at 600 miles per hour from the Sun to Saturn, it would take 163 years. If you could drive the same distance, it would take 1,396 years.

Uranus

Uranus, the mysterious blue-green planet, is the seventh planet from the Sun. From Uranus outward to the edge of the solar system, the distances are truly great. Uranus' average distance from the Sun is 1.7 billion (1,700,000,000) miles. If you were to walk off this distance, you would be a mile away from your Sun. If you got on a jet and flew at 600 miles per hour from the Sun to Uranus, it would take 328 years. If you could drive the same distance, it would take 2,809 years.

Neptune

Neptune, the eighth, and next to last, planet from the Sun, is almost 2.7 billion (2,700,000,000) miles away from the center of the solar system. If you tried to step this distance off, you would be over a mile and a half away from your Sun before you reached the location of Neptune. It is a very long distance. If you got on a jet and flew at 600 miles per hour from the Sun to Neptune, it would take 513 years. If you could drive the same distance, it would take 4,400 years.

Pluto

Tiny Pluto is the last planet in our family. The dark, cold planet's average distance from the Sun is a little over 3.5 billion (3,500,000,000) miles. If you tried to step off this distance, you would be over two miles away from your Sun when you reached the location of Pluto. If you got on a jet and flew at 600 miles per hour from the Sun to Pluto, it would take 675 years. If you could drive the same distance, it would take over 5,700 years.