

National Curriculum Science - Knowledge

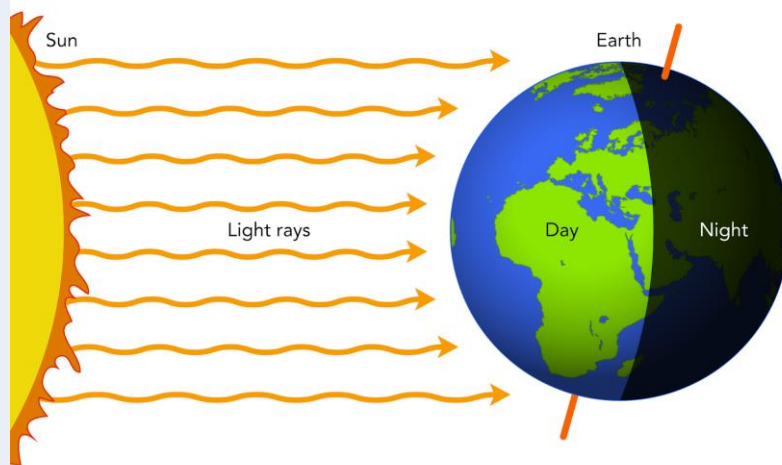
- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.
- Describe the movement of the Moon relative to the Earth.
- Describe the Sun, Earth and Moon as approximately spherical bodies.
- Use the idea of the Earth's rotation to explain day and night and the apparent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

Key Learning

The Sun is a star. It is at the centre of our solar system. There are 8 planets in our solar system which travel around the Sun in fixed orbits. The Earth takes 365¼ days to complete its orbit around the Sun.



The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the Sun (here it is day) and half is facing away from the Sun (night). As the Earth rotates the Sun appears to move across the sky.



Vocabulary

Earth: the planet on which we live.

Moon: the natural satellite of the earth, visible at night by reflected light from the sun.

Sun: the star at the centre of our Solar System around which the earth orbits.

Evidence: the available facts or information indicating whether an idea is true or valid.

Spherical: shaped like a sphere.

Planet: a celestial body moving in an elliptical orbit round a star.

Celestial: positioned in or relating to the sky, or outer space.

Solar System: the collection of eight planets and their moons in orbit round the sun, together with smaller bodies in the form of asteroids, meteoroids, and comets.

Orbit: the curved path of a celestial object or spacecraft round a star, planet, or moon.

Rotate: to move in a circle round an axis or centre.

Axis: an imaginary line about which a body rotates.

Phase: a distinct period or stage in a series of events or process.

Waxing: the moon stages at any time after a new moon and before a full moon, so called because its illuminated area is increasing.

Waning: the moon stages at any time after a full moon and before a new moon, so called because its illuminated area is decreasing.

Dwarf planet: a celestial body resembling a small planet but lacking certain technical criteria that are required for it to be classed as such.

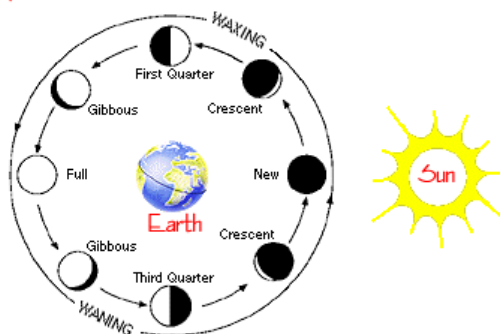
National Curriculum Science – working scientifically

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- 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.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

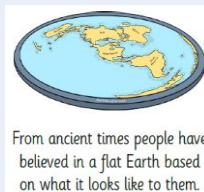
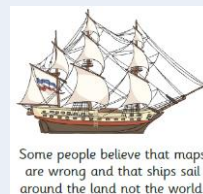
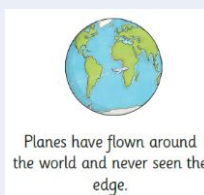
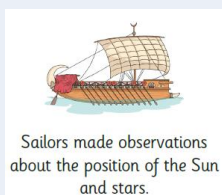
Key Learning continued...

The Moon orbits the Earth. It takes about 28 days to complete its orbit (a lunar month). The moon does not emit its own light; instead, it is illuminated by the reflection of the Sun's light off its surface. This causes us to view differing shapes of the Moon at different times of the month depending on the Moon's position relative to the Earth.

The Moon as seen from Earth



The Sun, Earth and Moon are approximately spherical. Ideas have changed over time from a flat Earth view to a spherical Earth view. Scientific evidence has been used to both support and refute these ideas.



Scientific investigations

- Examine different scientific evidence and decide whether they support a view of a flat Earth or a spherical Earth. Say which piece of evidence is the strongest then form own opinion based on review of the evidence presented.
- Why does the Sun appear to move across the sky?
 - Make a sundial and use to make scientific observations, taking readings of the time at points throughout the day.
 - Record and present findings using diagrams.
 - Interpret results to answer the scientific question being investigated, linking to knowledge of the Earth's rotation.
- Why do day and night take place at different times in different places on Earth?
 - Make scientific predictions on basis of knowledge about time zones and rotation of the Earth.
 - Conduct research to prove or disprove predictions made, explaining why.

Key Learning: Work scientifically to understand the movement of the Earth and Moon.

1



How does evidence support or refute scientific ideas?

Describe the Sun, Earth and Moon as approximately spherical bodies by understanding how this knowledge has been attained. Identify scientific evidence that has been used to support or refute ideas or arguments in the context of how ideas changed from a flat earth view.

2

What are the planets of our solar system?

Describe the movement of the Earth, and other planets, relative to the Sun in the solar system by learning the order of the planets and how they move in the solar system. Name and describe features of the planets in our solar system, including their relative size. Order the planets in our solar system and describe their relative distances from the Sun.

3

Why does the sun appear to move across the sky?

Explain how day and night occur and that this is due to rotation of the Earth. Use this knowledge to explain the apparent movement of the sun across the sky. Examine evidence for the Earth's rotation by making a sundial and observing its changes throughout the day.

4



Why do day and night take place at different times in different places on Earth?

Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky by predicting night and day in different places on Earth. Investigate night and day in different parts of the Earth using a Time Zones Map to check our initial predictions. Report and present findings from these enquiries.

5

Why does the moon appear to change shape?

Explain that the Moon orbits the Earth, not the Sun. Explain how the Moon moves relative to the Earth and Sun, meaning it appears to change shape, and that these are known as 'phases'.