



HANDS ON UNIVERSE THE SOLAR SYSTEM



Science & Technology Facilities Council

Here are a few facts about the Solar system. What else can you find out about it?

EARTH

Earth is the planet we call home. About 70% of the Earth's surface is covered in water and it is the only planet in the Solar System that can support complex life like plants, animals and you. The Earth takes 365.25 days to orbit the Sun and 24 hours to spin on its axis. Its axis is tilted – in the summer it is tilted towards the Sun and in the winter it is tilted away from the Sun.



Diameter: **12,700KM**
Moons: **1**

THE SUN

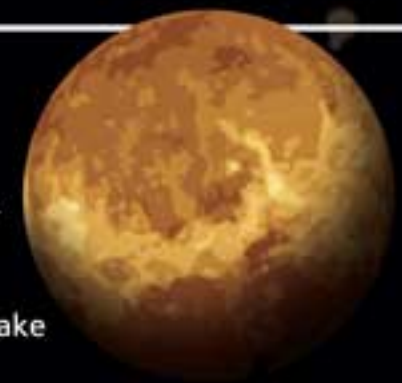
The Sun is the star at the centre of our Solar System and is responsible for the Earth's climate and weather. It appears much bigger than other stars because it is so close. Even so, it is 150 million kilometres away from the Earth! The Sun is a giant ball of hot gas. The Sun's surface is about 5,600°C, but its core is a scorching 15 million °C!



The Sun makes up 99.86% of all the mass in the Solar System – it contains about 333,000 times more mass than the Earth.

VENUS

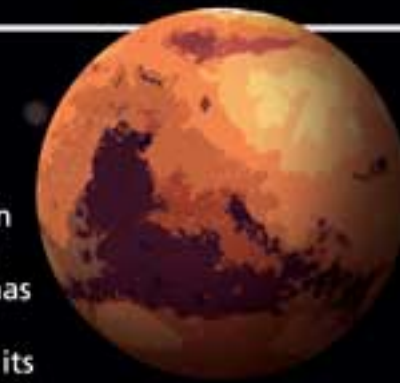
Venus is almost the same size as Earth, but it is very different. It is covered in clouds of water vapour and sulphuric acid that make it impossible to see the surface with ordinary telescopes. Venus is the hottest planet in the Solar System. Its thick atmosphere is 96.5% carbon dioxide, which traps lots of the heat from the Sun – meaning temperatures reach 460°C. Ouch!



Diameter: **12,100KM**
Moons: **0**

MARS

Mars is red because its surface is covered in iron oxide, which you might know as rust. Today, it has a very thin atmosphere and very little water on its surface, but it once had oceans of liquid water and may once have supported life. Mars is home to the largest volcano in the Solar System, Olympus Mons, which is three times higher than Mount Everest!



Diameter: **6,790KM**
Moons: **2**

SATURN

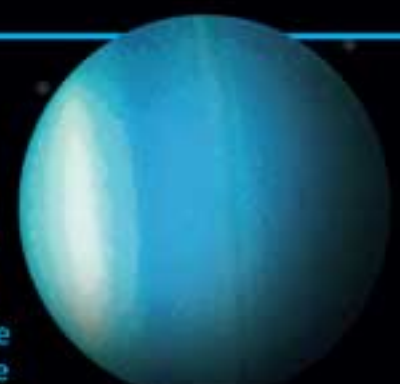
With a mass 95 times that of the Earth, Saturn is the second largest planet. Like Jupiter, it is a gas giant planet. Saturn's most famous feature is its system of rings, which are made up of ice and dust. Its rings measure 282,000km in diameter. Although Saturn has 62 large moons, it actually has many more smaller moons, called 'moonlets'.



Diameter: **120,500KM**
Moons: **62**

URANUS

With temperatures reaching as low as -224°C, Uranus is one of the coldest planets. It has two sets of very thin rings made up of ice and dust. At some point in its past, Uranus was knocked on its side by some great disaster. It also spins on its axis in the opposite direction to all the other planets. Like Neptune, Uranus contains much more ice than the other gas giants, so both are now called an 'ice giants'.



