

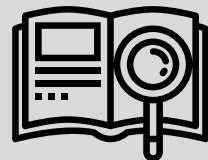
GUIDE TO THE SOLAR SYSTEM

What's inside?

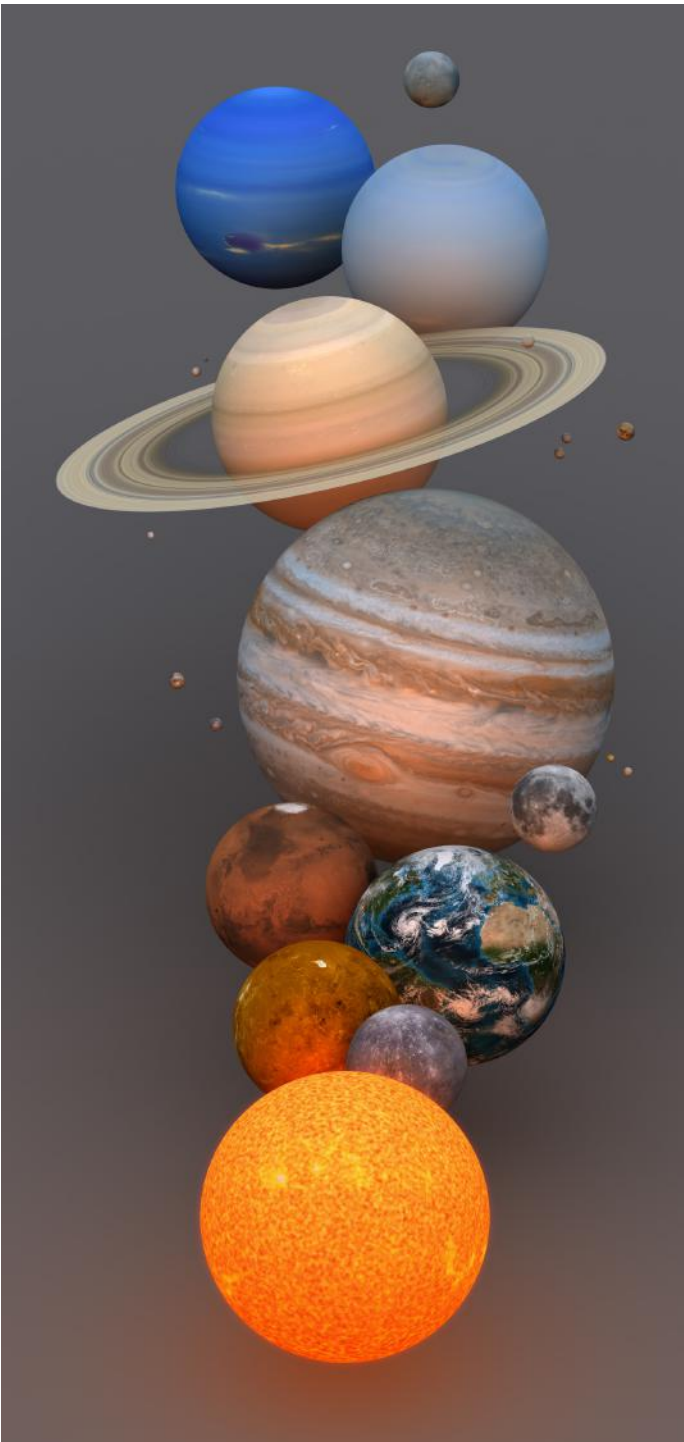
Interesting and useful facts about our planets and beyond. Each planet has a research project, activity or experiment to support your students' learning. Below is a handy key to the icons used throughout this guide.

You Tube

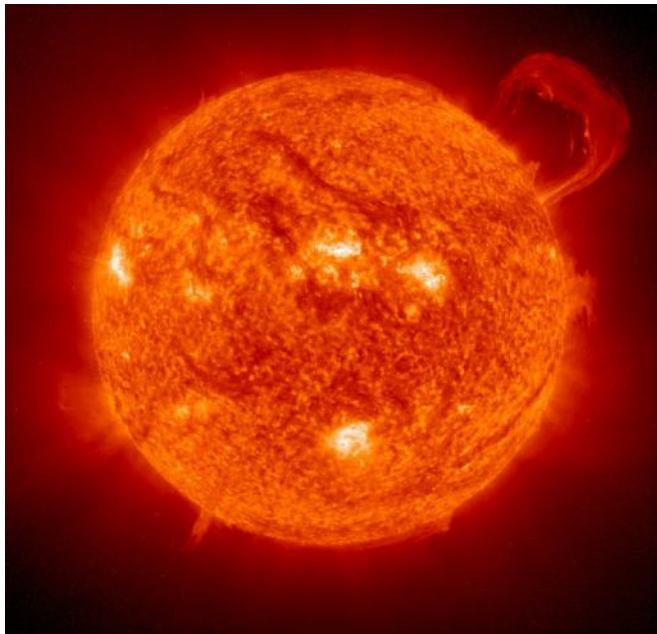
Type the accompanying text beside this icon into YouTube for demonstrations of our activities and experiments.



