

Earth and Space

Significant Scientist

Sir Isaac Newton

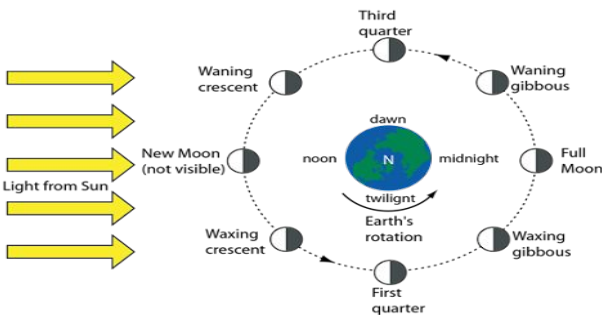
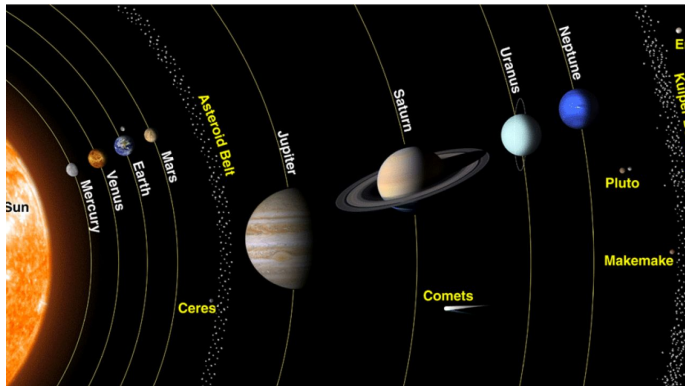


Sir Isaac Newton (1643 - 1727), an English mathematician, studied science and philosophy at the University of Cambridge. He discovered the idea of forces acting upon objects on Earth. He came up with the theory of gravity and how it acts upon objects.

Katherine Johnson



Katherine Johnson (1918 - 2020) was an American mathematician whose calculations of orbital mechanics as a NASA employee were critical to the success of the first and subsequent U.S. crewed spaceflights. During her 33-year career at NASA she earned a reputation for mastering complex manual calculations and helped pioneer the use of computers to perform the tasks. The space agency noted her 'historical role as one of the first African-American women to work as a NASA scientist'.



Key Knowledge

Planets

The Sun is a hot ball of gas which is classified as a star. The Sun is placed at the centre of our solar system and makes life possible on Earth. Planets are celestial objects that orbit a star like our solar system's Sun. Our solar system is currently believed to include eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. In 2006 Pluto was reclassified as a 'dwarf planet'.

Earth

The Earth, Sun and Moon are approximately spherical. The Earth rotates on its axis, which stands on a 23.5° angle. The Sun's rays hit the side of the Earth which faces the Sun. This causes day and night. It takes the Earth 24 hours to make one complete spin on its axis. The Earth orbits the Sun. One orbit takes 365 days (a year).

Moon

The Moon is a celestial body which orbits the Earth. One orbit takes approximately a month (almost 28 days). We only see the part of the Moon that is lit by the Sun which is why it appears to be different shapes at different times of the month. The Moon is described as waxing as it gets larger from new moon to full moon. As the Moon gets smaller from full moon to new moon it is described as waning. There is no life on the Moon because it has no atmosphere (no air or weather).

Forces

Forces acting at a distance are forces that do not require direct contact between them. Gravity is the pulling force acting between the Earth and other planets.

Enquiry Skills

- Research
- Observation over time
- Pattern seeking

Key Vocabulary

<b>solar system</b>	Planets and their moons which orbit the Sun.
<b>axis of rotation</b>	An imaginary line that passes through the north and south poles of the Earth.
<b>phases of the Moon</b>	The Moon transitioning through phases depending on how much light its surface is exposed to.
<b>waxing</b>	Description of the Moon as it appears to grow from new moon to full moon.
<b>waning</b>	Description of the Moon as it appears to get smaller from full moon to new moon.
<b>star</b>	A large glowing ball of gas existing in space.
<b>constellation</b>	A group of stars forming a pattern.
<b>celestial body</b>	Any naturally occurring object in space.
<b>planet</b>	A celestial body which orbits a star.

Working Scientifically Skills

Report data using scientific diagrams, labels, classification keys and tables.

Report and present using conclusions, casual relationships, explanations and a degree of trust.