Diameter: **51,100 KM**
Moons: **27**

JUPITER

Jupiter is the biggest planet in the Solar System. Its mass is 300 times that of Earth. In some ways it is more like a star than a planet because it is a giant ball of gas. It doesn't have a rocky surface – just lots of layers of compressed gases. Jupiter is very stormy. Its famous 'Great Red Spot' is a giant storm that has been raging for 350 years. The storm is so big that three Earths could fit inside it!



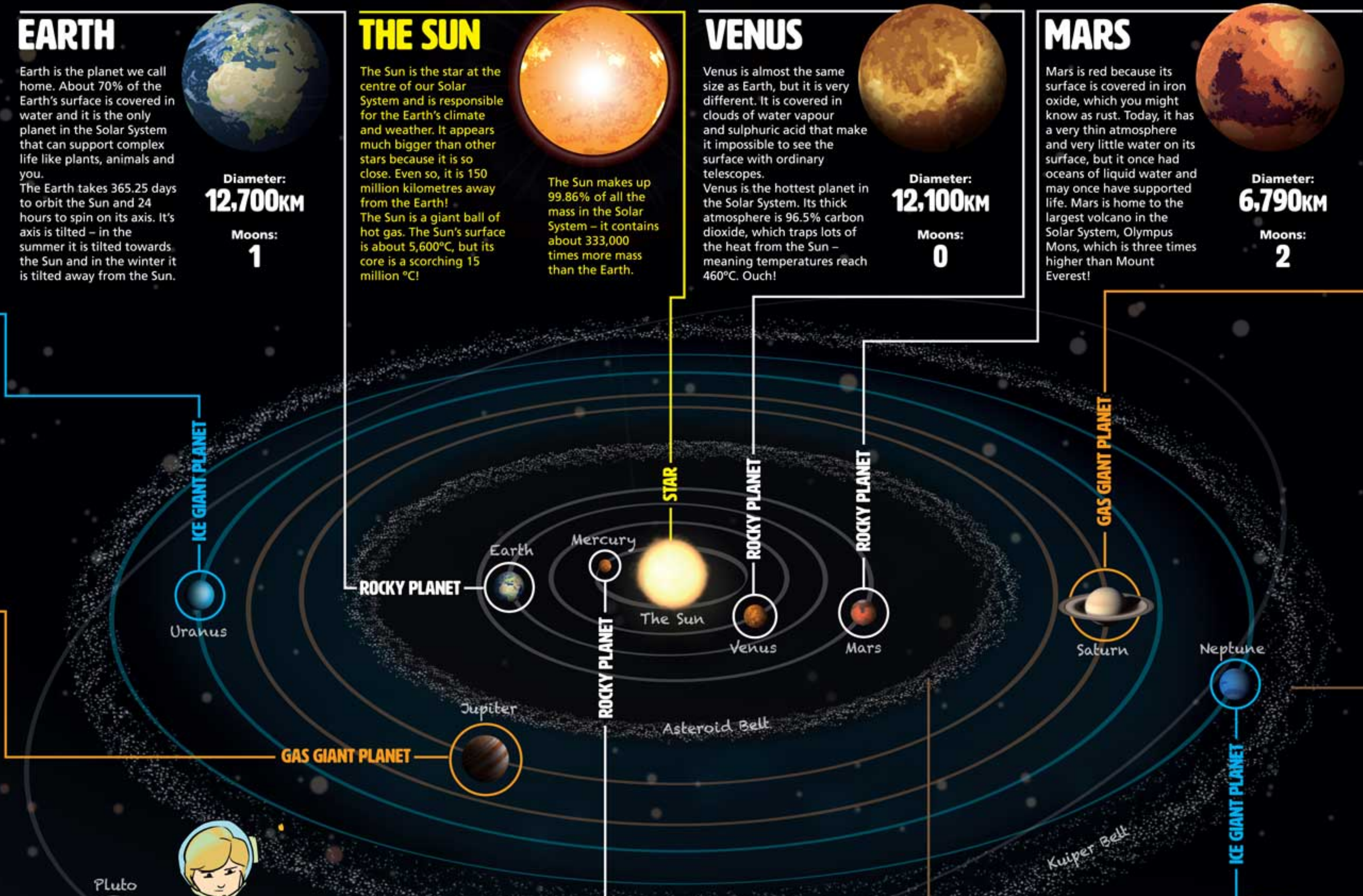
Diameter: **142,900KM**
Moons: **67**

PLUTO

Pluto is a member of a group of Solar System bodies called 'Dwarf Planets' that are smaller than planets but bigger than most asteroids and comets. Pluto is made up of about two-thirds rock and one third water (in the form of water ice), which means it has about three times more water than is in all the Earth's oceans. Its surface is covered in icy plains, mountain ranges and craters.



Diameter: **2,370KM**
Moons: **5**



HOW BIG?

The Sun really is huge! This shows just how much bigger the Sun is compared to the planets. Look how small the Earth appears!

- Mercury
- Venus
- Earth
- Mars
- Jupiter
- Saturn
- Uranus
- Neptune



MERCURY

Tiny Mercury is the closest planet to the Sun. A year on Mercury (the amount of time it takes to orbit the Sun) only lasts 88 days but, because it turns very slowly on its axis, a day on Mercury lasts 59 days (that's Earth days of course)! Because Mercury is so close to the Sun, its surface is very hot – reaching 400°C on its sunlit side (and we think it's too hot when it hits 26°C on Earth!).



Diameter: **4,870KM**
Moons: **0**

ASTEROID BELT

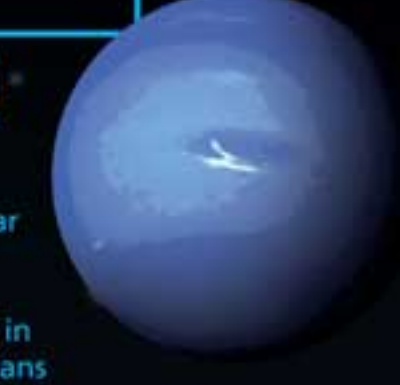