These activities will normally require students to use the internet to research a particular topic and report back to their class.

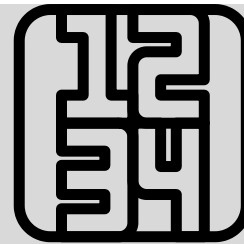


THE SUN



Did You Know?

The Sun makes up 99.8% of the mass of the entire solar system.



In Numbers:

Core Temperature: Approx. 15 million°C
Surface Temperature: Approx. 5,500 °C
Age: Approx. 4.5 billion years

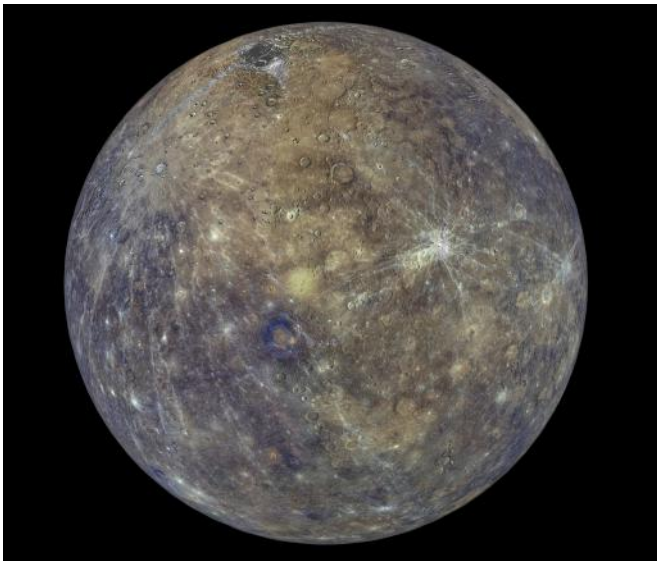
Five Facts:

1. The Sun is at the centre of our Solar System, the 8 planets orbit around it.
2. The Sun is a star made of mostly hydrogen and some helium.
3. The Sun spins around its axis like the Earth, but since it's not a solid body it spins faster on the equator than at its poles..
4. Energy is produced at the Sun's core through a process called nuclear fusion.
5. Without the Sun's energy, there would be no life on Earth.

**You
Tube**

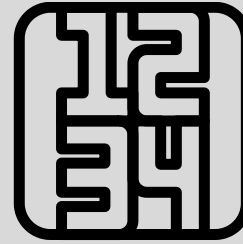
AOP Science at home:
Make a Sun Viewer

MERCURY



Did You Know?

If you stood on Mercury's surface at its closest approach to the Sun, our star would be 3 times larger than it looks from Earth.



In Numbers:

Distance from the Sun: 36 Million Miles (0.39 AU)
Length of Day: 59 Earth Days
Length of Year: 88 Earth Days
Temperature (Min./Max.): -180 / 430 °C
Number of Moons: None

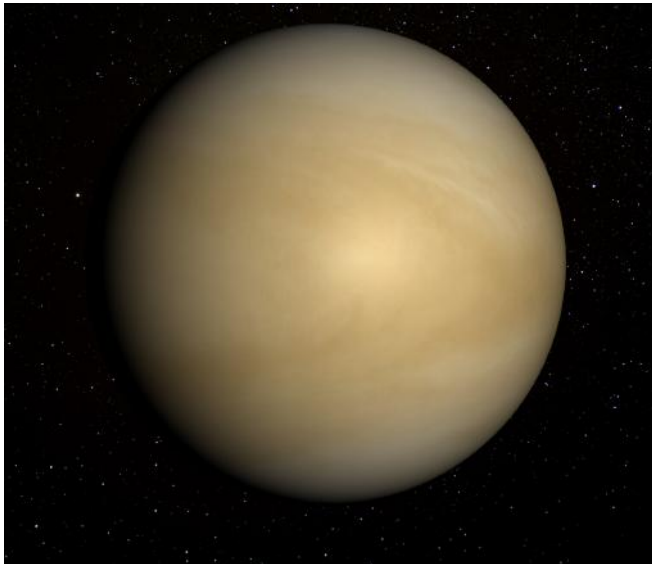
Five Facts:

1. Mercury is the smallest planet in our solar system.
2. It is only slightly larger than our moon.
3. It is the closest planet to the Sun (but it is not the hottest!)
4. It is one of the rocky planets.
5. Mercury's surface is heavily cratered just like our Moon.



