

Mercury

1 Mercury year =
88 Earth days

1 Mercury day =
59 Earth days

Surface

Mercury looks very similar to the Moon. It is covered in impact craters caused by asteroids or comets.

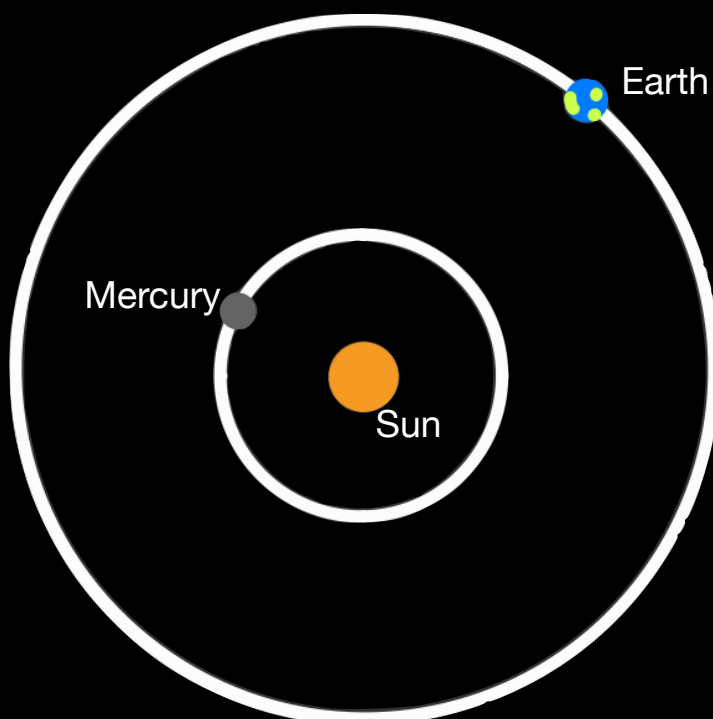
Most of the surface is a greyish brown, but there are bright streaks called 'crater rays' made from dust ejected during impacts.



Model of Mercury from NASA Visualisation Technology Applications and Development

Orbit

The closest planet to the Sun is an average of 36 million miles away from the Sun.

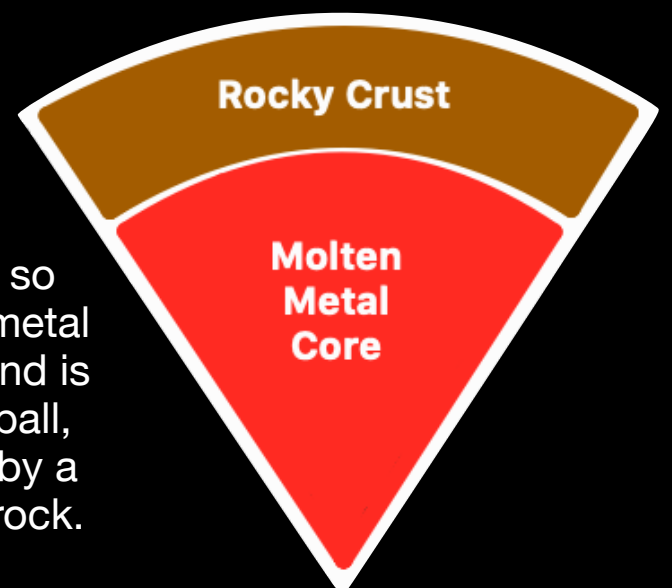


Surface temperature

-180°C - 450°C

Structure

Mercury is the smallest planet in the Solar System and is only a little bit bigger than the Moon. It has a very large metallic core which makes up about 85% of the total planet.



The core is so hot that the metal has melted and is a big liquid ball, surrounded by a thin shell of rock.

Atmosphere

Mercury doesn't really have an atmosphere, but a very thin layer of atoms which are blown off the surface by impacts or winds from the Sun.

