**MERCURY**

**A year in Mercury is just 88 days long:**  
One day on Mercury lasts the equivalent of 176 Earth days. Mercury is nearly tidally locked to the Sun and over time this has slowed the rotation of the planet to almost match its orbit around the Sun. Mercury also has the highest orbital eccentricity of all the planets with its distance from the Sun ranging from 46 to 70 million km

**Mercury is the smallest planet in the Solar System:**  
One of five planets visible with the naked eye a, Mercury is just 4,879 Kilometres across its equator, compared with 12,742 Kilometres for the Earth.

**Mercury is the second densest planet:**  
Even though the planet is small, Mercury is very dense. Each cubic centimetre has a density of 5.4 grams, with only the Earth having a higher density. This is largely due to Mercury being composed mainly of heavy metals and rock.

**Mercury has wrinkles:**  
As the iron core of the planet cooled and contracted, the surface of the planet became wrinkled. Scientist have named these wrinkles, Lobate Scarps. These Scarps can be up to a mile high and hundreds of miles long.

**Mercury has a molten core:**  
In recent years scientists from NASA have come to believe the solid iron core of Mercury could in fact be molten. Normally the core of smaller planets cools rapidly, but after extensive research, the results were not in line with those expected from a solid core. Scientists now believe the core to contain a lighter element such as sulphur, which would lower the melting temperature of the core material. It is estimated Mercury’s core makes up 42% of its volume, while the Earth’s core makes up 17%.

**Mercury is only the second hottest planet:**  
Despite being further from the Sun, [Venus](http://space-facts.com/venus/) experiences higher temperatures. The surface of Mercury which faces the Sun sees temperatures of up to 427°C, whilst on the alternate side this can be as low as -173°C. This is due to the planet having no atmosphere to help regulate the temperature.

**Mercury is the most cratered planet in the Solar System:**  
Unlike many other planets which “self-heal” through natural geological processes, the surface of Mercury is covered in craters. These are caused by numerous encounters with asteroids and comets. Most Mercurian craters are named after famous writers and artists. Any crater larger than 250 kilometres in diameter is referred to as a Basin. The Caloris Basin is the largest impact crater on Mercury covering approximately 1,550 km in diameter and was discovered in 1974 by the Mariner 10 probe.

**Only two spacecraft have ever visited Mercury:**  
Owing to its proximity to the Sun, Mercury is a difficult planet to visit. During 1974 and 1975 Mariner 10 flew by Mercury three times, during this time they mapped just under half of the planet’s surface. On August 3rd 2004, the Messenger probe was launched from Cape Canaveral Air Force Station, this was the first spacecraft to visit since the mid 1970’s.

**Mercury is named for the Roman messenger to the gods:**  
The exact date of Mercury’s discovery is unknown as it pre-dates its first historical mention, one of the first mentions being by the Sumerians around in 3,000 BC.

**Mercury has an atmosphere (sort of):**  
Mercury has just 38% the gravity of Earth, this is too little to hold on to what atmosphere it has which is blown away by solar winds. However while gases escape into space they are constantly being replenished at the same time by the same solar winds, radioactive decay and dust caused by micrometeorites.

**VENUS**

**A day on Venus lasts longer than a year:**  
It takes 243 Earth days to rotate once on its axis. The planet’s orbit around the Sun takes 225 Earth days, compared to the Earth’s 365.

**Venus is often called the Earth’s sister planet:**  
The [Earth](http://space-facts.com/earth/) and Venus are very similar in size with only a 638 km difference in diameter, Venus having 81.5% of the Earth’s mass. Both also have a central core, a molten mantle and a crust.

**Venus rotates counter-clockwise:**  
Also known as retrograde rotation. A possible reason might be a collision in the past with an asteroid or other object that caused the planet to alter its rotational path. It also differs from most other planets in our solar system by having no natural satellites.

**Venus is the second brightest object in the night sky:**  
Only the Moon is brighter. With a magnitude of between -3.8 to -4.6 Venus is so bright it can be seen during daytime on a clear day.

**Atmospheric pressure on Venus is 92 times greater than the Earth’s:**  
While its size and mass are similar to Earth, the small asteroids are crushed when entering its atmosphere, meaning no small craters lie on the surface of the planet. The pressure felt by a human on the surface would be equivalent to that experienced deep beneath the sea on Earth.

**Venus is also known as the Morning Star and the Evening Star:**  
Early civilisations thought Venus was two different bodies, called Phosphorus and Hesperus by the Greeks, and Lucifer and Vesper by the Romans. This is because when its orbit around the Sun overtakes Earth’s orbit, it changes from being visible after sunset to being visible before sunrise. Mayan astronomers made detailed observations of Venus as early as 650 AD.

