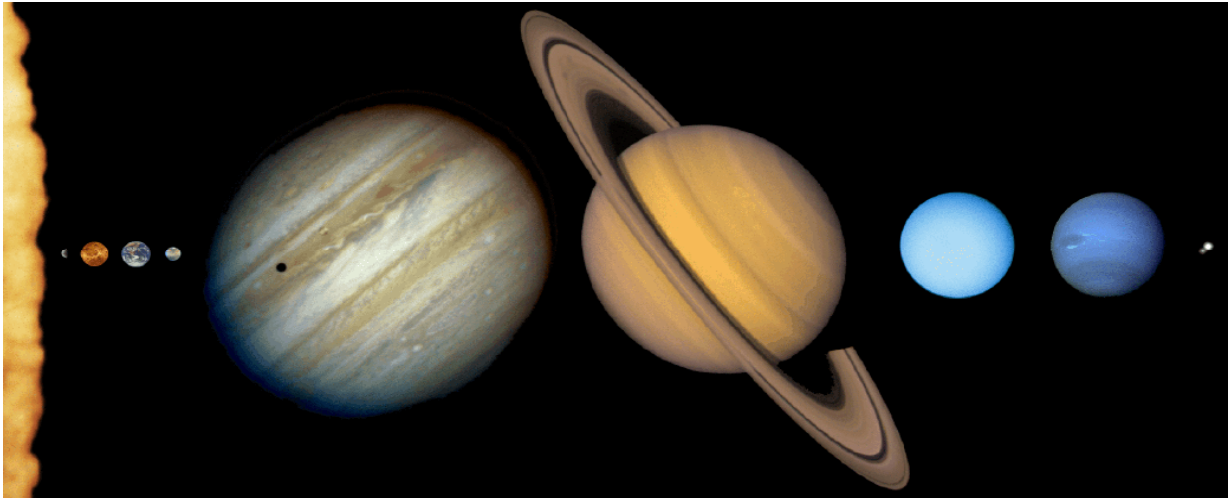


The Order and Description of the Planets in the Solar System



Mercury

Mercury means:

In astronomy mythology, Mercury was the Roman version of the Greek god Hermes. He was the messenger for the other gods, and for this reason Mercury is often depicted in pictures with winged sandals. In addition to delivering messages, he was also the protector of travelers and merchants.

How much would you weigh on Mercury?

If you moved to Mercury you would not weigh as much as you do on Earth. Not because you would lose weight on the spaceship, but because Mercury is smaller, and so has less gravity. If you weigh 70 pounds (32 kg) on Earth, you would weigh only about 27 pounds (12 kg) on Mercury.

The Planet

The planet Mercury is the closest of the planets to the Sun. Because this planet lies so close to the Sun, and as a result somewhat near to Earth, it is visible to observers on Earth in the late evening or early morning sky. Because of this, Mercury has become a part of the mythology and legend of almost every culture throughout the history of the Earth. This planet is often called a morning star. This is because Mercury shines brightly in the early morning just before the sun rises. It has also been called an evening star for the same reason. Mercury is often visible for a brief period of time just after the Sunsets.

Mercury is Heavy

Because of its proximity to the Sun, Mercury's evolution took a slightly different course than that of the other planets. As the Sun formed, it pushed much of the lighter gas and dust out of the inner Solar System, leaving behind only heavier elements. As a result, Mercury is made out of a large percentage of heavier elements, mainly iron. It is essentially a large metal ball of iron with a very thin silicate crust. Mercury's core makes

up about 75% of the planet. Its thin mantle, or crust, is only about 300 to 400 miles thick (500 to 600 km). Next to Earth, Mercury is the second most dense planet in our Solar System.

Mercury Has Wrinkles

As Mercury's iron core cooled it contracted, or shrunk. This caused its rocky crust to become wrinkled. Scientists call these wrinkles Lobate Scarps. These scarps can be hundreds of miles long and even up to a mile high. Mercury's core has not cooled completely, however. Researcher recently found evidence that Mercury has a molten core.

Mercury is Scarred

The surface of the planet Mercury is covered with craters. These craters have been created by ions of accidental encounters with asteroids and comets. All celestial bodies within the Solar System are subject to these bombardments. However, many of the planets have the ability to heal themselves through natural geological processes. Because Mercury's crust is so thick and hard, no volcanic activity can make its way through to the surface of the planet. Since this surface volcanic activity cannot happen, Mercury will forever retain its scars.

