



Year 7 Science work

The planets in our Solar system

Mercury

Size

As big as Earth's moon.

Spins

Once in 58.6 days.

Distance from sun

Varies from 46.0 million km (28.6 million miles) to 69.8 million km (43.4 million miles).

Gravity

Not very strong, and the rate at which it leaks into space depends on Solar activity as well as whether it is on the night or day side of the planet.

Did you know?

Like other planets, Mercury's closest position to the sun changes slightly with each orbit, but with Mercury, a tiny part of this is caused by the curvature of Space near to the Sun.

Craters

Mercury is heavily cratered as a result of a huge amount of asteroid bombardment when the planet was quite young. Mercury's craters come in a range of sizes, from small, bowl shaped ones, to ones like the Caloris Basin, which covers nearly one third of the planet's width!

What's in the core?

A relatively large iron core generating a magnetic field that is about 100 times weaker than on Earth.

The Caloris Basin

As shown here, it appears as a large orange circle in a false colour image.

Did you know?

Mercury has no seasons because it is almost positioned upright, however, due to its pattern of orbit, its distance from the sun kind of creates a mimic of Earth's seasons.

How long is a day?

176 Earth days, during which the planet makes two full orbits of the Sun.

Atmosphere

Very thin but much denser on the night side than on the day. Its overall density is about one thousand billion times less than that of Earth's. It is also highly unstable.

Temperature

At midday, the surface temperature is a whopping 430 degrees Celsius (806 degrees Fahrenheit) and at night, a freezing -180 degrees Celsius (-292 degrees Fahrenheit).



Venus

What's in the core?

Venus has an iron core, approximately 2,000 miles (3,200 km) in radius.

Distance from sun

Venus is a whopping 108.94 million km (67 million miles) away from the Sun.

Spins

The opposite way to Earth (Clockwise).

Size

The same size as Earth.

Did you know?

Venus' vast plains of lava, known as planitia, often have channel like features known as valles. Usually about 1-3km (0.6-1.9 miles) wide, they formed when lava melted or eroded a path across the landscape.

How long is a day?

116 days, 18 hours on Earth, and Venus completes one full orbit of the Sun every 224.7 Earth days.

Temperature

Venus' surface temperature is about 465 degrees Celsius on average (900 degrees Fahrenheit), hot enough to melt lead.

Atmosphere

Venus' atmosphere is made up almost entirely of carbon dioxide with a small percentage of nitrogen. This atmosphere is very similar to Earth's.

Gravity

The gravity on Venus is almost 91% of Earth's, so you could jump a little higher and objects would feel a little lighter, but the difference is barely noticeable.

Addams Crater

This crater leaves a trail of material shaped like a mermaid's tail which seems to drift away from the 87 km (54 mile) wide Addams Crater. This was once molten material ejected from within the crater. Its brightness indicates its rough surface.

Did you know?

Like Mercury, Venus was also bombarded by asteroids whilst still very young. This shows today in to form of craters on its surface.

Craters

Venus has many craters in a range of sizes, from small, bowl-shaped ones to very large, wide ones.



Distance from Sun

The Earth is 147.9 million km away from the Sun and the moon is about 150 million km away.

Moon

Earth

Did you know?

On average, the distance it takes for Earth to travel around the Sun is 149.6 million km (93.0 million miles).

What's in the core?

Within the centre of the Earth, lots of magma and molten rock dwells at a deadly hot temperature. The Moon has a dense, metallic core, largely composed of iron and some nickel.

How long is a day?

A day on Earth is 24 hours and a day on the Moon is 29.5 Earth days.

Atmosphere

The atmosphere on Earth is about 78% nitrogen and 21% oxygen. There is also a small amount of other gases. On the Moon, there is no atmosphere, only a small layer of gases on the lunar surface, technically considered to be an exosphere.

Size

The diameter of Earth is 12,742 km and the diameter of the moon is 3,474.2 km.

Gravity

An object if held above ground and let go, will accelerate towards Earth at the speed of about 9.8 meters per second of free fall. On the Moon, the gravity is much weaker.

South Pole-Aitken crater

This is the biggest crater on the Moon, measuring about 1553 miles wide.

