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Solar system facts about earth

Antonio M. Rosario/The Image Bank/Getty Images The planetary system, which contains Earth, has officially been named the Solar System, which consists of the sun and its orbital objects. PlanetsOfTheSolarSystem.net explains that the sun does not have a scientific name but is alternately called Sol, based on Roman mythology. The name Solar System is derived from the ancient Roman alternative. The Sun is one of trillions of stars in the universe and is classified as a Yellow Dwarf type star. The solar system is one of billions of planetary systems, located within the Milky Way, of the familiar universe. The solar system is estimated to be 4.6 billion years old and contains the Sun, eight planets, five dwarf planets, 169 moons and thousands of asteroids and comets. The eight planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. The five dwarf boards are Pluto, Ceres, Haumea, Makemake and Eris. For the longest time, the solar system was known to have nine planets. Eventually, Pluto downgraded to a dwarf planet due to the discovery of several other celestial bodies found in the solar system that were of similar size. Astronomers have now discovered another dwarf planet — called 2012 VP113 and just 279.6 miles wide — orbiting the Sun. However, astronomers have noticed that something seems out of place in relation to its orbit, speculating that the implausibility may originate from a massive body affecting VP113's orbit — another planet, a super-Earth, that also orbits the Sun.VP113 orbiting the sun at a distance 80 times that of Earth; it never gets closer than 7.4 billion miles (or 12 billion kilometers) from the Sun, and can reach up to 41.6 billion miles (67 billion kilometers) away. The dwarf climate suffered from radiation damage, which changed the composition of frozen water and carbon dioxide found on the surface, giving the celestial body a pink color. While it's certainly interesting to discover a new dwarf planet orbiting the sun — especially one that expands the familiar border of the solar system — the potential super-Earth that would effectively mess up VP113's orbit is the real gem of the discovery. The Sun is in the middle. The purple rings represent the orbit of Jupiter, Saturn, Uranus and Neptune. The blue dots represent Pluto and the Kuiper Belt. Another dwarf planet, called Sedna (discovered in 2003), is represented by the orange. The orbit of VP113 is shown in red. We don't yet know if the super-Earth actually exists, but the gravity of a planet about 10 times the size of Earth would explain the irregular orbit of VP113. It may seem strange that we can detect the relatively small VP113, but failed to detect a planet 10 times the size of Earth, which would make it 280 times the size of the VP113. There are a few simple reasons why this could be. If it exists, the super-Earth is much, much farther away from Earth than VP113 - to the point where its larger size is neglected its extreme distance. However, astronomers have looked at major planets in the region in the past and found nothing. That doesn't mean the planets aren't there, however, as astronomers have generally looked at the warm signatures of gas giants, rather than the signatures of a more solid, cooler planet. Basically, astronomers might have just been looking for the wrong thing. (Read: Alien Spotting: By 2020, we'll finally have the ability to detect lifelong, alien planets.) In general, the area in which VP113 and this possible super-Earth are located is thought to be relatively boring - too close to alien stars and too far away to explore anyway - but the discovery of VP113 and its potential orbit-influence super-Earth would mean that, actually, there's a good chance some cool stuff is out there, closer than we might think. Welcome to the solar system! This is where you'll find the Sun, the planets and humanity's only home in the Milky Way galaxy. It contains planets, moons, comets, asteroids, one star and worlds with ring systems. Although astronomers and skygazers have observed other solar system objects in the sky since the dawn of human history, it was only in the past half-century that they could explore them more directly with spacecraft. Long before astronomers could use telescopes to look at objects in the sky, people thought that the planets were simply wandering stars. They had no concept of an organized system of worlds orbiting the Sun. All they knew was that some objects followed regular paths against the backdrop of the stars. At first they thought these things were gods or some supernatural beings. Then they decided that those movements had some effect on human life. With the coming of scientific observations of the sky, those ideas disappeared. The first astronomer to look at another planet with a telescope was Galileo Galilei. His observations changed humanity's view of our place in space. Soon, many