Mercury Has No Atmosphere

The planet Mercury is too small and has too little gravity to hold onto an atmosphere. Any gases released from the planet quickly escape into space. Also, Mercury is so close to the Sun that any atmosphere is quickly blown away by the Sun's solar winds. That means that there is almost no air on Mercury.

Temperature Extremes

Mercury is just a little bit larger than Earth's moon. The surface of Mercury that faces the Sun can reach about 800 degrees Fahrenheit. On the other hand, the temperature on the nighttime side can plummet to almost -300 degrees Fahrenheit. This is because Mercury has little to no atmosphere to help regulate temperature.

Time on Mercury

Because of its close location to the Sun, the planet Mercury has become tidally locked to the Sun, or nearly so. The tidal forces of the Sun have over ions of time slowed down the rotation of Mercury to match its revolution around the Sun. The result is that Mercury rotates very slowly. One day on Mercury is about 58-1/2 Earth days long. But while Mercury's days are very long, its revolution around the Sun is rather fast. Mercury can complete one orbit around the Sun in only 88 Earth days. That's just about 3 months here on Earth. This is why Mercury's name is so appropriate. In mythology, Mercury was a speedy messenger, just like the planet's speedy revolution around the Sun.

Moons:

Mercury has no moons.

Venus

Venus means:

In astronomy mythology, Venus was the Roman goddess of love and beauty. In Greek, her name was Aphrodite.

How much would you weigh on Venus?

Because Venus and the Earth are almost the exact same size, you would weigh almost exactly the same on either planet. If you weighed 70 pounds (32 kg) on Earth you would weigh 63 pounds (29 kg) on Venus.

The Planet

The planet Venus has long been one of the most misunderstood of all the inner planets. Like the Earth, Venus has an atmosphere. However, Venus' atmosphere is far thicker than that of the Earth, making it difficult for modern science to penetrate. Interestingly, scientists have recently been able to peek through the thick clouds and get a few glimpses of the surface. There are numerous volcanoes and many mountains that appear misshapen.

There is much we still do not know about how this planet looks and what it is like. However, using special instruments and probes scientists have in recent years unlocked many of the secrets long hidden by this mysterious world. In the 1970s, the Soviet Union actually was able to land more than one probe on the surface of Venus. These scientific probes only lasted a few hours before they were destroyed by the intense heat of the planet. These probes were able to take several pictures and send them back to earth for scientists to study.

The Earth Has a Sister

Venus is in many ways Earth's sister planet. It is almost identical in size, chemistry, gravity and density as the Earth. In other words, Venus is made up of almost the exact same types of materials as the Earth and in about the same amounts. Venus has volcanoes, mountains and sand, just like Earth.

However, if they are twins, then Venus is the evil twin; she is the Earth gone wrong, very wrong. Venus is a deadly world where the surface temperature is hot enough to cook a meal in mere minutes. There is nowhere to hide from this ever present furnace. And with the atmosphere containing mostly carbon dioxide, it makes Venus a highly toxic place. No living thing would ever be able to survive on Venus.

Global Warming

In the early days of Venus' 4 billion year long life, it would have appeared very similar to the Earth. The two would have been almost identical. However, over a period of a few million years, forces on Venus caused it to take a very different course than the Earth.

Venus lies much closer to the Sun than does our planet. That single fact has caused an unstoppable chain of events that doomed Venus to its fiery existence. Owing to its closer proximity to the Sun, Venus' temperature should have been only slightly warmer than that of the Earth. But as the planet warmed, the water evaporated. This increase in water vapor in the atmosphere began a cycle of global warming that could not be stopped. Water vapor is a very effective greenhouse gas. (Greenhouse gas soaks up hot air and

prevents it from escaping into space). The increase in water vapor caused the temperature to rise further, which caused more water to evaporate, causing the temperature to climb still further.

Today it is likely that all of Venus' water has evaporated into the atmosphere. This atmosphere effectively traps the Sun's energy causing the surface to burn much hotter than it naturally would. The temperatures on Venus can reach almost 900 degrees Fahrenheit (approx 482 degrees Celsius).

Venus is Dry

The Earth has a protective layer known as the Ozone Layer. This important shield protects the Earth from the Sun's ultraviolet radiation. Venus does not have an ozone layer. As a result, the ultraviolet radiation from the Sun finds its way directly into Venus' atmosphere. Over many billions of years this radiation has slowly broken down water molecules into hydrogen and oxygen. As a result, there is today very little water left on Venus.