Temperature

On Earth, the average temperature is 14 degrees Celsius, and on the Moon, the average temperature during the day is about 127 degrees Celsius (260 degrees Fahrenheit) and at night, temperatures can drop to about -173 degrees Celsius (-280 degrees Fahrenheit).

Craters

Earth has very few craters, instead, it is volcanic and is abundant in hills. The Moon, however, has lots and lots of craters created by asteroids hitting its surface.

Spins

Earth spins anticlockwise and completes one full orbit of the Sun every 365.25 days, whereas the moon spins anticlockwise and completes one full orbit of the Earth every 27.5 days. This is called a Lunar Month.

Did you know?

Since the moon's very early days, its orbit and its rotation have taken the same amount of time, therefore, the same side of the Moon (known as the near side) has always faced us.



Mars

Spins

Anticlockwise and it takes 24.6 hours to complete.

Did you know?

Like Earth, Mars has distinct layers of soil, at the centre of which is solid iron.

Size

6,779 km in diameter

Distance from Sun

236.59 million km

Craters

On Mars, there are thousands of craters, because unlike Earth, Mars has a stable crust, low erosion rate and no active sources of lava, meaning impact craters on Mars are not obliterated as they are on Earth.

What's in the core?

At the centre of Mars is solid iron.

Did you know?

There is evidence on Mars' surface that suggests that water once flowed in rivers and streams like on Earth. We are doing more exploration into this to see whether there still is.

Valles Marineris

This is an enormous network of canyons which formed as the surface of Mars split when the planet was young.

Gravity

The gravity on Mars is about 38% of Earth's.

Atmosphere

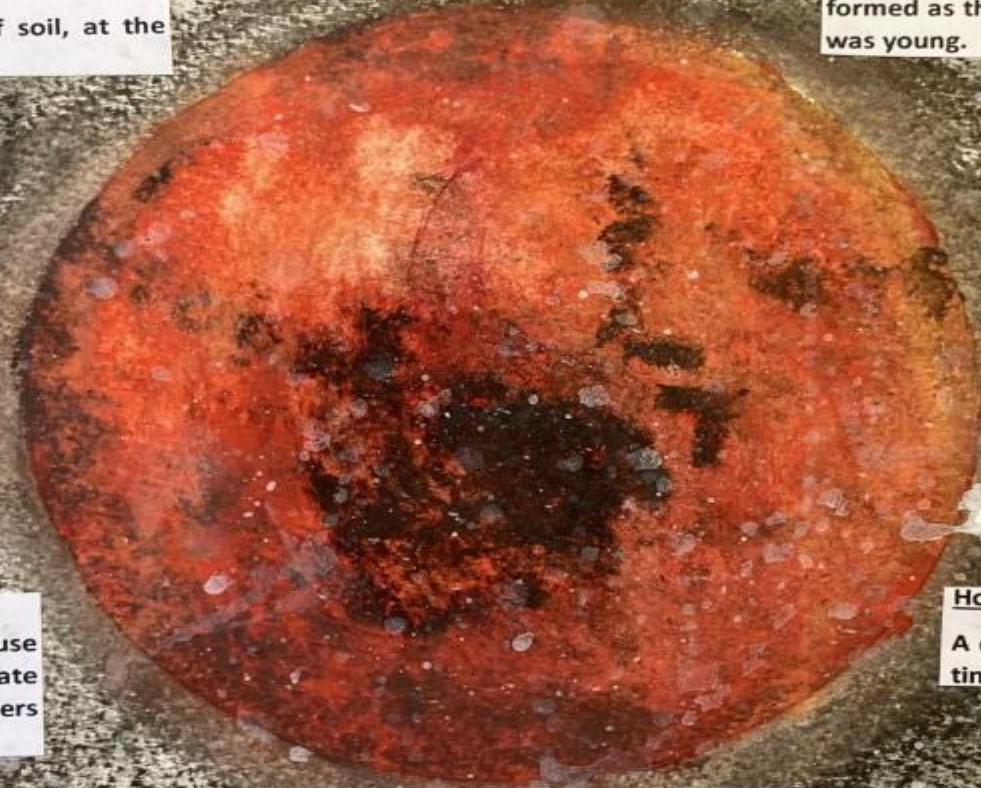
Mars' atmosphere contains Mostly carbon dioxide and some water vapor.