Fun Fact

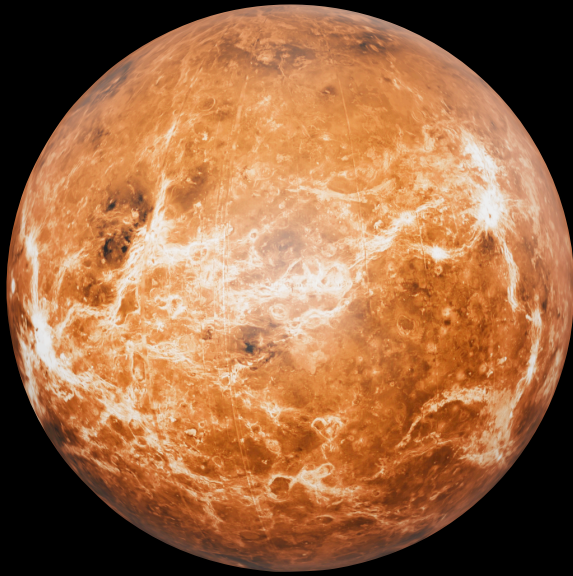
The magnetic field of Mercury is only 1% as strong as the Earth's. But because the planet is so close to the Sun, sometimes its magnetic field interacts with the solar wind and creates magnetic tornadoes which funnel burning hot plasma down to the surface of the planet.

Venus

Surface

The surface of Venus is very bare and rocky.

There are a lot of volcanos and even a mountain taller than Mount Everest.



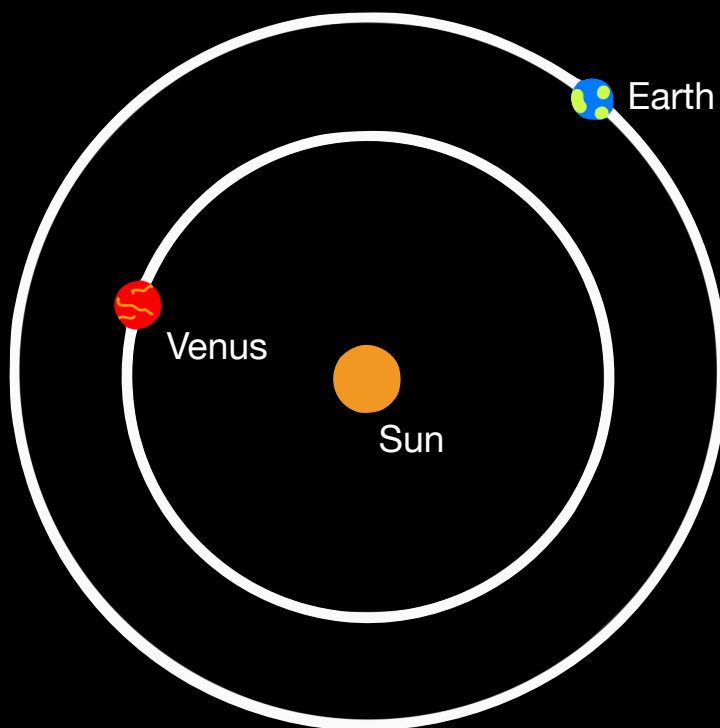
Model of Venus from NASA Visualisation Technology Applications and Development

1 Venus day =
243 Earth days

1 Venus year =
225 Earth days

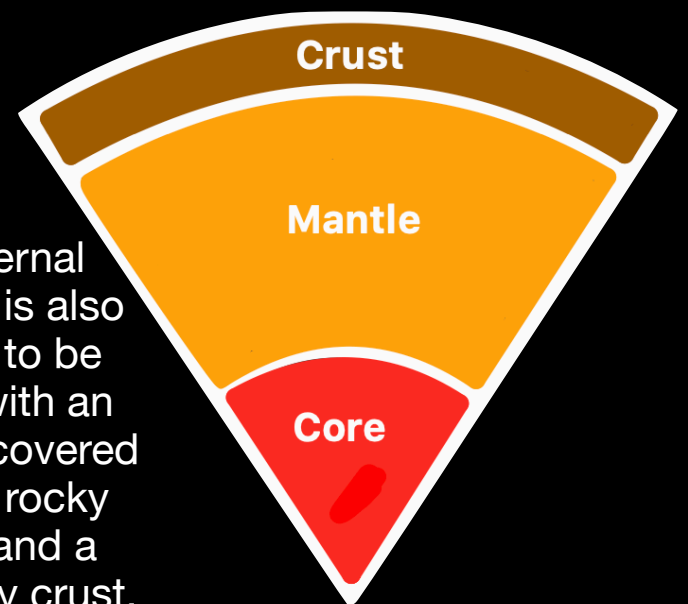
Orbit

Venus is an average distance of 67 million miles away from the Sun.