Geography

Venus has many, many volcanoes. We don't know for sure, but it is possible that Venus has more volcanoes than any of the other planets in our Solar System. But unlike the volcanoes on Earth that can sometimes erupt in an explosive manner, the volcanoes on Venus are believed to erupt in a less violent way. In fact, it is believed that they don't erupt at all. Instead, it is thought that the lava just slowly flows out onto the surface.

Venus has a few mountainous areas along with extensive flat areas. There are craters and evidence that the surface long ago moved, much like the surface of the Earth moves today. But unlike the Earth's surface, there is no evidence that Venus has a tectonic plate system.

From West to East

If you somehow found a way to survive the scorching heat found on the surface of Venus, you would quickly notice something strange about the days. Aside from the fact that Venus rotates very slowly so that a day on Venus lasts more than 100 Earth days, Venus also rotates in the opposite direction as almost all the other planets.

Instead of the Sun rising in the east and setting in the west, the Sun on Venus would appear to rise in the west and set in the east.

Moons:

Venus has no moons.

Earth

Earth means:

In astronomy mythology, her Greek name was Gaea. Earth was the mother of the mountains, valleys, streams and all other land formations. She was married to Uranus.

How Big is the Earth?

The Earth is the biggest of all the terrestrial planets. A terrestrial planet is a dense planet

found in the inner Solar System. The diameter of Earth is 7,926 miles. The circumference measured around the equator is 24,901 miles. There are currently almost 7 billion people living on the Earth. About 30% of the Earth's surface is covered with land, while about 70% is covered by oceans.

The Planet

Our planet is an oasis of life in an otherwise desolate universe. The Earth's temperature, weather, atmosphere and many other factors are just right to keep us alive.

Moons:

The Earth has one moon. Its name is Luna.

Mars

Mars means:

Mars was the Roman god of war and agriculture. It may not seem like these two things go together, but they do. Mars protected those who fought for their communities, and stayed home to raise crops for food. In Greek, Mars was known as Ares.

How much would you weigh on Mars?

If you weighed 70 pounds (32 kg) on the Earth, you would weigh about 27 pounds (12 kg) on Mars.

The Planet

Mars excites scientists because its mild temperament is more like the Earth's than any of the other planets. Evidence suggests that Mars once had rivers, streams, lakes, and even an ocean. As Mars' atmosphere slowly depleted into outer space, the surface water began to permanently evaporate. Today the only water on Mars is either frozen in the polar caps or underground.

You may sometimes hear Mars referred to as the "Red Planet." This is because the surface of Mars is red. If you stood on the surface of Mars, you would see red dirt and rocks everywhere.

Exploration

At first, the only way modern explorers could study Mars was with satellites that would fly close to the surface of Mars and take pictures as it did so. The satellites would then send these pictures back to Earth.

As scientific technology became more advanced, scientists were able to put spacecraft into orbit around the Red Planet. These types of missions allowed scientists and researchers to obtain even more information about Mars.

Then, as technology advanced even more, scientists and researchers were able to actually land spacecraft on the surface of Mars.

Moons:

Mars has two moons; their names are Deimos and Phobos.

Jupiter

Jupiter means:

Jupiter, known as Zeus in Greek mythology, overthrew his father Saturn to become king of the gods. He then split the universe with his brothers Neptune and Pluto.

How much would you weigh on Jupiter?

If you traveled to Jupiter on vacation, you would be very heavy. If you weigh 70 pounds (32 kg) on Earth, on Jupiter you would weigh 185 pounds (84 kg). This is because Jupiter is such a large planet and so has more gravity.

The Planet

Jupiter is by far the largest planet in our Solar System. The Earth could fit inside Jupiter more than 1000 times.

Jupiter is a very stormy planet. There are storms found throughout the atmosphere, and most of the storms seem to never end. The many different cloud formations and storms in the atmosphere also make Jupiter a very colorful planet.

Jupiter's great red spot, visible in the picture above to the right, is where a giant storm has been raging for at least 300 years. This red spot is also called "The Eye of Jupiter" because of its shape. This storm's super hurricane winds blow across an area larger than the Earth.

Jupiter is considered a gas giant because it does not have a solid surface. Under its atmosphere is a large liquid ocean of hydrogen and water. What lies in between that ocean and the atmosphere? Actually, there is no in between. The atmosphere slowly gets thicker and thicker until it becomes part of the ocean. In other words, Jupiter's ocean has no surface on which you could float a boat. The sky becomes the ocean.

Rings

Did you know Jupiter has rings? They are faint and are only able to be viewed when Jupiter passes in front of the Sun. This is because the light from the Sun lights them up for us to see here on Earth. There are three rings in all. They are named Gossamer, Main and Halo.

