



Earth at seasonal points in its orbit (not to scale)
 Earth orbit (yellow) compared to a circle (gray) Earth orbits the Sun at an average distance of 149.60 million km (92.96 million mi), or 8.317 light-minutes, [1] in a counterclockwise direction as viewed from above the Northern Hemisphere. One complete orbit takes 365.256 days (1 sidereal year), during which time Earth has traveled 940



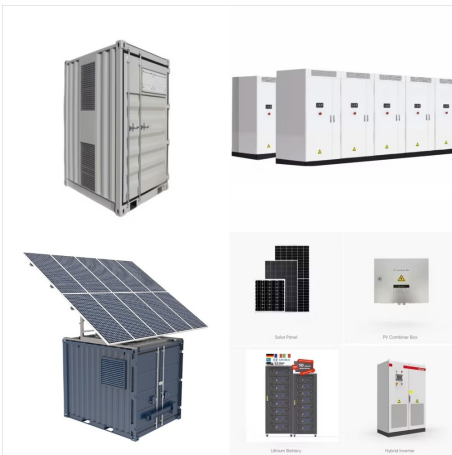
? Most of the known moons move around their respective planets in the same direction that the planets orbit the Sun. They are extremely diverse, representing a wide range of environments . Jupiter is orbited by Io, a body wracked by intense volcanism, while Saturn's largest moon, Titan ???a body larger than the terrestrial planet Mercury



It would take around more than 21.2 million Mercury-sized planets to fit inside the Sun. When it comes to Venus, things get a bit different. Venus is the sixth-largest planet from the Sun, having a diameter of 12.104 km / 7.521 mi, and a radius of around 6.051 km / 3.760 mi. The mass of Venus is equivalent to 0.9 Earth masses, or 90% of our



For a planet to remain in orbit around the sun and not fall into it, the planet must have a speed fast enough to keep it at a certain distance from the sun. The faster a planet moves, the further away from the sun it remains. If the planet travels too fast, though, the orbit may become more elliptical in shape, resulting in varying orbit shapes



Introduction. The planetary system we call home is located in an outer spiral arm of the Milky Way galaxy. Our solar system consists of our star, the Sun, and everything bound to it by gravity ??? the planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune; dwarf planets such as Pluto; dozens of moons; and millions of asteroids, comets, and meteoroids.



The eight planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. Mercury is closest to the Sun. Neptune is the farthest. Planets, asteroids, and comets orbit our Sun. They travel around our Sun in a flattened circle called an ellipse. It takes the Earth one year to go around the Sun. Mercury goes around the Sun in only



Around 4.5 billion years ago when the sun was first forming so too were the planets of our solar system including the Earth itself. Swirling clouds of gas and dust were drawn together to form Earth in a process that may have taken 70 ??? 100 million years to complete.



The Sun is the star at the heart of our solar system. Its gravity holds the solar system together, keeping everything ??? from the biggest planets to the smallest bits of debris ??? in its orbit. The Sun is the star at the heart of our solar system. ???



The planet follows the ellipse in its orbit, meaning that the planet-to-Sun distance is constantly changing as the planet goes around its orbit. Kepler's Second Law: The imaginary line joining a planet and the Sun sweeps out ??? or covers ??? equal areas of space during equal time intervals as the planet orbits.



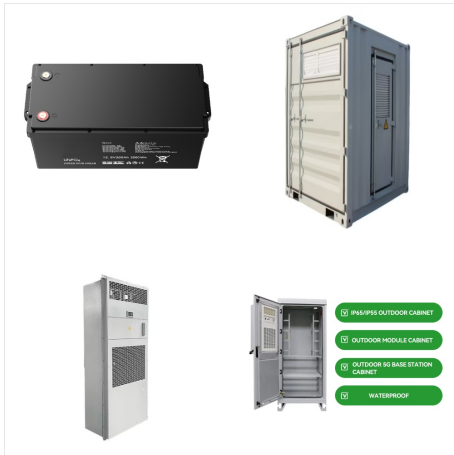
The planet follows the ellipse in its orbit, meaning that the planet to Sun distance is constantly changing as the planet goes around its orbit. Kepler's Second Law: the imaginary line joining a planet and the Sun sweeps equal areas of space during equal time intervals as the planet orbits. Basically, that planets do not move with constant



A star that hosts planets orbiting around it is called a planetary system, or a stellar system, if more than two stars are present. Our planetary system is called the Solar System, referencing the name of our Sun, and it ???