Structure

Venus is very similar to the Earth, its diameter is only 400 miles less than Earth's.



The internal structure is also thought to be similar, with an iron core covered by a hot rocky mantle and a thin rocky crust.

Surface temperature

Up to 475°C!

Atmosphere

The surface of Venus is so hot because its atmosphere is mostly composed of carbon dioxide which is a greenhouse gas. This means it traps heat at the surface.

Its clouds are made of sulphuric acid, which is extremely damaging, and gives the sky a yellow colour.

Fun Fact

Venus rotates the opposite way (clockwise) to most of the other planets in the Solar System, which is why a day on Venus lasts longer than a year.

Asteroids

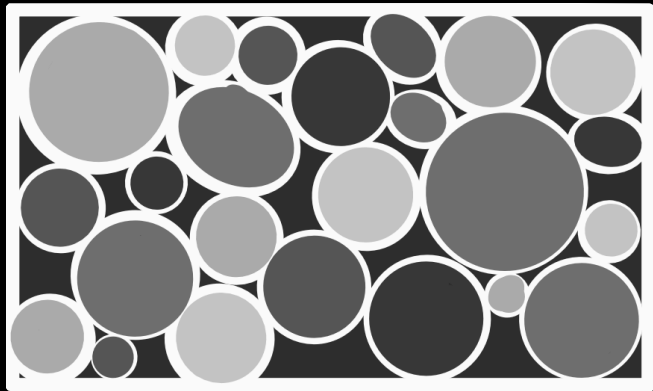
Asteroids are large chunks of rocks and dust that were leftover after the planets had formed.

They can contain water and other important chemicals which can help create life. So they are really important for us to understand the history of the Earth.

Structure

As most asteroids do not have cores like planets, their bodies are just collections of rocks held together.

Rocks don't fit perfectly together so there are lots of gaps, up to half of Ryugu is empty space.



162173 Ryugu

Surface

Asteroids aren't really solid like planets, but are instead spinning balls of dust and rocks.

Because of this they aren't spherical but often look more like diamonds, like Ryugu below.

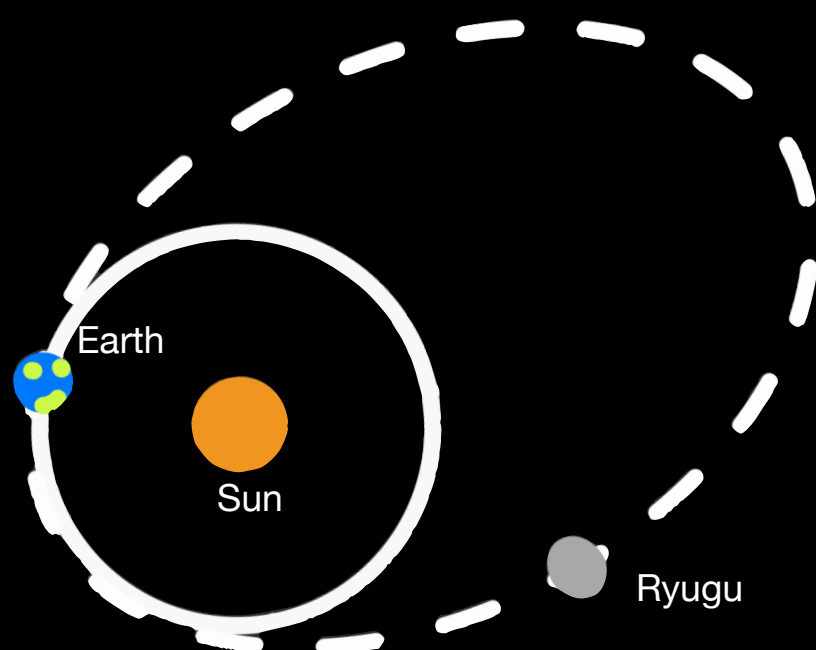
The surface is also very uneven, covered in large boulders and impact craters.



Orbit

Ryugu is a near-Earth asteroid which is on average about 100 million miles away from the Sun and could come within 60,000 miles of the Earth.

Although it will come close to Earth, it is unlikely to be dangerous for us in the near future.



