


Key Vocabulary	
<b>Sun</b>	A huge star that Earth and the other <b>planets</b> in our solar system <b>orbit</b> around.
<b>star</b>	A giant ball of gas held together by its own gravity.
<b>moon</b>	A natural <b>satellite</b> which <b>orbits</b> Earth or other <b>planets</b> .
<b>planet</b>	A large object, round or nearly round, that <b>orbits</b> a <b>star</b> .
<b>sphere</b>	A round 3D shape in the shape of a ball.
<b>spherical bodies</b>	Astronomical objects shapes like <b>spheres</b> .
<b>satellite</b>	Any object or body in space that <b>orbits</b> something else, for example: the <b>Moon</b> is a <b>satellite</b> of Earth.
<b>orbit</b>	To move in a regular, repeating curved path around another object.
<b>rotate</b>	To spin. E.g. Earth <b>rotates</b> on its own <b>axis</b> .
<b>axis</b>	An imaginary line that a body <b>rotates</b> around. E.g. Earth's <b>axis</b> (imaginary line) runs from the North Pole to the South Pole.
<b>geocentric model</b>	A belief people used to have that other <b>planets</b> and the <b>Sun</b> orbited around Earth.
<b>heliocentric model</b>	The structure of the Solar System where the <b>planets</b> orbit around the <b>Sun</b> .
<b>astronomer</b>	Someone who studies or is an expert in astronomy (space science).

# Stargazers – Year 5 and 6

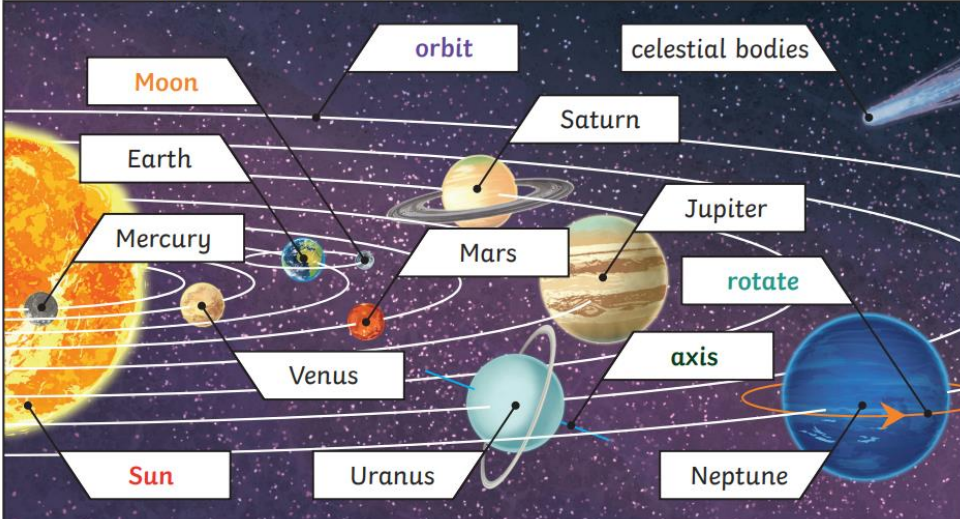
Prior Knowledge
Neil Armstrong – first man on the moon, “One small step for man, one giant leap for mankind.”
Yuri Gagarin – first man in space
Sequence events and recount changes within living memory – Space Race
Place known events in chronological order
Ask and answer relevant questions about the past

Key Knowledge
Mercury, Venus, Earth and Mars are rocky <b>planets</b> . They are mostly made up of metal and rock. Jupiter, Saturn, Uranus and Neptune are mostly made up of gases (helium and hydrogen) although they do have cores made up of rock and metal.



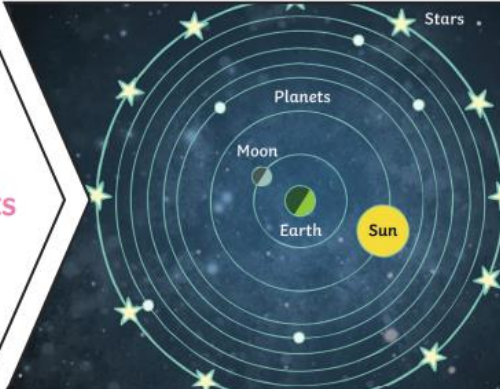

The **Moon** orbits Earth in an oval-shaped path while spinning on its **axis**. At various times in a month, the **Moon** appears to be different shapes. This is because as the **Moon** **rotates** round Earth, the **Sun** lights up different parts of it.

Our Solar System (not to scale)




Labels in the diagram include: Sun, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Moon, orbit, celestial bodies, rotate, axis.