Moons:

Jupiter has 50 official moons and 12 provisional (unofficial) moons. The four largest and most well-known were discovered by Galileo in the year 1610. Their names are Io, Europa, Ganymede and Callisto. Some of the other moons are Adrastea, Ananke, Carme, Elara, Himalia, Leda, Lysithea, Metis, Pasiphae, Sinope, and Thebe.

Saturn

Saturn means:

Saturn was the Roman god of agriculture. He was called Cronus by the Greeks. He is the son of Uranus and the father of Jupiter. Saturn overthrew his father to become king of the gods, but was then overthrown himself by his son Jupiter.

How much would you weigh on Saturn?

Because Saturn is bigger than the Earth, you would weigh more on Saturn than you do here. If you weigh 70 (32 kg) pounds on Earth you would weigh 74.5 pounds (34 kg) on

Saturn. Probably not as much as you thought, right? Keep reading to find out why.

The Planet

In many ways, Saturn is similar to Jupiter, but it is much smaller. It is the second largest planet in our Solar System and it is a gas giant like Jupiter. Under the clouds of methane, hydrogen and helium, the sky gradually turns into liquid until it becomes a giant ocean of liquid chemicals.

Saturn is the least dense planet in our Solar System. It is made up of mostly hydrogen and helium, which are the two lightest elements in the universe and thus make Saturn the lightest planet that we know of. This is why you wouldn't weigh as much on Saturn as you think you would because of its size. And because Saturn is so light, it does not have as much gravity. Interestingly, it is believed Saturn would actually be able to float in water because the hydrogen and helium that make up the planet are so lightweight. Because Saturn is such a lightweight planet and it spins so fast, Saturn is not perfectly round like most of the other planets. Like Jupiter, Saturn is wider in the middle and more narrow near its top and bottom.

The Rings

Saturn is most well-known for its rings. However, it is not the only planet with rings. Jupiter, Uranus and Neptune also have rings. Saturn is a favorite object for many observers. Its beautiful rings are 169,800 miles wide (approx 273,266 km). But the rings are amazingly thin. If you turned the rings on their side, they would be able to fit between the goal posts on a football field. The rings are split into categories, Ring A, Ring B, Ring C, Ring D, Ring E, Ring F and Ring G, totaling 7 in all. The rings are not solid but rather are made up of particles of ice, dust and rocks. The rings are held in place around Saturn by the moons that also orbit this large planet. The gravity of these moons also cause the gaps that are seen in between the rings.

Moons:

Saturn has 53 official moons and 9 provisional (unofficial) moons. The most well-known of Saturn's moons is probably Titan. It is the second largest moon in the Solar System next to Jupiter's Ganymede. Titan is larger than the planet Mercury. Some of the other moons are Atlas, Calypso, Dione, Enceladus, Hyperion, Iapetus, Janus, Mimas, Phoebe, and Tethys.

Uranus

Uranus means:

In astronomy mythology, Uranus was the lord of the skies and husband of Earth. He was also the king of the gods until he was overthrown by his son Saturn.

How much would you weigh on Uranus?

It would take you many years to fly a rocket to Uranus. When you arrived you would weigh more because Uranus is bigger than the Earth. If you weigh 70 pounds (32 kg) on Earth you would weigh 62 pounds (28 kg) on Uranus.

The Planet

Like Jupiter and Saturn, Uranus is a gas giant. But Uranus is a little different. Unlike all

the other planets and most of the moons in our Solar System, Uranus spins on its side. It is believed that long ago a very large object smashed into this planet. The crash was so powerful that it completely changed the direction of Uranus' planetary rotation. However, a more recent theory is that the extreme tilt of Uranus' axis may have been caused by a large moon that was slowly pulled away from the planet by another large planet long ago when our Solar System was still new. It is thought that the gravitational pull of this moon moving away from Uranus may have caused it to tilt on its side.

Like Saturn, the thick atmosphere of Uranus is made up of methane, hydrogen and helium. But Uranus is an extremely cold planet. It has been called the "ice giant." It is believed that Uranus is made up of rock and ice and has a large rocky core. Because of the tremendous planetary pressure of Uranus, there could possibly be trillions of large diamonds in or on the surface of this planet.

Scientists also believe that on the surface of Uranus there may be a huge ocean. And, interestingly, it is thought that the temperature of this ocean may be extremely hot, maybe even as hot as 5000 degrees Fahrenheit (2760 Celsius).

Uranus is almost identical to the planet Neptune.