other men and women studied the planets, their moons, asteroids and comets with scientific interest. Today it continues, and there are currently spacecraft doing many solar system studies. So what else have astronomers and planetary scientists learned about the solar system? A journey through the solar system introduces us to the sun, which is our nearest star. It contains an incredible 99.8 percent of the mass of the solar system. The planet Jupiter is the next most massive object and it consists of two and a half times the mass of all the other planets combined. The four inner planets —small, crate Mercury, cloud-shrouded Venus (sometimes called Earth's Twins), moderate and watery Earth (our home), and reddish Mars—called the earthy or rocky planets. Jupiter, ringed Saturn, mysterious blue Uranus, and distant Neptune are gas giants. Uranus and Neptune are so cold and contain a lot of icy material, and are often called the ice giants. The Solar Solar has five known dwarf boards. They are called Pluto, Ceres, Haumea, Makemake and Eris. The New Horizons mission explores Pluto on July 14, 2015, and is headed out to visit a small object called 2014 MU69. At least one and possibly two other dwarf planes exist in the outer reaches of the solar system, although we do not have detailed images of them. There are probably at least 200 more dwarf planets in a region of the solar system called the Kuiper Belt (Pronounced KYE-per Belt.) The Kuiper Belt extends from the orbit of Neptune and is the realm of the most distant worlds known to exist in the solar system. It is very distant and its objects are probably icy and frozen. The outer region of the solar system is called the Oort Cloud. It probably has no major worlds, but contains pieces of ice that become comets when they orbit very close to the sun. The Asteroid Belt is a region of space that lies between Mars and Jupiter. It is populous with pieces of rocks ranging from small rocks to the size of a large city. These asteroids are left over from the formation of the planets. There are moons throughout the solar system. The only planets that DON't have moons are Mercury and Venus. Earth has one, Mars has two, Jupiter has dozens, as do Saturn, Uranus, and Neptune. Some of the moons of the outer solar system are frozen worlds with watery oceans beneath the ice on their surfaces. The only planets with rings we know of are Jupiter, Saturn, Uranus, and Neptune. However, at least one asteroid named Chariklo also has a ring and planetary scientists have recently discovered a tremendous ring around the dwarf planet Haumea. Everything astronomers learn about solar system bodies helps them understand the origin and evolution of the sun and planets. We know they formed about 4.5 billion years ago. Their birthplace was a cloud of gas and dust slowly contracted to make the Suns, followed by the planets. The comets and asteroids are often considered the leftovers from the birth of the planets. What astronomers know about the Sun tell us that it won't last forever. Some five billion years from now, it will expand and engulf some of the planets. Eventually, it will shrink and leave behind a very changed solar system from the one we know today. Our solar system is huge. Way great. In fact, if Earth were the size of a marble, the solar system to Neptune would cover an area the size of San Francisco. Within this greatness lies a variety of celestial wonders: the sun with its surface of plasma, the earth with its abundance of life and massive oceans, the mesmerizing clouds of Jupiter, to name a few. For this particular list, we decided to highlight some familiar celestial wonders, as well as some of which you might not know about. With new discoveries happening all the time, and so much left to explore, the cosmos is never short on and amazement. Here are just a few of the scattered gems of our solar system. A Rendering Delivery Utopia Planitia on Mars. (Photo: Kevin Gill/Flickr) The largest recognized impact basin in the solar system, Utopia Planitia features a crater that spans more than 2,000 miles (about 3,300 kilometers) across Mars' northern plains. Because it is believed the impact occurred early in Mars history, it is likely that Utopia may have at one time hosted an ancient ocean. In 2016, a tool on NASA's Mars Reconnaissance Orbiter added weight to this theory after large deposits of underground water ice were detected under the impact basin. It is estimated as much water as the volume more Superior can lie in deposits located 3 to 3 feet 3 to 3 feet (1 to 10 meters) below the surface. Such an easily accessible resource could prove immensely beneficial to future human-based missions to the red planet. This deposit is probably more accessible than most water ice on Mars because it's at a relatively low latitude and it lies in a flat, smooth area where landing a spacecraft would be easier than at some of the other areas with buried ice. Jack Holt