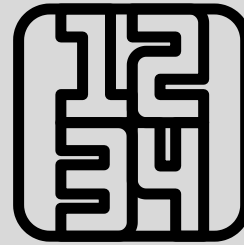
Which spacecrafts have visited Mercury?
What discoveries have they made?

VENUS



Did You Know?

Venus is visible to the naked eye most months of the year, either in the evening or before sunrise.



In Numbers:

Distance from the Sun: 67 million miles (0.7 AU)
Length of Day: 243 Earth Days
Length of Year: 225 Earth Days
Temperature (Max.): 465 °C
Number of Moons: None

Five Facts:

1. Venus' day is longer than its year!
2. Venus is the hottest planet in our solar system.
3. It has a thick atmosphere of carbon dioxide that traps the sun's heat.
4. Venus' clouds are made of deadly sulphuric acid.
5. Its solid surface is a volcanic landscape.

**You
Tube**

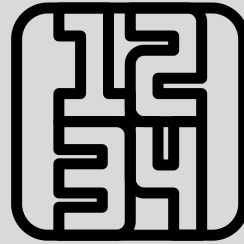
AOP Science at Home:
Make a Volcano Experiment

EARTH



Did You Know?

If the Sun were hollow, you could fit 1 million Earth's inside it!



In Numbers:

Distance from the Sun: 93 million miles (1 AU)
Length of Day: 24 hours
Length of Year: 365 days
Temperature (Average): 16 °C
Number of Moons: One

Five Facts:

1. It is a rocky, terrestrial planet.
2. Earth has an active surface with mountains, valleys, canyons and much more!
3. Water covers approximately 70% of Earth's surface!
4. Our atmosphere is made mostly of nitrogen and has plenty of oxygen.
5. It is the only planet we know of that supports life.

You
Tube

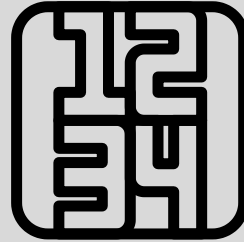
AOP Science at Home:
Make a Cloud in a Jar

MARS



Did You Know?

Ancient Greeks and Romans named the planet after their God of War because of its reddish colour.

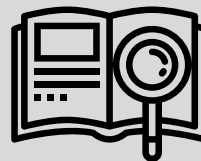


In Numbers:

Distance from the Sun: 142 million miles (1.52 AU)
Length of Day: Approx. 24 hours
Length of Year: 687 days
Temperature (Average): -60 °C
Number of Moons: 2

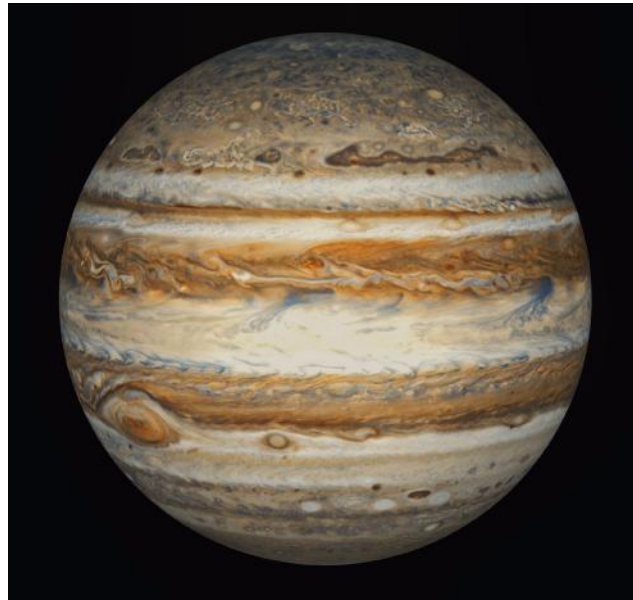
Five Facts:

1. Mars has two moons named Phobos and Deimos.
2. Iron minerals in the Martian soil rust causing the soil and atmosphere to look red.
3. Mars has the largest Volcano in the solar system, Olympus Mons.
4. Valles Marineris is the largest canyon in the solar system.
5. It has a thin atmosphere made up mostly of carbon dioxide, argon and nitrogen.