Fun Fact

Ryugu is named after an undersea dragon palace of Ryūjin, a dragon god in Japanese tradition.

Jupiter

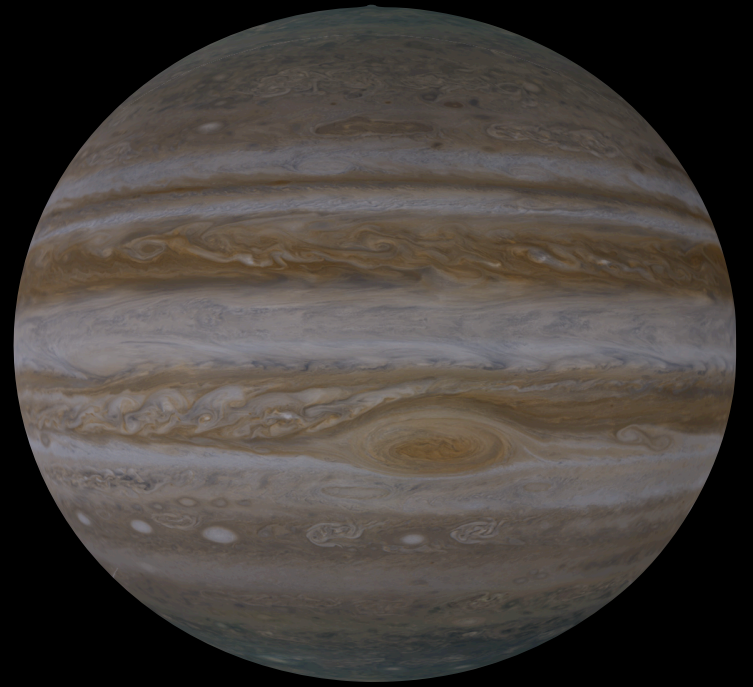
1 Jupiter year =
12 Earth years

1 Jupiter day =
10 Earth hours

Atmosphere

The majority of the planet is a mixture of swirling gasses and liquids.

The bands of different colours are caused by different chemicals being blown around by fast winds. The atmosphere has such high pressures and temperatures that it would crush and melt any spacecraft.



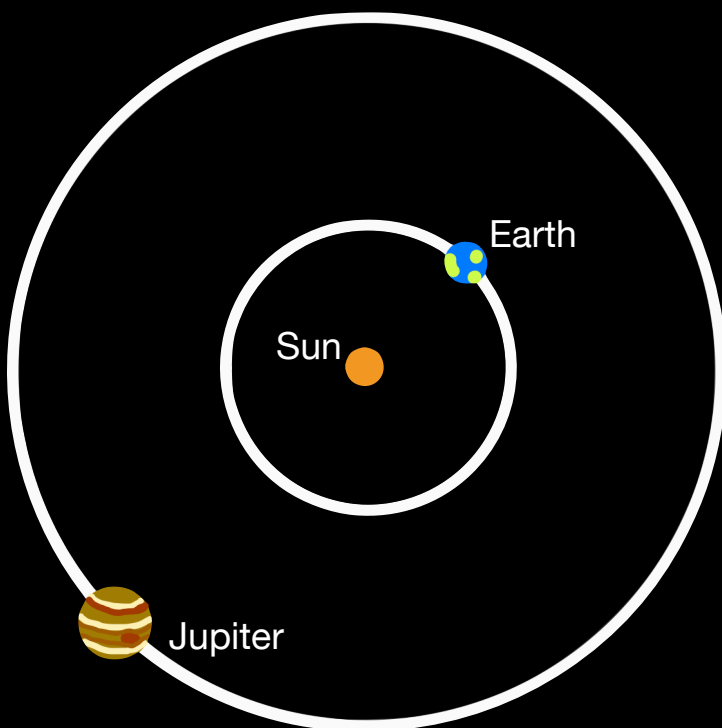
Model of Jupiter from NASA Visualisation Technology Applications and Development

Surface

Jupiter is a gas giant planet, which means it doesn't really have a surface and so a spacecraft couldn't land on it.

Orbit

Jupiter is on average 484 million miles away from the Sun.