**Venus is the hottest planet in our solar system:**  
The average surface temperature is 462 °C, and because Venus does not tilt on its axis, there is no seasonal variation. The dense atmosphere of around 96.5 percent carbon dioxide traps heat and causes a greenhouse effect.

**A detailed study of Venus is currently underway:**  
In 2006, the Venus Express space shuttle was sent into orbit around Venus by the European Space Agency, and is sending back information about the planet. Originally planned to last five hundred Earth days, the mission has been extended several times. More than 1,000 volcanoes or volcanic centres larger than 20 km have been found on the surface of Venus.

**The Russians sent the first mission to Venus:**  
The Venera 1 space probe was launched in 1961, but lost contact with base. The USA also lost their first probe to Venus, Mariner 1, although Mariner 2 was able to take measurements of the planet in 1962. The Soviet Union’s Venera 3 was the first man-made craft to land on Venus in 1966.

**At one point it was thought Venus might be a tropical paradise:**  
The dense clouds of sulphuric acid surrounding Venus make it impossible to view its surface from outside its atmosphere. It was only when radio mapping was developed in the 1960s that scientists were able to observe and measure the extreme temperatures and hostile environment. It is thought Venus did once have oceans but these evaporated as the planets temperature increased.

**EARTH**

**The Earth’s rotation is gradually slowing:**  
This deceleration is happening almost imperceptibly, at approximately 17 milliseconds per hundred years, although the rate at which it occurs is not perfectly uniform. This has the effect of lengthening our days, but it happens so slowly that it could be as much as 140 million years before the length of a day will have increased to 25 hours.

**The Earth was once believed to be the centre of the universe:**  
Due to the apparent movements of the Sun and planets in relation to their viewpoint, ancient scientists insisted that the Earth remained static, whilst other celestial bodies travelled in circular orbits around it. Eventually, the view that the Sun was at the centre of the universe was postulated by Copernicus, though this is also not the case.

**Earth has a powerful magnetic field:**  
This phenomenon is caused by the nickel-iron core of the planet, coupled with its rapid rotation. This field protects the Earth from the effects of solar wind.

**There is only one natural satellite of the planet Earth:**  
As a percentage of the size of the body it orbits, the Moon is the largest satellite of any planet in our solar system. In real terms, however, it is only the fifth largest natural satellite.

**Earth is the only planet not named after a god:**  
The other seven planets in our solar system are all named after Roman gods or goddesses. Although only [Mercury](http://space-facts.com/mercury/), [Venus](http://space-facts.com/venus/), [Mars](http://space-facts.com/mars/), [Jupiter](http://space-facts.com/jupiter/) and [Saturn](http://space-facts.com/saturn/) were named during ancient times, because they were visible to the naked eye, the Roman method of naming planets was retained after the discovery of [Uranus](http://space-facts.com/uranus/) and [Neptune](http://space-facts.com/neptune/).

**Of all the planets in our solar system, the Earth has the greatest density:**  
This varies according to the part of the planet; for example, the metallic core is denser than the crust. The average density of the Earth is approximately 5.52 grams per cubic centimetre.

**MARS**

**Mars and Earth have approximately the same landmass:**  
Even though Mars has only 15% of the [Earth’s](http://space-facts.com/earth/) volume and just over 10% of the Earth’s mass, around two thirds of the Earth’s surface is covered in water. Martian surface gravity is only 37% of the Earth’s (meaning you could leap nearly three times higher on Mars).

**Mars is home to the tallest mountain in the solar system.**  
[Olympus Mons](http://space-facts.com/mars-features/#olympus), a shield volcano, is 21km high and 600km in diameter. Despite having formed over billions of years, evidence from volcanic lava flows is so recent many scientists believe it could still be active.

**Only 18 missions to Mars have been successful**  
As of September 2014 there have been 40 [missions to Mars](http://space-facts.com/mars-missions/), including orbiters, landers and rovers but not counting flybys. The most recent arrivals include the Mars Curiosity mission in 2012, the MAVEN mission, which arrived on September 22, 2014, followed by the Indian Space Research Organization’s MOM Mangalyaan orbiter, which arrived on September 24, 2014. The next missions to arrive will be the European Space Agency’s ExoMars mission, comprising an orbiter, lander, and a rover, followed by NASA’s InSight robotic lander mission, slated for launch in March 2016 and a planned arrival in September, 2016.”

