

Science – Earth and Space

Is there anybody out there? Thread: Physics

What I should already know: I have learnt about some forces including friction and magnetic forces. I know that light is reflected from surfaces. I know that light from the sun can be dangerous and the importance of protecting my eyes. I know that shadows are formed when the light from a light source is blocked by a solid object. I know that the size of shadows can be different at different times of day.

Enquiry Questions

- How is the solar system structured?
- Why is our solar system called heliocentric?
- How does the Earth move in space and what effect does that have?
- Why do we get day and night?
- How does the Moon move and what effect does that have?

Key Vocabulary

Astronomy – The study of space, planets and the universe as a whole.
Axis – The (imaginary) line which a planet rotates around and tilts on.
Earth – Small, rocky terrestrial planet. 3rd planet from the Sun. It is the only planet currently known to support life.
Earth's rotation – The action of the Earth turning or spinning around its centre. Also the path that the Earth takes around the Sun once every 365.25 days.
Gas giants – The name given to the four outer planets – Jupiter, Saturn, Uranus and Neptune.
Geocentric – The old solar system model, which thought the Earth was at the centre.
Heliocentric – The modern model of the solar system, which places the Sun at the centre.
Jupiter – Gas giant and the biggest planet in our solar system. It is the 5th planet from the Sun.
Mars – A small, rocky, terrestrial planet. The 4th planet from the Sun.
Mercury – The smallest planet in our solar system and also the closest to the Sun.
Moon – A body which orbits a planet; also called a natural satellite.
Neptune – One of two planets known as 'ice giants'. Similar to a gas giant. It is the planet in our solar system that is furthest from the Sun.
Orbit – The path of a celestial object around another, such as the Moon around the Earth.
Phase – The appearance of a Moon or planet, according to the amount of illumination.
Pluto – Formerly thought to be the 9th planet in our solar system but now categorised as a 'dwarf planet'.
Saturn – A gas giant, famous for its seven rings. The 6th planet from the Sun.
Solar system – The name for the Sun and all planets and objects that orbit it.
Spherical – Shaped like a sphere (ball).
Sun – The star at the centre of the solar system. Life on Earth depends on light and heat from the Sun.
Terrestrial planet – The name given to the four inner rocky planets – Mercury, Venus, Earth and Mars.
Uranus – An ice giant planet (similar to a gas giant). 7th planet from the Sun.
Venus – Small, rocky, terrestrial planet. The hottest in our solar system and 2nd closest to the Sun.
Waning – The name given to Moon phases when the Moon is becoming darker.
Waxing – The name given to Moon phases when the Moon is becoming brighter.

Working Scientifically Skills

Pupils will:

- Describe the movement of the Earth, and other planets, relative to the sun in the solar system.
- Describe the movement of the Moon relative to the Earth.
- Describe the Sun, Earth and Moon as approximately spherical bodies.
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.

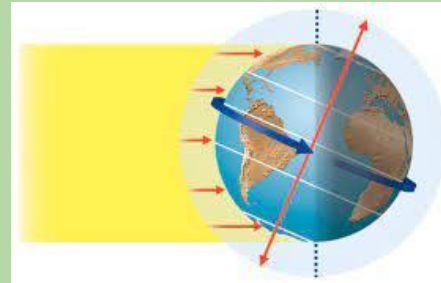
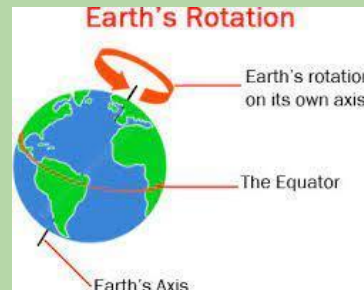
Working Scientifically (Blue = Y5)

- Ask relevant questions and use different types of scientific enquiries to answer them. / Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Use straightforward scientific evidence to answer questions or to support them. / Identify scientific evidence that has been used to support or refute ideas or arguments.
- Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment. / Take measurements using a range of scientific equipment with increasing accuracy and precision, taking repeat readings where necessary.
- Identify differences, similarities or changes related to simple scientific ideas and processes.
- Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further

questions. / Use test results to make predictions to set up further comparative and fair tests.

- Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Gather, record, classify and present data in a variety of ways to help answer questions.
- Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. / Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.

Useful Images/ Diagrams



Map of the solar system

Diagram showing the Earth's rotation

Diagram showing how we get day and night

Diagram showing the Moon's orbit and phases.

Links to other curriculum areas: Literacy/WCR – Cosmic by Frank Cottrell Boyce.