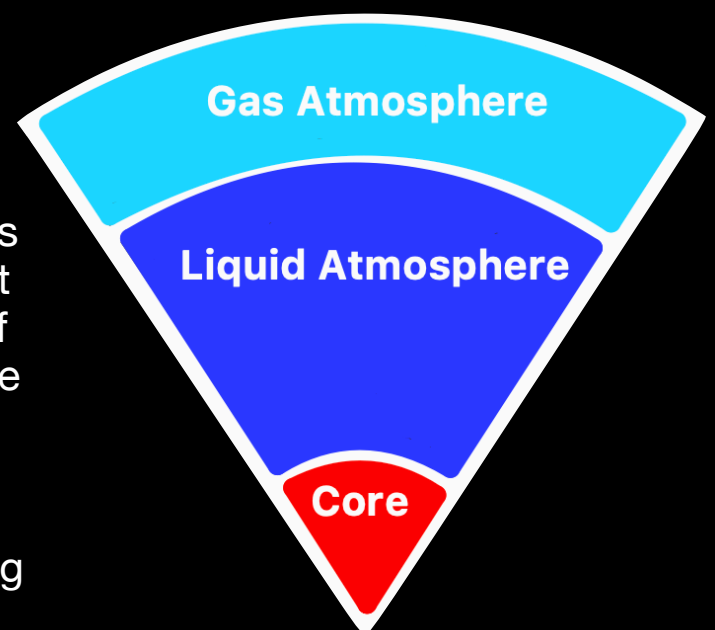


Structure

Jupiter is the biggest planet in the Solar System, you could fit 1321 Earths inside it. It is mainly made up of gas which is extremely dense and hot.

It currently isn't known if Jupiter has a solid core, or a core of super hot, thick soup.

The magnetic field of Jupiter is so strong that it creates belts of radiation outside of the planet which can damage its moons or visiting spacecraft.



Fun Fact

The 'Great Red Spot' of Jupiter is a storm which is twice as wide as the whole Earth and has been observed for more than 300 years!

1 Saturn day =
10.7 Earth hours

1 Saturn year =
29.4 Earth years

Saturn

Surface

Like Jupiter, Saturn is a gas giant which doesn't really have a surface for a spacecraft to land on.

Moons

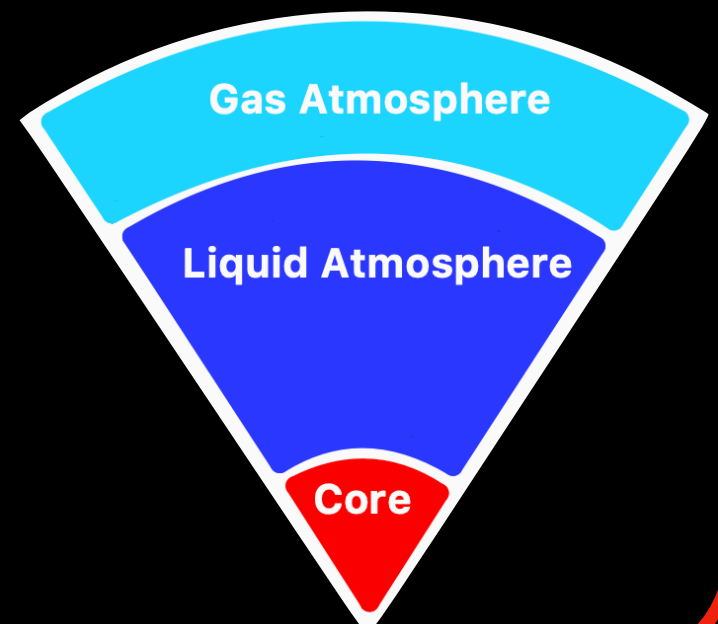
Saturn has more than 146 moons, including Enceladus which has water volcanos!

Structure & Atmosphere

Saturn is a large ball of gas which is about 9 times as wide as the Earth.