The Asteroid Belt lies between the orbits of Mars and Jupiter. It contains billions and billions of space rocks called asteroids. Most asteroids are as small as pebbles, but some are quite large. The four largest asteroids in the belt are Ceres, Vesta, Pallas, and Hygiea. Ceres is big enough to be classed as a 'Dwarf Planet' like Pluto.



Don't believe what you see in the movies – the rocks in the Asteroid Belt are very thinly spread, so there's not much risk of crashing a spacecraft into them!

NEPTUNE

Neptune is the most distant planet. It is so far away that it takes 165 years to complete one orbit. It was discovered in 1846 after mathematicians told astronomers where to look for it – because it was too far away to be seen easily by the telescopes of the day. Neptune's atmosphere is very stormy. One storm, discovered in 1989, lasted five years and had winds reaching speeds of 1,300 mph!



Diameter: **49,500 KM**
Moons: **14**

KUIPER BELT

The Kuiper Belt stretches from beyond the orbit of Neptune and is where comets come from. It is a region of space that contains small Solar System bodies that are made up mostly of ice. Lumps of ice that are knocked out of the Kuiper Belt are known as comets. Most Kuiper Belt objects are very small but it is also the home of the dwarf planets, Pluto, Haumea and Makemake.



The chunks of ice in the Kuiper Belt date back to the formation of the Solar System. They contain clues to how the Solar System first formed.

Although the planets look quite close together in the main picture on this poster, they are actually much, much further apart – as this diagram shows.



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