**Mars has the largest dust storms in the solar system:**  
They can last for months and cover the entire planet. The seasons are extreme because its elliptical (oval-shaped) orbital path around the Sun is more elongated than most other planets in the [solar system](http://space-facts.com/solar-system/).

**On Mars the Sun appears about half the size as it does on Earth:**  
At the closest point to the Sun, the Martian southern hemisphere leans towards the Sun, causing a short, intensely hot summer, while the northern hemisphere endures a brief, cold winter: at its farthest point from the Sun, the Martian northern hemisphere leans towards the Sun, causing a long, mild summer, while the southern hemisphere endures a lengthy, cold winter.

**Pieces of Mars have fallen to Earth:**  
Scientists have found tiny traces of Martian atmosphere within meteorites violently ejected from Mars, then orbiting the solar system amongst galactic debris for millions of years, before crash landing on Earth. This allowed scientists to begin studying Mars prior to launching space missions.

**Mars takes its name from the Roman god of war:**  
The ancient Greeks called the planet Ares, after their god of war; the Romans then did likewise, associating the planet’s blood-red colour with Mars, their own god of war. Interestingly, other ancient cultures also focused on colour – to China’s astronomers it was ‘the fire star’, whilst Egyptian priests called on ‘Her Desher’, or ‘the red one’. The red colour Mars is known for is due to the rock and dust covering its surface being rich in iron.

**JUPITER**

**Jupiter is the fourth brightest object in the solar system:**  
Only the Sun, [Moon](http://space-facts.com/the-moon/) and [Venus](http://space-facts.com/venus/) are brighter. It is one of five planets visible to the naked eye from Earth.

**The ancient Babylonians were the first to record their sightings of Jupiter:**  
This was around the 7th or 8th century BC. Jupiter is named after the king of the Roman gods. To the Greeks, it represented Zeus, the god of thunder. The Mesopotamians saw Jupiter as the god Marduk and patron of the city of Babylon. Germanic tribes saw this planet as Donar, or Thor.

**Jupiter has the shortest day of all the planets:**  
It turns on its axis once every 9 hours and 55 minutes. The rapid rotation flattens the planet slightly, giving it an oblate shape.

**Jupiter orbits the Sun once every 11.8 Earth years:**  
From our point of view on [Earth](http://space-facts.com/earth/), it appears to move slowly in the sky, taking months to move from one constellation to another.

**Jupiter has unique cloud features:**  
The upper atmosphere of Jupiter is divided into cloud belts and zones. They are made primarily of ammonia crystals, sulfur, and mixtures of the two compounds.

**The Great Red Spot is a huge storm on Jupiter:**  
It has raged for at least 350 years. It is so large that three Earths could fit inside it.

**Jupiter’s interior is made of rock, metal, and hydrogen compounds:**  
Below Jupiter’s massive atmosphere (which is made primarily of hydrogen), there are layers of compressed hydrogen gas, liquid metallic hydrogen, and a core of ice, rock, and metals.

**Jupiter’s moon Ganymede is the largest moon in the solar system:**  
Jupiter’s moons are sometimes called the Jovian satellites, the largest of these are Ganymeade, Callisto Io and Europa. Ganymeade measures 5,268 km across, making it larger than the planet [Mercury](http://space-facts.com/mercury/).

**Jupiter has a thin ring system:**  
Its rings are composed mainly of dust particles ejected from some of Jupiter’s smaller worlds during impacts from incoming comets and asteroids. The [ring system](http://space-facts.com/gas-giants/#rings) begins some 92,000 kilometres above Jupiter’s cloud tops and stretches out to more than 225,000 km from the planet. They are between 2,000 to 12,500 kilometres thick.

**Eight spacecraft have visited Jupiter:**  
Pioneer 10 and 11, Voyager 1 and 2, Galileo, Cassini, Ulysses, and New Horizons missions. The Juno mission is its way to Jupiter and will arrive in July 2016. Other future missions may focus on the Jovian moons Europa, Ganymede, and Callisto, and their subsurface oceans.

**SATURN**

**Saturn can be seen with the naked eye:**  
It is the fifth brightest object in the [solar system](http://space-facts.com/solar-system/) and is also easily studied through binoculars or a small telescope.

**Saturn was known to the ancients, including the Babylonians and Far Eastern observers:**  
It is named for the Roman god Saturnus, and was known to the Greeks as Cronus.

**Saturn is the flattest planet:**  
Its polar diameter is 90% of its equatorial diameter, this is due to its low density and fast rotation. Saturn turns on its axis once every 10 hours and 34 minutes giving it the second-shortest day of any of the solar system’s planets.