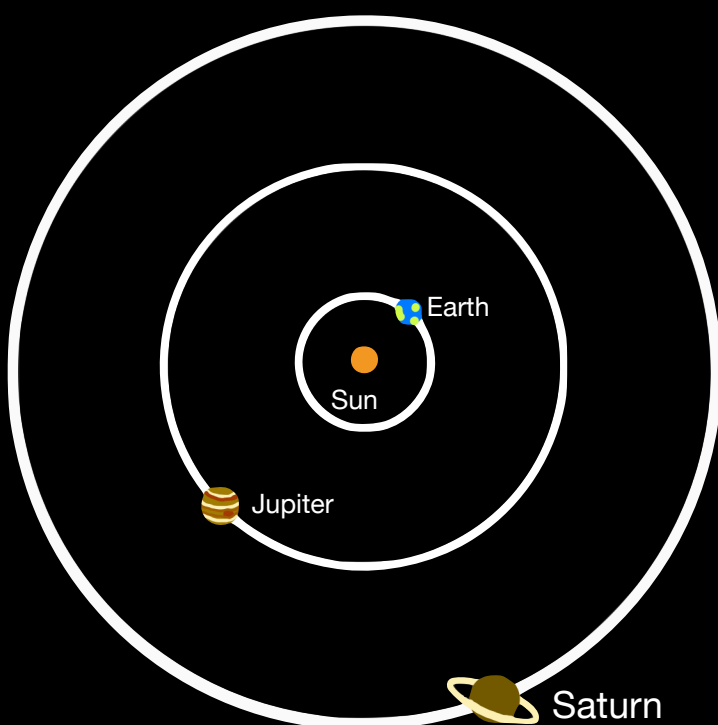
The large gas atmosphere is made up of clouds, streams and storms in different shades of yellow, brown and grey.

Saturn's winds can be so strong, they are 5 times as fast as hurricanes on Earth.



Orbit

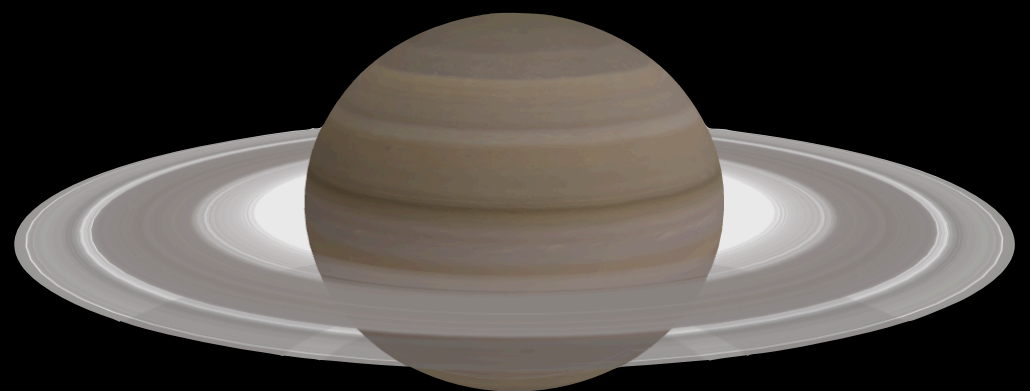
Saturn is on average 886 million miles away from the Sun.



Rings

Saturn's rings are thought to be made of comets, asteroids or even moons which were destroyed.

Although the rings are really large, they are only about 10m thick.



Model of Saturn from NASA Visualisation Technology Applications and Development

Fun Fact

Saturn has an average density which is less than water, which means it would float in a bathtub - if you could find one that was big enough!

Pluto

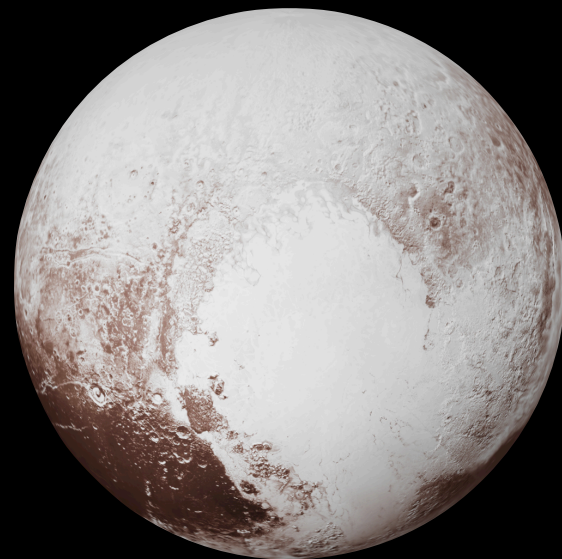
1 Pluto year =
248 Earth years

1 Pluto day = 6.4
Earth days

Appearance

Pluto's surface is covered in mountains, valleys and plains.