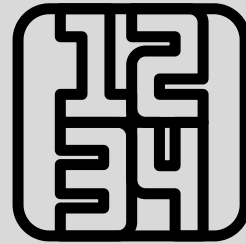
Create a survival kit for a journey to Mars.
Research how long a round trip would last and conditions on Mars. You are only allowed 10 items!

JUPITER



Did You Know?

Spectacular light displays called auroras sometimes occur at Jupiter's poles.



In Numbers:

Distance from the Sun: 484 million miles (5.2 AU)
Length of Day: 10 hours
Length of Year: 12 Earth years
Temperature: Approx. -110 °C
Number of Moons: 79

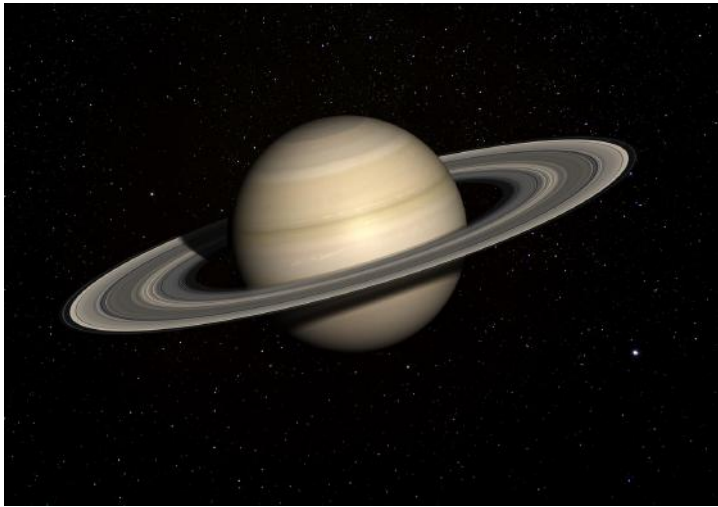
Five Facts:

1. Jupiter is the largest planet in our solar system.
2. Jupiter is a gas giant; its atmosphere is made up of hydrogen and helium.
3. Storms in Jupiter's atmosphere form in ovals of different colours.
4. The Great Red Spot is a storm that has been raging for over 400 years!
5. The four largest moons are called the Galilean moons and you can see them with a small telescope.

You Tube

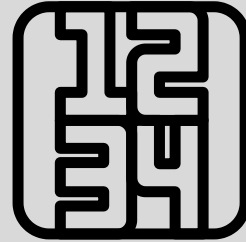
AOP Science at Home:
Create the Great Red Spot

SATURN



Did You Know?

Saturn's average density is less than water. Saturn would float in a bathtub (if there was ever one big enough!)



In Numbers:

Distance from the Sun: 886 million miles (9.5 AU)
Length of Day: Approx. 10.7 hours
Length of Year: 29 Earth years
Temperature: Approx. -140
Number of Moons: 82 °C

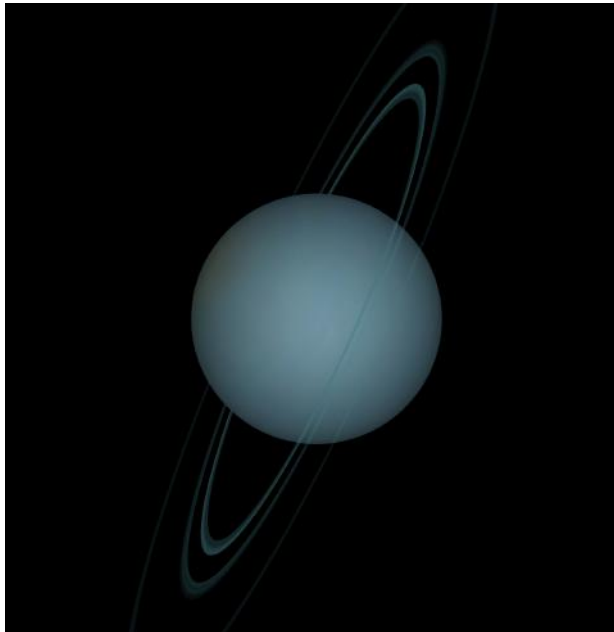
Five Facts:

1. Saturn is a gas giant made up mostly of hydrogen and helium.
2. Saturn's spectacular ring system is mostly made up of dirty ice.
3. Some of the particles of ice are as big as a house!
4. The rings extend up to 175,000 miles from the planet, but the vertical height is only around 10 metres!
5. It is the farthest known planet before the invention of the telescope.