of the University of Texas said in a 2016 statement. The peak in the middle of Rheasilvia crater on Vesta rises about 12 to 16 miles (19 to 26 km) from its base. (Photo: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA) Despite its diameter of about 330 miles (530 km), the asteroid Vesta is home to our solar system's highest mountain. Centered within an impact crater called Rheasilvia, this 14-mile-high (23 km) unnamed peak can easily fit two stacked Mount Everests. This megaberg is believed to have formed 1 billion years ago after an impact with an object at least 30 miles (48 km) across. The resulting force carved out a large amount of material, about 1 percent of Vesta, which was ejected into space and spread across the solar system. In fact, it is estimated that some 5 percent of all space rocks on Earth originated from Vesta, thus joining only a handful of solar system objects outside earth (including Mars and the moon) from which scientists have a sample. Mars' Valles Marineris is a system of canyons that spans the planet's surface more than 2,500 miles (4,000 km). (Photo: Kevin Gill [CC BY 2.0]/Flickr) To put the scale of Mars' enormous Valles Marineris into perspective, just imagine the Grand Canyon four times deeper and stretching from New York City to Los Angeles. As you might expect, this huge canyon is the largest in the solar system, which spans more than 2,500 miles (4,000 km) and plunges up to 23,000 feet (7,000 meters) into the red planet's surface. According to NASA, Valles Marineris is likely a tectonic crack in Mars' crust that shaped as the planet cooled. Another theory suggests it was a channel created by lava flowing from a nearby shield volcano. Regardless, its diverse geography and likely roll into the channeling of water during Mars' wet years will make it an attractive target for missions to the red planet. We think the view from the edge of one of the canyon cliffs will be reasonable Also. The icy geysers of Enceladus, shown here in an illustration, push out water ice and vapor along an 84-mile (135-km) stretch of the moon's south pole. (Photo: NASA/JPL/Space Science Institute) Enceladus, Saturn's second-largest moon, is a

geologically active world covered in thick ice, and home to a vast underground ocean of liquid water estimated to be about 6 miles (10 km) deep. However, some of its most distinctive features are its spectacular geysers — more than 100 discovered so far — erupting from cracks in its surface and sending dramatic plumes into space. In 2015, NASA sent its Cassini spacecraft sailing through one of these plumes, revealing saltwater rich in organic molecules. In particular, Cassini detected the presence of molecular hydrogen, a chemical feature of hydrothermal activity. For a microbiologist thinking about energy for microbes, hydrogen like the gold coin of energy currency, Peter Girguis, a deep-sea biologist at Harvard University, told the Washington Post in 2017. If you had to have one thing, one chemical compound, out of a vent that would lead you to think there's energy to support microbial life, hydrogen is at the top of that list. As such, Enceladus' beautiful geysers can point the way to the most habitable place for life in our solar system beyond Earth. Earth rises above the moon's horizon as captured by the Apollo 11 spacecraft. (Photo: NASA) While the so-called Peaks of Eternal Light on Earth's moon is a mispleasure, they are nonetheless impressive. First pivoted by some astronomers in the late 19th century, the term applies to specific points to a celestial body almost constantly bathed in sunlight. While detailed lunar topography collected by NASA's Lunar Reconnaissance Orbiter has no marks on the moon where light shines unabated, it has four peaks where it occurs more than 80 to 90 percent of the time. If one day people colonize the moon, it's likely the first bases will be established on one of these peaks to take advantage of the abundant solar energy. Because this phenomenon occurs only on bodies in the solar system with a slight air tilt and regions of high altitude, it is thought that only the planet Mercury shares this feature with our moon. Believed to be several hundred years old, the Great Red Spot of Jupiter is an anticyclonic storm (rotating counterclockwise) about 1.3 times as wide as Earth. While there's no definitive answer to what caused the Great Red Spot, we know one thing: It's shrinking. Recorded sightings taken in the 1800s measured the storm at about 35,000 miles (56,000 km), or about four times the diameter of Earth. When Voyager 2 flew through Jupiter in 1979, it reduced to a little more than twice the size of our planet. In fact, it's possible that maybe over the next 20 to 30 years, the Great Red Spot (or will disappear completely. The GRS will become the GRC (Great Red Circle) in a decade or two, Glenn said. Said. a planetary scientist at NASA JPL, recently told Business Insider. Maybe somewhere