There is a large, bright area shaped like a heart, which is thought to be made of frozen nitrogen.

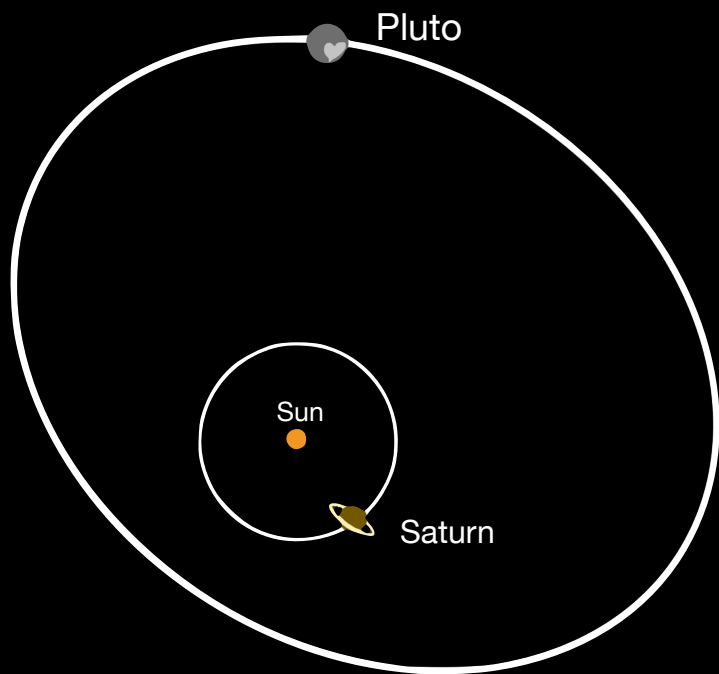


Model of Pluto from NASA Visualisation Technology Applications and Development

Orbit

Pluto is incredibly far away and is an average of 3.7 billion miles away from the Sun inside the Kuiper Belt.

Pluto's orbit is eccentric (shaped like an oval), which means sometimes it comes much closer to the Sun than other times.



Surface temperature

-232°C

Moons

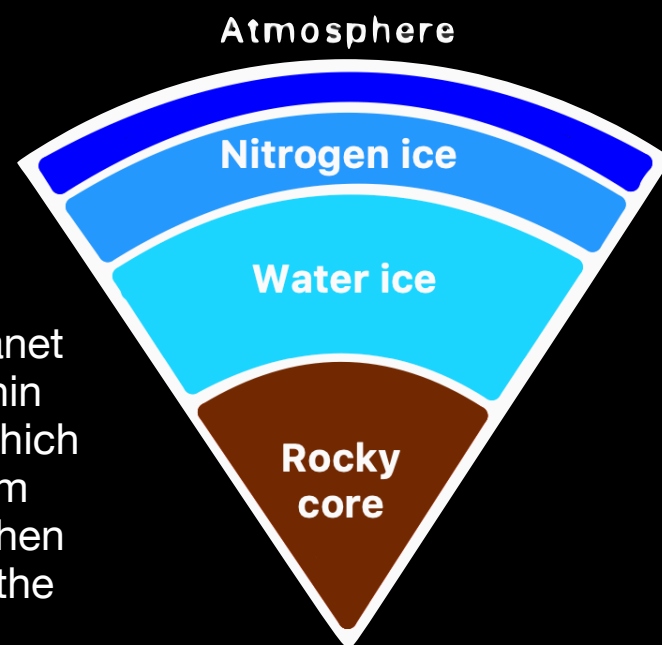
Pluto has five moons, which might have formed when another dwarf planet crashed into Pluto.

Its largest moon Charon, is about half the size of Pluto.

Structure

Pluto isn't really a planet because it is so small, you could fit 170 Pluto's inside Earth. So instead, we call it a dwarf planet. It is thought that Pluto has a rocky core surrounded by a mantle of water ice.

The dwarf planet has a very thin atmosphere which is made from melting ice when it is close to the Sun.



Fun Fact

Pluto used to be considered the Solar System's ninth planet. However, in 2006 it was downgraded to a dwarf planet because of its size, and the discovery of other similar sized dwarf planets close to Pluto. These dwarf planets include: Orcus, Haumea, Quasar and Makemake.