

Year 5/6 Science Unit Planning

Autumn Term 2: Earth and Space

Prior Learning:

New strand of learning in Year 5/6.

Key Vocabulary for teacher reference Axis- A straight line around which an object spins Crater- A bowl-shaped dent in the surface of an object. A crater can be caused by an explosion, or by the impact of a very fast object. Light Source – something which produces light. Orbit- To orbit means to travel in a regular path around another object, for example a planet travelling around a star. Orbit is also the name for the path the object travels round. Orbital Cycle The length of time taken to complete an orbit. Planet- A large, spherical object that orbits a star. Planets can be made up of solid material or gases. Satellite- An object that orbits a planet or star. Satellites can be natural objects, for example moons, or made by people, for example weather satellites or the International Space Station. Solar System Consists of the planets and objects that orbit the sun. Spherical – shaped like a ball (sphere). Star- A huge ball of burning and glowing gas that radiates light and heat.	Statutory Requirement in National curriculum Statutory requirements Pupils should be taught to: ▪ 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. 1. What is the solar system and how do our planets move? The Sun is a star at the centre of the solar system. There are 8 planets in the solar system. The planets orbit the sun. Each planet's orbital cycle is a different length. The Sun is in a fixed position in the centre of our solar system. 2. How does the moon move? The moon orbits the earth. Each orbital cycle takes 28 days. The moon is a satellite. 3. What shape are the Sun, Moon and Earth? The Sun, Moon and Earth are roughly spherical bodies.	Working scientifically Year 5 • Gather and record data using tables and graphs. Year 6 • Choose the most effective approach to record and report results, linking to mathematical knowledge. 4. Does the moon change shape? The moon is always roughly spherical. The moon is not a light source. The sun illuminates the moon. 5. Why is there day and night? The Earth rotates on its axis every 24 hour. The Earth is tilted on its axis. The Earth faces the Sun during the daylight hours and away from the Sun during darkness. The Sun does not move across the sky.
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Topic: Space (or Forces)	Year 5 Age 9-10	Title: Craters
Working Scientifically Do: Gather and record data using tables and graphs.		Conceptual Knowledge Context Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
Assessment Focus - Can children design simple tables to record results? - Can children present results as a bar chart or line graph?		
Activity Today we are going to be geologists. This activity invites children to investigate the formation of 'craters' by dropping meteors (e.g. marbles or balls) into a tray of sand and observing the craters produced. Introduce by looking at photos/websites of impact craters. As a class drop a variety of different spherical objects into the sand and measure the diameter of the craters, creating a class graph. As a class, consider what could be changed and measured (could use a sticky note planning board) and allocate different variables to different groups of children (height of drop, size of meteor, type of sand). Ask each group to make measurements and record them in a table/graph of their own design.		
Adapting the activity Support: categorical variable, e.g. tennis ball/Ping-Pong ball/rubber ball, support with making measurements of crater to nearest cm, use pre-prepared table/graph. Extension: Choose own variables, measure to nearest mm, talk about accuracy of results and repeat readings.		
Key Questions - Where on the table will you write down the things you have changed/measured? - What would be a good heading for this column? - Where on the bar chart will you show what you changed? - Where on the bar chart will you show your measurements? - Can you explain how you have recorded your results?		
Assessment Indicators Not yet met: Records measurements in a simple table/graph (support provided for scale as necessary). Meeting: Can make decisions about what to record and where to put information in a simple table/graph. With support, can calculate/plot mean or median if repeat measurements have been taken. Exceeding: Can design and use a suitable table/graph and aims to collect repeated measurements. Will notice and discuss anomalous results or discount them from the data.		