Linked learning theme: Out of This World

Spring Term 1 Year 5

Science – Sun, Earth & Moon and their movement; Friction, gravity & air/water resistance

Prior Knowledge

In Y3, children learnt about simple forces and magnetism

Core knowledge

- The sun is at the centre of the solar system.
- The planets rotate round the sun in an elliptical orbit.
- The 8 planets, in order from the sun are:
  Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
- The Sun, Earth and Moon are approximately spherical.
- To Earth rotates around the sun once every 365 days
- The Earth rotates once, on its own axis every 24 hours which gives us day and night.
- The moon orbits the Earth once every 27 days

- A force is a push or a pull
- A force makes an object speed up, slow down or change shape or change direction.
- Unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Air resistance, water resistance, and friction act between two moving surfaces to slow an object down.

Key skills

- plan scientific enquires to answer questions about air resistance and water resistance, including recognising and controlling variables where necessary
- take measurements, using stopwatches and Newton meters, with increasing accuracy and precision.
- record data and results of increasing complexity using scientific diagrams and labels, tables, bar and line graphs.
- use test results to make predictions to set up further comparative and fair tests about forces.
- 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 argument

Vocabulary

Solar system, space, planets, spherical,
gravity, orbit, gravitational pull, forces,
friction, air resistance, water resistance

Learning Outcomes

- 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.
- I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.

- I can identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
- I can recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.