

Earth & Space

KEY CONCEPTS

Physics, scientific enquiry, science for the future and vocabulary.

What I will have learnt by the end of the unit

- I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- I can describe the movement of the Moon relative to the Earth
- I can describe the Sun, Earth and Moon as approximately spherical bodies
- I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky

What I should already know

- We have four seasons (autumn, winter, spring and summer).
- The Sun is a source of light but the Moon is not.
- Know that a shadow is caused when an object blocks light from passing through it.
- To know the history of space.
- The properties of a sphere.

What I will have learnt at the end of the key stage

- I will be able to describe the movement of Earth and other planets relative to the Sun in the Solar System.
- I will be able to describe the movement of the moon relative to the Earth.
- I will be able to describe the Sun, Earth and moon as relatively spherical bodies.
- Use the idea of the Earth's rotation to explain day and night.

Key skills I will learn/use

- Planning different types of scientific enquiry to answer questions, including recognising and controlling variables where necessary.
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Recording data and results to make predictions to set up further comparative tests and fair tests.
- Present findings and identify scientific evidence that has been used to support arguments.

Opportunities for teaching diversity, equality (including protected characteristics and expanding cultural capital)

I'm a Scientist, Get me out of here! - A super-curricular science outreach education & engagement activity (imascientist.org.uk)
Science for Everyone (science4everyone.org).

Skills I may use for other subjects

- Literacy - I can use my literacy knowledge to write about my findings.
- Mathematics - I can use my knowledge to carry out simple tests and record my findings using diagrams and graphs.



The planets are called Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.

An easy way to remember the names of planets in order is:
My Very Easy Method Just Speeds Up Naming

The Moon **orbits** the Earth anti-clockwise and takes **approximately 28 days**. The Moon spins once on its axis every time it orbits Earth. This means that we only see one side of the Moon. The Moon has different phases depending on where it is in its **orbit**. At different times, the moon appears to be different shapes because the sun light up different parts of the moon as it moves around the Earth. The Moon's **gravity** causes high and low tides.



Recall & Remember Add information to your knowledge mind map regularly, to help you reflect on, and remember what you have learnt throughout the unit. At the end of the unit, work in a small group to create a fun quiz on purple mash about light for your friends to complete.

KEY VOCABULARY AND SPELLINGS

Planet - an object that orbits a star and does not emit its own light.

Star - a burning mass of gas that makes heat and light energy (e.g. the sun).

Gravity - the force that attracts an object towards a larger object.

Solar system - a star with objects (such as planets) orbiting it.

Orbit - a curved path of a planet or satellite around an object.

Satellite - an object either natural (moon) or man-made that orbits around a planet.

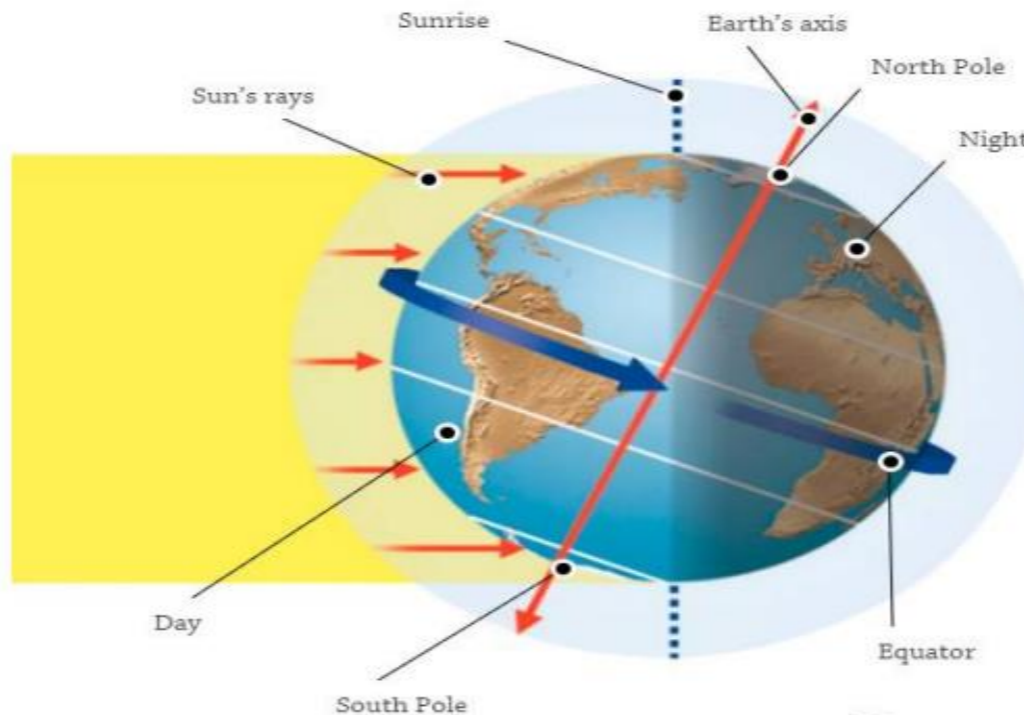
NASA - the National Aeronautics and Space Administration, a US agency responsible for the exploration and study of space

Universe - all of space and everything in it.

Astronomy - the branch of science that deals with space and the physical universe as a whole
Asteroid - a small rocky body orbiting the sun.



DAY and NIGHT - Earth rotates (spins) on its axis, it does a full spin once every 24 hours, which is our day and night. Daytime occurs when the side of the Earth is facing the sun and night occurs when the side of the Earth is facing away from the sun.



THE EARTH and THE MOON

The moon orbits Earth in an oval-shaped path whilst it spins on its axis. At different times in the month the moon appears to be different shapes, this is because the sun lights up different parts of the moon as the moon moves around the Earth.



ASTRONAUTS and SPACE MISSIONS

The first man-made satellite to orbit Earth was called Sputnik and was launched by the Soviet Union in 1957.

Yuri Gagarin was the first human in space in 1961.

Neil Armstrong was the first person on the moon in 1969.

The International Space Station was launched in 1998 and is a joint project between 5 space agencies (USA, Russia, Japan, Europe and Canada). It is a research laboratory which is in Earth's orbit.



1) What shape are the Earth, Sun and Moon?

2) Why does the Sun look like it is moving across the sky during the day?

3) True or false?

The Earth orbits around the sun.	
The sun is a planet.	
The gravity of the sun keeps the planets in their orbit.	

4) How long does it take for:

A) The Earth to spin once on its axis? _____

B) The Moon to go around the Earth once? _____

C) The Earth to go around the Sun once? _____

5) (Fill in the blank) The _____ orbits the Earth.

6) Why, in some parts of the world, are the days longer in the summer than in the winter? Tick the correct answer.

Because the Earth is tilted as it moves around the sun	
Because the sun gets brighter in the summer	
Because the Earth spins more slowly in the summer	

7) Explain why the moon seems to change shape.

8) How many planets are there in our solar system? (Tick one)

8

9

10

9) Can you name all the planets?