Temperature

On Mars, the average temperature is -62.8 degrees Celsius (-81 degrees Fahrenheit).

How long is a day?

A day on Mars is approx. 1 day, 37 minutes in Earth time.



Jupiter

What's in the centre?

Rock, metal and hydrogen compounds.

Temperature

The average temperature on Jupiter is about -145 degrees Celsius (-234 degrees Fahrenheit).

Did you know?

Within the solar system, Jupiter is only second to the sun in size and mass.

Spins

Jupiter spins clockwise. It takes 10 Earth hours for Jupiter to rotate around its axis.

Distance from Sun

Jupiter is about five times further from the Sun than Earth.

Size

Jupiter has a diameter of 139,820 km.

How long is a day?

9 hours and 56 minutes on Earth is equal to one day on Jupiter.

Did you know?

Jupiter is named after the most important Roman god, the god of the sky.

Jupiter's eye

No, this isn't an eye like what we have on our faces, thank goodness, it is just the nickname for a large high pressure region of the atmosphere that creates an anticyclonic storm on Jupiter's surface.

Craters

Jupiter is one of the few planets that has no craters. This is because the gas surface covers the land so there is no visible place for the asteroids to hit.

Gravity

Because of its massive size, Jupiter's gravity is significantly stronger than on Earth.

Atmosphere

The atmosphere on Jupiter is made up mostly of hydrogen and helium, like on the Sun.



Saturn

Craters

Like Jupiter, Saturn does not have any craters since it is a gas planet, meaning it has no solid surface.

Temperature

The average temperature on Saturn is -178 degrees Celsius (288 degrees Fahrenheit).

Did you know?

Saturn is named after the father of Jupiter, the Roman god of the sky.

Atmosphere

Hydrogen makes up the majority of Saturn's atmosphere, with a lesser percentage of helium, and even less methane and ammonia.

Distance from Sun

Saturn is approx. 9.5 times further from the sun than Earth is.

How long is a day?

A day on Saturn takes just 10 hours and 42 minutes in Earth time.

Spins

One rotation takes just 10.5 Earth hours.

Gravity

The gravity on Saturn is only 1.08 times the gravity on Earth, meaning it is not really that different, despite the massive size difference.

Size

Saturn's diameter is 116,460 km wide.

What's in the core?

Rock and ice.

Did you know?

Like Earth, as Saturn orbits the Sun, its rings are seen either looking from above or from head on. This is all because of the planet's axis.

Saturn's rings

Saturn is surrounded by rings made up of millions upon billions of rocks, dust and other miscellaneous objects that happen to get dragged into orbit. From a distance, the illusion is created that Saturn's rings are solid, but they are not able to be stood on, as many cartoons may suggest.



Uranus

Size

Uranus' diameter is 5,724 km.

What's in the core?

Rock and possibly ice.

Distance from Sun

Between 2,741.3 million km to 3,003.6 million km, depending on its position in orbit.

Did you know?

Uranus doesn't have any distinct features aside from its rings except from a very large family of moons that orbit it, some of which are called: Titania, Umbriel, Miranda and Oberon.

How long is a day?

17 hours and 14 minutes in Earth time.

Did you know?

Uranus also has rings, although they are not as big and bold as Saturn's. They are a red-ish colour, and each ring is much thinner than Saturn's, which is probably why people think that Saturn is the only planet that has them.

Spins

Uranus spins anticlockwise whilst its axis is horizontal. This essentially means that the planet is lying on its side.

Gravity

The gravity is slightly less on Uranus than Earth.

Atmosphere

82.5% hydrogen, 15.2% helium and 2.3% methane and trace gases.

Temperature

-178.3 degrees Celsius is the average temperature on Uranus.

Craters

Uranus has very few large craters, but many, many small, bowl shaped ones. This indicates that most of the large craters were destroyed by a fairly recent, low impact asteroid belt on the planet's surface.

The new rings

In 2003, the Hubble Telescope took a photo of Uranus, and upon inspection, scientists discovered that Uranus had more rings than we once thought, two more to be exact. They are spaced very far apart, so far that they barely look like they belong to the planet, and they are much fainter.