**Saturn orbits the Sun once every 29.4 Earth years:**  
Its slow movement against the backdrop of stars earned it the nickname of “Lubadsagush” from the ancient Assyrians. The name means “oldest of the old”.

**Saturn’s upper atmosphere is divided into bands of clouds:**  
The top layers are mostly ammonia ice. Below them, the clouds are largely water ice. Below are layers of cold hydrogen and sulfur ice mixtures.

**Saturn has oval-shaped storms similar to Jupiter’s:**  
The region around its north pole has a hexagonal-shaped pattern of clouds. Scientists think this may be a wave pattern in the upper clouds. The planet also has a vortex over its south pole that resembles a hurricane-like storm.

**Saturn is made mostly of hydrogen:**  
It exists in layers that get denser farther into the planet. Eventually, deep inside, the hydrogen becomes metallic. At the core lies a hot interior.

**Saturn has the most extensive rings in the solar system:**  
The Saturnian rings are made mostly of chunks of ice and small amounts of carbonaceous dust. The rings stretch out more than 120,700 km from the planet, but are are amazingly thin: only about 20 meters thick.

**Saturn has 150 moons and smaller moonlets:**  
All are frozen worlds. The largest moons are Titan and Rhea. Enceladus appears to have an ocean below its frozen surface.

**Titan is a moon with complex and dense nitrogen-rich atmosphere:**  
It is composed mostly of water ice and rock.Its frozen surface has lakes of liquid methane and landscapes covered with frozen nitrogen. Planetary scientists consider Titan to be a possible harbour for life, but not Earth-like life.

**Four spacecraft have visited Saturn:**  
*Pioneer 11*, *Voyager 1* and *2*, and the *Cassini-Huygens mission* have all studied the planet. Cassini continues to orbit Saturn, sending back a wealth of data about the planet, its moons, and rings.

**URANUS**

**Uranus was officially discovered by Sir William Herschel in 1781:**  
It is too dim to have been seen by the ancients. At first Herschel thought it was a comet, but several years later it was confirmed as a planet. Herscal tried to have his discovery named “Georgian Sidus” after King George III. The name Uranus was suggested by astronomer Johann Bode. The name comes from the ancient Greek deity Ouranos**.**

**Uranus turns on its axis once every 17 hours, 14 minutes:**  
The planet rotates in a retrograde direction, opposite to the way [Earth](http://space-facts.com/earth/) and most other planets turn.

**Uranus makes one trip around the Sun every 84 Earth years:**  
During some parts of its orbit one or the other of its poles point directly at the Sun and get about 42 years of direct sunlight. The rest of the time they are in darkness.

**Uranus is often referred to as an “ice giant” planet:**  
Like the other [gas giants](http://space-facts.com/gas-giants/), it has a hydrogen upper layer, which has helium mixed in. Below that is an icy “mantle, which surrounds a rock and ice core. The upper atmosphere is made of water, ammonia and the methane ice crystals that give the planet its pale blue color.

**Uranus hits the coldest temperatures of any planet:**  
With minimum atmospheric temperature of -224°C Uranus is nearly coldest planet in the solar system. While Neptune doesn’t get as cold as Uranus it is on average colder. The upper atmosphere of Uranus is covered by a methane haze which hides the storms that take place in the cloud decks.

**Uranus has two sets of rings of very thin set of dark colored rings:**  
The ring particles are small, ranging from a dust-sized particles to small boulders. There are nine inner rings and two outer rings. They probably formed when one or more of Uranus’s moons were broken up in an impact. The first set of rings was discovered in 1977 and the second set was discovered in 2003 by the Hubble Space Telescope.

**Uranus’ moons are named after characters created by William Shakespeare and Alaxander Pope:**  
These include Oberon, Titania and Miranda.  All are frozen worlds with dark surfaces. Some are ice and rock mixtures.  The most interesting Uranian moon is Miranda; it has ice canyons, terraces, and other strange-looking surface areas.

**Only one spacecraft has flown by Uranus:**  
In 1986, the Voyager 2 spacecraft swept past the planet at a distance of 81,500 km. It returned the first close-up images of the planet, its moons, and rings.

**NEPTUNE**

**Neptune was not known to the ancients:**  
It is not visible to the naked eye and was first observed in 1846. Its position was determined using mathematical predictions. It was named after the Roman god of the sea.

**Neptune spins on its axis very rapidly:**  
Its equatorial clouds take 18 hours to make one rotation. This is because Neptune is not solid body.