**Geocentric model**  
Years ago people believed that **planets** moved around the Earth.





Nicolaus Copernicus

The work and ideas of many **astronomers** (such as Copernicus and Kepler) combined over many years before the idea of the **heliocentric model** was developed. Galileo's work on gravity allowed **astronomers** to understand how **planets** stayed in **orbit**.



Pluto used to be considered a **planet** but was reclassified as a dwarf **planet** in 2006.





## The Space Race

The Space Race was a competition between the Soviet Union (USSR) and the United States that took place in the 1950s and 1960s when the two countries were involved in a war called the Cold War. The main aim of the Space Race was to go into space and reach the Moon first. President of the United States, John F Kennedy, famously declared, 'We choose to go to the Moon!' By the end of the decade, both the USSR and the USA had invented technology to make it possible. There were many exciting firsts during the Space Race.

First satellite in space (USSR): Sputnik 1 (October 1957)

First animal in space (USSR): Laika the dog (November 1957)

First human in space (USSR): Yuri Gagarin (April 1951)

First spacewalk (USSR): Alexey Leonov (March 1965)

First manned spacecraft to orbit the moon (USA): Apollo 8 (December 1968)

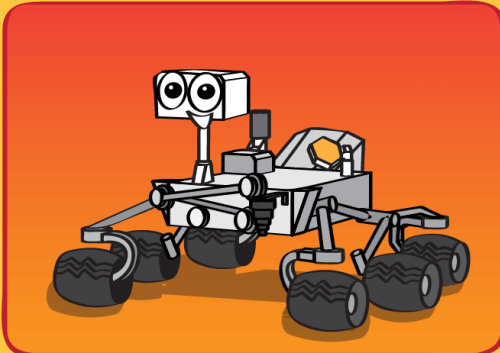
First person to step on the Moon (USA): Neil Armstrong (July 1969)

Date	Event
16 <sup>th</sup> July 1969	Apollo 11 takes off from the launch pad at Kennedy Space Centre, Florida. It is manned by <a href="#">Neil Armstrong</a> , <a href="#">Buzz Aldrin</a> and <a href="#">Michael Collins</a> .
18 <sup>th</sup> July 1969	Armstrong and Aldrin check the Eagle, the lunar landing module, to make sure everything is ready for the moon landing.
19 <sup>th</sup> July 1969	Apollo 11 begins to orbit the moon.
20 <sup>th</sup> July 1969	5.44pm: The Eagle, manned by Armstrong and Aldrin, undocks from the command module Columbia and descends towards the Moon's surface. Collins stays onboard Columbia.  8.18pm: Armstrong lands the Eagle on the surface of the Moon.
21 <sup>st</sup> July 1969	2.56am: Armstrong steps onto the surface of the Moon and says: "That's one small step of man, one giant leap for mankind."  3.15am: Aldrin steps onto the surface of the Moon. The astronauts lay commemorative plaques, plant an American Flag, collect samples and carry out experiments.  5.11am: Armstrong and Aldrin climb back into the Eagle.  5.54am: The Eagle lifts off from the surface of the Moon.  9.35am: The Eagle docks back onto the command module Columbia.
22 <sup>nd</sup> July 1969	The astronauts begin their return journey to Earth.
24 <sup>th</sup> July 1969	4.50pm: Apollo 11 splashes down into the Pacific Ocean

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## Curiosity

Mars Science Laboratory Mission



**Landed on Mars:** August 2012

**Specialty:** Finding out if Mars once had what all life needs: lasting water and the right chemical ingredients.

**Weight:** 1,982 lbs

**Top Speed:** 0.09 mph

**Toolkit:** 10 science instruments

## Katherine Johnson

(born 1918)  
Mathematician


Katherine Coleman Goble Johnson was a NASA mathematician for the Mercury program, the Apollo 11 mission, up through the Space Shuttle program. She famously was asked by astronaut John Glenn to double-check the calculations for his first orbit around the Earth which had been previously calculated by a computer for the first time in history. She is a recipient of the Presidential Medal of Freedom.




JPL

Mars Global Surveyor Project

### Simple Facts About Mars





**Diameter:** 6,794 km (53% of Earth)

**Mars Day:** 24 hrs, 37 min

**Mars Year:** 687 Earth Days

**Mass:** 11% of Earth

**Gravity:** 38% of Earth

**Atmosphere:** 95% Carbon Dioxide, 3% Nitrogen

**Atmospheric Pressure:** 1% of Earth's Sea Level

**Temperature at Surface:** Average Between -140 to 20 Celsius

## Jupiter Facts

- Jupiter rotates so fast that the days only take 10 hours.
- A Jovian year is between 11 and 12 years long.
- Jupiter is 11.86 earth years.
- Jupiter is the fourth brightest object in the sky.