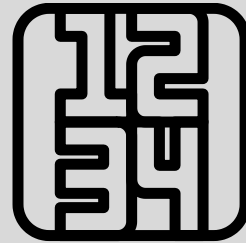
AOP Science at Home:
Make your own Saturn

URANUS



Did You Know?

When William Herschel discovered the planet in 1781 he called it George in honour of King George III!



In Numbers:

Distance from the Sun: 1.8 billion miles (19.2 AU)
Length of Day: 17 hours
Length of Year: 85 Earth years
Temperature: Approx. -190 °C
Number of Moons: 27

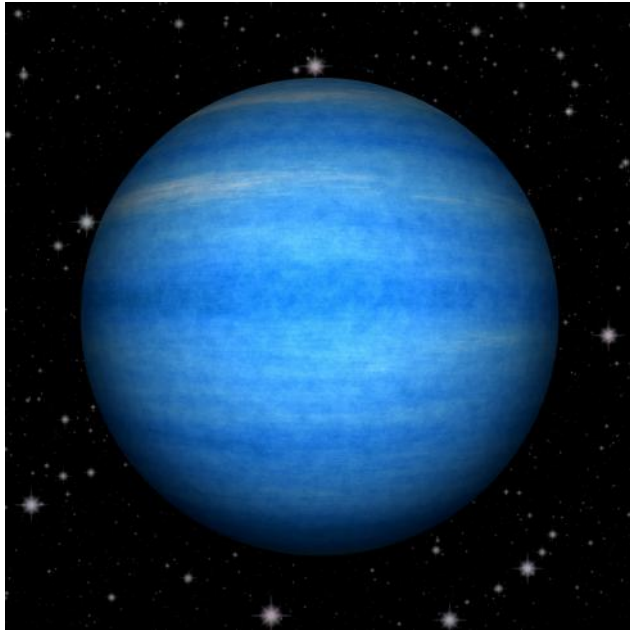
Five Facts:

1. Uranus is known as an Ice Giant.
2. It is made up of water, methane, and ammonia fluids above a rocky centre.
3. Uranus has a faint ring system.
4. It is unique because it rotates on its side!
5. Uranus spins in the opposite direction from Earth and most other planets.



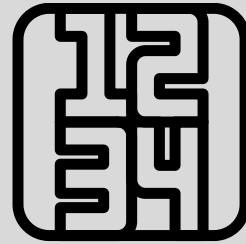
Continue to research facts about Uranus.
Create a fun and informative video about this planet.

NEPTUNE



Did You Know?

Neptune was the first planet to be discovered using maths!



In Numbers:

Distance from the Sun: 2.8 billion miles (30.1 AU)
Length of Day: 16 hours
Length of Year: 165 Earth years
Temperature: -200 °C
Number of Moons: 14

Five Facts:

1. Neptune is also known as an Ice Giant.
2. It is the smallest gas giant, but still has a bigger mass than Uranus.
3. Neptune is named after the Roman God of the Sea.
4. It is the windiest planet: once a storm on Neptune lasted 5 years.
5. Neptune has 6 faint rings.

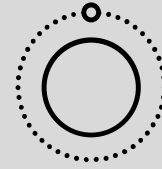
You Tube

For a great round up of the planets in our solar system search -
Science at Home: Solar System

GLOSSARY



Astronomical Unit (AU) - The distance between the Earth and the Sun (approx. 93 million miles or 150 million km!!)



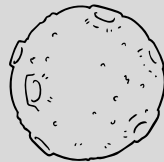
Orbit - the curved path a celestial object or spacecraft takes around a star, planet or moon.



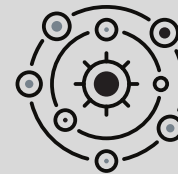
Atmosphere - an envelope of gases surrounding a planet or moon.



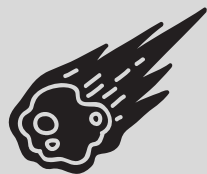
Rings - made up of rocks, ice and dust, these orbit around some planets as flat discs.



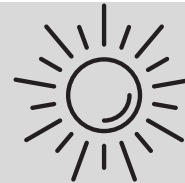
Crater - a large bowl-shaped cavity in the ground or on a celestial object, typically one caused by the impact of a meteorite.



Solar System - the collection of 8 planets and their moons in orbit round the sun, together with smaller bodies such as asteroids.



Meteorite - a meteor that has landed on the Earth's surface, often leaving a crater.



Sun - the star around which the Earth and the other 7 planets orbit.



Moon - A small rocky body that orbits around a planet.



Volcano - an opening in a planet or moon's crust through which lava, volcanic ash, and gases escape.