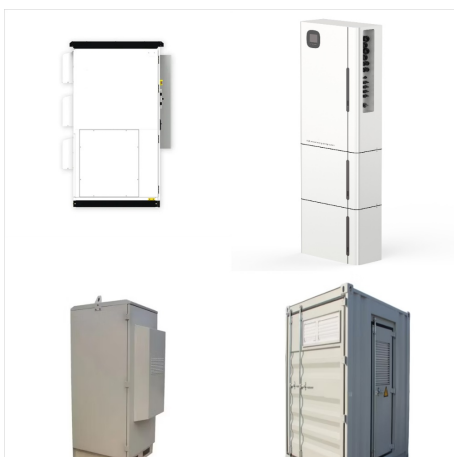
Our solar system includes the Sun, eight planets, five officially named dwarf planets, and hundreds of moons, and thousands of asteroids and comets. Our solar system is located in the Milky Way, a barred spiral galaxy with two major ???



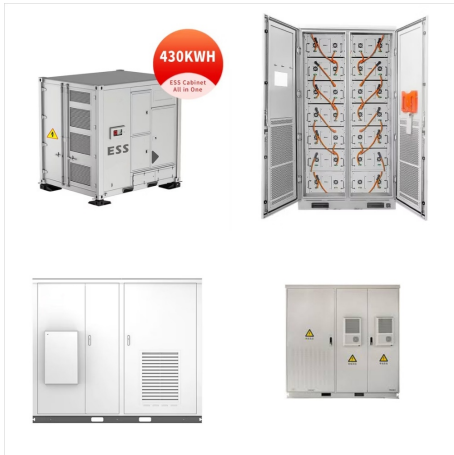
Mars ??? the fourth planet from the Sun ??? is a dusty, cold, desert world with a very thin atmosphere. Explore Mars. Outer Planets . The giant planets in our outer solar system don't have hard surfaces and instead have swirling gases above a core. Jupiter and Saturn are gas giants. Uranus and Neptune are ice giants.



The sun and planets are believed to have formed out of this disk, which is why, today, the planets still orbit in a single plane around our sun. A drawing depicting the flat plane of our solar system.



In astronomy, Kepler's laws of planetary motion, published by Johannes Kepler absent the third law in 1609 and fully in 1619, describe the orbits of planets around the Sun. These laws replaced circular orbits and epicycles in the heliocentric theory of Nicolaus Copernicus with elliptical orbits and explained how planetary velocities vary. The three laws state that: [1] [2]



Copernicus, Kepler, and Galileo promoted a heliocentric model of the universe, with the Sun at the center and Earth and the other planets orbiting the Sun. Gravity holds planets in elliptical orbits around the Sun. The nebular hypothesis describes how the solar system formed from a giant cloud of gas and dust about 4.6 billion years ago.



A year is defined as the time it takes a planet to complete one revolution of the Sun, for Earth this is just over 365 days. This is also known as the orbital period. Unsurprisingly the length of each planet's year correlates with its distance from the Sun as seen in the graph above. The precise amount of time in Earth days it takes for



The reason is that the app has a slider control which changes the orbits of the planets from a diagrammatical view (i.e. all the planets in nice neat, equally separated, circular orbits) to a real view (i.e. all the planets in elliptical orbits with all the inner planets squashed in next to the Sun and the outer planets being widely spaced).



? Gravity is what holds the planets in orbit around the sun and what keeps the moon in orbit around Earth. The gravitational pull of the moon pulls the seas towards it, causing the ocean tides. Gravity creates stars and planets by pulling together the material from which they are made. Gravity not only pulls on mass but also on light.



The order and arrangement of the planets and other bodies in our solar system is due to the way the solar system formed. Nearest to the Sun, only rocky material could withstand the heat when the solar system was young. For this reason, ???



An orbit is the path an object takes through space as it revolves around another object. While a planet travels in one direction, it is also affected by the Sun's gravity causing it to take a curved route that eventually brings it back to its starting point.



Overview
Formation and evolution
General characteristics
Sun
Inner Solar System
Outer Solar System
Trans-Neptunian region
Miscellaneous populations



The order and arrangement of the planets and other bodies in our solar system is due to the way the solar system formed. Nearest to the Sun, only rocky material could withstand the heat when the solar system was young. For this reason, the first four planets ??? Mercury, Venus, Earth, and Mars ??? are terrestrial planets.