**Neptune is the smallest of the ice giants:**  
Despite being smaller than [Uranus](http://space-facts.com/uranus/), Neptune has a greater mass. Below its heavy atmosphere, Uranus is made of layers of hydrogen, helium, and methane gases. They enclose a layer of water, ammonia and methane ice. The inner core of the planet is made of rock.

**The atmosphere of Neptune is made of hydrogen and helium, with some methane:**  
The methane absorbs red light, which makes the planet appear a lovely blue. High, thin clouds drift in the upper atmosphere.

**Neptune has a very active climate:**  
Large storms whirl through its upper atmosphere, and high-speed winds track around the planet at up 600 meters per second. One of the largest storms ever seen was recorded in 1989. It was called the Great Dark Spot. It lasted about five years.

**Neptune has a very thin collection of rings:**  
They are likely made up of ice particles mixed with dust grains and possibly coated with a carbon-based substance.

**Neptune has 14 moons:**  
The most interesting moon is Triton, a frozen world that is spewing nitrogen ice and dust particles out from below its surface. It was likely captured by the gravitational pull of Neptune. It is probably the coldest world in the solar system.

**Only one spacecraft has flown by Neptune:**  
In 1989, the Voyager 2 spacecraft swept past the planet. It returned the first close-up images of the Neptune system. The NASA/ESA Hubble Space Telescope has also studied this planet, as have a number of ground-based telescopes.

**PLUTO**

**Pluto is named after the Greek god of the underworld:**  
This is a later name for the more well known Hades and was proposed by Venetia Burney an eleven year old schoolgirl from Oxford, England.

**Pluto was reclassified from a planet to a dwarf planet in 2006:**  
This is when the IAU formalised the [definition of a planet](http://space-facts.com/planets/#definition) as “A planet is a celestial body that (a) is in orbit around the Sun, (b) has sufficient mass for its self-gravity to overcome rigid body forces so that it assumes a hydrostatic equilibrium (nearly round) shape, and (c) has cleared the neighbourhood around its orbit.”

**Pluto was discovered on February 18th, 1930 by the Lowell Observatory:**  
For the 76 years between Pluto being discovered and the time it was reclassified as a dwarf planet it completed under a third of its orbit around the Sun.

**Pluto has five known moons:**  
They are Charon (discovered in 1978,), Hydra and Nix (both discovered in 2005), Kerberos originally P4 (discovered 2011) and Styx originally P5 (discovered 2012) official designations S/2011 (134340) 1 and  S/2012 (134340) 1.

**Pluto may be the largest dwarf planet:**  
Or it could be Eris. Currently the most accurate measurements give Eris an average diameter of 2,326km with a margin of error of 12km, while Pluto’s diameter is 2,368km with a 20km margin of error, however due to Pluto’s atmosphere it is difficult to say for certain.

**Pluto is one third water:**  
This is in the form of water ice which is more than 3 times as much water as in all the Earth’s oceans, the remaining two thirds are rock.

**Pluto is smaller than a number of moons:**  
These are Ganymede, Titan, Callisto, Io, Europa, Triton, and the [Earth’s moon](http://space-facts.com/the-moon/). Pluto has 66% of the diameter of the Earth’s moon and 18% of its mass.

**Pluto has a eccentric and inclined orbit:**  
This takes it between 4.4 and 7.4 billion km from the Sun meaning Pluto is periodically closer to the Sun than Neptune.

**No spacecraft have visited Pluto:**  
Though in July 2015 the spacecraft New Horizons, which was launched in 2006, is scheduled to fly by Pluto on its way to the Kuiper Belt.

**Pluto’s location was predicted by Percival Lowell in 1915:**  
The prediction came from deviations he initially observed in 1905 in the orbits of Uranus and Neptune.

**Pluto sometimes has an atmosphere:**  
During Pluto’s elliptical when Pluto is closer to the Sun its surface ice thaws and forms a thin atmosphere primarily of nitrogen with a little methane and carbon monoxide. When Pluto travels away from the Sun the atmosphere then freezes back to its solid state.

Above Information on the planets taken from: <http://space-facts.com/planets/>

**PLANET X**

Caltech researchers have found mathematical evidence suggesting there may be a "Planet X" deep in the solar system. This hypothetical Neptune-sized planet orbits our sun in a highly elongated orbit far beyond Pluto. The object, which the researchers have nicknamed "Planet Nine," could have a mass about 10 times that of Earth and orbit about 20 times farther from the sun on average than Neptune. It may take between 10,000 and 20,000 Earth years to make one full orbit around the sun.