after that the GRM — the Great Red Memory. A view of the August 2017 total solar eclipse from Charleston, South Carolina. (Photo: Andrew Kroh/Flickr) Nowhere in our solar system are total solar eclipses as perfectly experienced as from our own Earth. As seen across North America in August 2017, this phenomenon occurs when the moon passes between the Earth and the sun. During totality, the moon disc seems to perfectly protect the sun's entire surface, lying only its fiery atmosphere exposed. The fact that these two different celestial objects seem to align perfectly comes down to both maths and a bit of luck. While the moon's diameter is about 400 times smaller than the sun's, it is also about 400 times closer. This creates the illusion in the air of both objects that are the same size. However, the moon is not static in its orbit around the Earth. A billion years ago, when it was about 10 percent closer, it would have blocked the entirety of the sun. But 600 million years from now, at a rate of 1.6 inches (4 centimeters) a year, the moon will have drifted far enough so it will no longer cover the sun's shell. In other words, we are lucky to develop when we have done to see this temporary wonder of the solar system. You can catch the next one from North America in April 2024. The massive ice spires of Callisto reach altitudes up to 330 feet (100 meters) from the surface. (Photo: NASA) Callisto, the second-largest moon of Jupiter, features the oldest and most heavily crowded surface in the solar system. For a long time, astronomers have also assumed that the planet is geologically dead. In 2001, however, it all changed after NASA's Galileo spacecraft passed a mere 85 miles (137 km) above Callisto's surface and captured something strange: ice-caught spires, some as high as 330 feet (100 meters), jutting off the surface. Researchers believe the spires were likely formed by material ejected from impacts by meteors, with their characteristic cosy shapes the result of erosion of sublimation. Like Jupiter's Great Red Spot or Earth's total solar eclipses, it's one wonder that's temporary in nature. They continue to erode and will eventually disappear, James E. Klemaszewski of NASA's Galileo mission said in a 2001 statement. We'll get our next shot at studying these bizarre ice spires when the European Space Agency's SAP (Jupiter ICy moons Explorer) spacecraft visits three of Jupiter's Galilean moons (Ganymede, Callisto and Europe) in 2033. The rings of Saturn are an estimated 4 billion years old. (Photo: NASA) Saturn's rings, spanning an estimated 240,000 miles (386,000 km) wide, comprise 99.9 percent pure water ice, dust and rock. Despite their size, they are extremely thin, with thickness ranging from only 30 to 300 (9 to 90 meters). The rings are believed to be very old, dating back to the formation of the planet planetary planet 4.5 billion years ago. While some believe they are leftover material from Saturn's birth, still others theorize they may be the remains of an ancient moon that has been ripped apart by the enormous planet's tidal powers. While Saturn's rings are beautiful, they are also something of a mystery. For example, before NASA's Cassini spacecraft burned up in September 2017, it collected data showing that the planet's closest D-ring rains 10 tons of material in its upper atmosphere every second. Even stranger, the material is made of organic molecules, not the expected mixture of ice, dust and rock. What was a surprise was the mass spectrometer saw methane — no one expected it, Thomas Cravens, a member of Cassini's Ion and Neutral Mass Spectrometer Team, said in a 2018 news release from the University of Kansas. It also saw some carbon dioxide, which was unexpected. The rings were thought to be completely watering. But the inner rings are quite contaminated, as it turns out, with organic matter trapped in ice. The cliff face of Verona Rupes (right) as captured by Voyager in 1986. Located on the moon Miranda, the geological wonder is estimated to be at least 12 miles high. (Photo: NASA) On the moon of Miranda, the smallest of Uranus' satellites, there is the largest known cliff in the solar system. Called Verona Rupes, the cliff face was caught during a plane from Voyager 2 in 1986 and is believed to have a vertical drop from as much as 12 miles (19 km), or 63,360 feet. For comparison, the highest cliff face on Earth, located on Mount Thor in Canada, has a relatively paltry vertical drop of about 4,100 feet (1,250 meters). For those wondering, io9 crunched the numbers and discovered that, because of Miranda's low gravity, an astronaut jumping from the top of Verona Rupes would essentially free-fall for about 12 minutes. Even better? You can live to tell the story. You don't even have to worry about a parachute — even something as basic as an airbag would be enough to cushion the fall and make you live, io9 adds. Add.

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