

if it had been about eighty times more massive, it would have become a star rather than a planet.

Saturn, mile marker 123.

Saturn is surrounded by thin, flat rings. Saturn is made mostly of hydrogen and helium. Its volume is 755 times greater than that of Earth. At this scale it is a little larger than a basketball. Winds in the upper atmosphere reach 500 meters per second in the equatorial region. These super-fast winds, combined with heat rising from within the planet's interior, cause the yellow and gold bands visible in the atmosphere.

Uranus, mile marker 121.

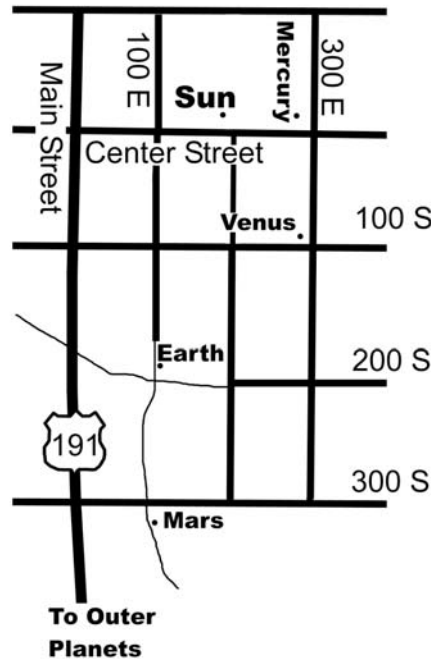
Uranus is a gas giant with no solid surface. It has some of the brightest clouds in the outer solar system and 11 rings. Its scale size is comparable to a large grapefruit. The first planet found with the aid of a telescope, Uranus was discovered in 1781 by astronomer William Herschel. The seventh planet from the Sun is so distant that it takes 84 years to complete one orbit.

Neptune, mile marker 118.

Neptune was the first planet located through mathematical predictions rather than through regular observations of the sky. Nearly 4.5 billion kilometers from the Sun, Neptune orbits the Sun once every 165 years. It is invisible to the naked eye because of its extreme distance from Earth. It is a little smaller than Uranus, so its scale size also about the size of a large grapefruit.

Pluto, mile marker 116.

Pluto was discovered in 1930. It was known as the most distant planet from the Sun until August 24, 2006 when the International Astronomical Union (IAU) formally downgraded Pluto to a dwarf planet. Pluto takes 248 years to orbit the Sun. At this scale it is about the size of a pea.



This Brochure
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Moab Scale Model Solar System



A solar system family portrait assembled from NASA spacecraft images. Not pictured: Pluto.

The distance between the planets of our solar system is hard to comprehend. By human standards the distances are enormous and yet, when compared to distances between stars in our galaxy, the distance between planets seems small. This scale model solar system is designed to help convey the enormous distances between the planets compared to their relatively small proportional sizes.

Sun

Start the tour at the Sun Court. The Yellow disc in the center of the basketball court represents the sun.

The Sun is the closest star to Earth, at a mean distance from our planet of 149.60 million kilometers (92.96 million miles). This distance is known as an astronomical unit (abbreviated AU), and sets the scale for measuring distances all across the solar system. The Sun, a huge sphere of mostly ionized gas, supports life on Earth.

Mercury

Walk to the Library. The scale size of the planet Mercury is represented by a small marble.

The small and rocky planet Mercury is the closest planet to the Sun; it speeds around the Sun in a wildly elliptical (non-circular) orbit that takes it as close as 47 million km and as far as 70 million km from the Sun. Mercury completes a trip around the Sun every 88 days, speeding through space at nearly 50 km per second, faster than any other planet. Because it is so close to the Sun, temperatures on its surface can reach a scorching 467 degrees Celsius. But because the planet has hardly any atmosphere to keep it warm, nighttime temperatures can drop to a frigid -170 degrees Celsius.

Venus

Next walk to the location of Venus. It is at the southeast corner of the ball park, 300 E. 100 S. The scale size of Venus is about the size of a quarter.

Venus and Earth are similar in size, mass, composition, and distance from the Sun but, Venus has no ocean. Venus is covered by thick, rapidly spinning clouds that trap surface heat, creating a scorched greenhouse-like world with temperatures hot enough to melt lead and pressure so intense that standing on Venus would feel like the pressure felt 900 meters deep in Earth's oceans. These clouds reflect sunlight in addition to trapping heat. Because Venus reflects so much sunlight, it is usually the brightest planet in the sky.

Earth

Now walk by the bridge in the Cross Trails Park. This is the location of Earth. It is a little larger than Venus, but the scale size is still pretty close to the size of a quarter.

Earth, our home planet, is the only planet in our solar system known to harbor life. All of the things we need to survive are provided under a thin layer of atmosphere that separates us from the uninhabitable void of space. Earth is the third planet from the Sun and the fifth largest in the solar system. Earth's diameter is just a few hundred kilometers larger than that of Venus. The four seasons are a result of Earth's axis of rotation being tilted more than 23 degrees.

Mars

Follow the path and go through the tunnel under 300 South Street. When you get out of the tunnel on the south side you are about to the orbit of Mars. At this scale Mars is about the size of a dime.

Mars is a small rocky body. Its surface has been changed by volcanism, impacts from other bodies, movements of its crust, and atmospheric effects such as dust storms. It has polar ice caps that grow and recede with the change of seasons; areas of layered soils near the Martian poles suggest that the planet's climate has changed more than once, perhaps caused by a regular change in the planet's orbit.

Asteroid Belt

Asteroids are rocky fragments left over from the formation of the solar system about 4.6 billion years ago. Most of these fragments of ancient space rubble can be found orbiting the Sun in a belt between Mars and Jupiter. This region in our solar system probably contains millions of asteroids.

Outer Planets

For the rest of the tour you will need to ride in a vehicle. Drive South out of town on Highway 191 and look for the small green signs along the side of the road. These are mile markers. They are placed every mile along the highway. The approximate locations of the outer planets are represented by the nearest mile marker.

Jupiter, mile marker 124.

Jupiter is the most massive planet in our solar system. Its scale dimension is about the size of a 14" beach ball. Jupiter resembles a star in composition. In fact,