Rings

Uranus also has rings, though they don't stretch out as far as the rings of Saturn. The rings of Uranus are made up of black dust particles and large rocks.

Moons:

Uranus has 27 moons. Five of these moons are large and the rest are smaller. The largest moon is Titania, followed by Oberon, Umbriel, Ariel and Miranda. Some of the smaller moons are named: Belinda, Bianca, Caliban, Cordelia, Cressida, Desdemona, Juliet, Ophelia, Portia, Puck, and Rosalind.

Neptune

Neptune means:

At first, Neptune was only the god of water, but later on this was extended to include the sea when he became associated with the Greek god Poseidon.

How much would you weigh on Neptune?

If you weigh 70 pounds (32 kg) on the Earth you would weigh 78.5 pounds (36 kg) on Neptune.

The Planet

For many centuries people did not know that this planet even existed. It was discovered by Johann Galle and Heinrich D'Arrest in 1846.

Neptune is the smallest of the four gas giants in our Solar System. Much like Saturn and Uranus, Neptune's atmosphere contains hydrogen, helium and methane.

Not much was known about Neptune until it was visited by the spacecraft Voyager 2 on August 25, 1989. Voyager 2 took many pictures of the planet, and much of what we know today about Neptune came from this single visit. These pictures show a brilliant blue planet with a few thin white clouds laced around its surface.

In Neptune's atmosphere, there is a large white cloud that moves around rather quickly. The "scooting" of this cloud around the atmosphere has led it to be named "Scooter." When Voyager 2 visited Neptune, its pictures showed a giant storm much like the storm on Jupiter. This storm is called the "Great Dark Spot" because it appears as a dark oval shape on the surface of the planet. We do not know how long this storm has been active or if it is still present. More recently, the Hubble Space Telescope sent pictures back to Earth and there was no sign of the Great Dark Spot. These pictures did show two other dark spots that eventually faded away.

Neptune is a very windy place. No other planet in the Solar System has winds that are as strong as Neptune's. The winds near the Great Dark Spot were believed to have reached nearly 1,200 miles per hour (approx 1931 km per hour). Perhaps this extremely windy atmosphere contributes to the appearance and disappearance of the great dark spots.

Rings

Neptune has six rings which circle the planet. These rings are believed to be fairly new. The rings are more irregular than the rings of other planets. There are areas of varying thickness throughout the rings.

Moons:

Neptune has 13 moons that we know of. Because Neptune is so far away, it is difficult to see any of these worlds. There are probably many more moons orbiting this blue planet which we have not yet discovered. Perhaps you will be the astronomer who discovers some of these worlds. The first moon to be discovered was Triton. Triton was discovered by an amateur astronomer in England named William Lassell only 17 days after Neptune was discovered in 1846. The names of the other moons are: Despina, Galatea, Halimede, Laomedeia, Larissa, Naiad, Nereid, Neso, Proteus, Psamathe, Sao, and Thalassa.

Pluto

Pluto means:

Pluto was thought to be the god to whom all men must eventually go. Romans believed him to be the god of the underworld. In Greek mythology, he is known as Hades.

How much would you weigh on Pluto?

Because Pluto is so small you would be very light if you visited. If you weigh 70 pounds (32 kg) on Earth, you would only weigh 4 pounds (2.5 kg) on Pluto.

The Dwarf Planet

Pluto was the only planet to be named by a kid. After the planet was discovered in 1930, an 11-year-old girl who lived in Oxford, England, by the name of Venetia Burney, suggested that this new planet needed to be named after the Roman god of the underworld. Venetia's grandfather sent this suggestion to the Lowell Observatory and the name was accepted.

Pluto is smaller than 7 of the moons in the Solar System. It is about two-thirds smaller than Earth's moon. Because it is so small, many scientists don't consider it a planet at all. In 1999, a group of scientists attempted to re-classify Pluto as a comet. On August 24, 2006, Pluto's status was officially changed from planet to dwarf planet. For decades,

children have been taught in school that there are nine planets in our Solar System. However, with this change, there are now only eight planets. Also because of this change, there is a new category of small planets known as plutoids. The only spacecraft to get somewhat close to Pluto was the Hubble Space Telescope. Hubble was able to take pictures of Pluto and its moons for scientists to study. Little is known about Pluto and its moons because it is so far away.

Moons:

Pluto has 3 moons. The largest is named Charon. Charon is only slightly smaller than its parent Pluto. For this reason, Pluto and Charon are often called a double system. The Earth and its moon, Luna, are sometimes considered double planets. Pluto's two other moons are called Hydra and Nix.