

Brough Primary School – Curriculum Intention Plan 2021 - 2022



Subject: Science Year Group: Year 5		Area of learning: Earth and Space
Links to previous work/Remember when	<ul style="list-style-type: none"> • Learning in Years 1 and 2 relating to the seasonal changes that take place in England. • Knowledge of how the length of the day changes over a year from Years 1 and 2. • Knowing that it is not safe to look directly at the Sun. <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> • being able to ask and investigate relevant scientific questions; • setting up simple scientific enquiries; • making systematic and careful observations; • gathering, recording and presenting data; • reporting on findings both oral and written; • using results to draw simple conclusions • using straight forward scientific evidence to support what they have found out. 	
Term	Year 5	Key Skills to be taught
Autumn 2021 What the children should know at the end of this series of lessons		<ul style="list-style-type: none"> • Pupils should be introduced to a model of the Sun and Earth that enables them to explain day and night, including the apparent movement of the Sun across the sky. • Pupils should learn that a star is at the centre of our solar system and that it has eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a dwarf planet in 2006). • They should understand that the moon is a celestial body that orbits a planet. (earth has one moon, Jupiter has four large moons and numerous smaller ones). <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> • Develop their knowledge of planning different scientific investigations to answer questions, including recognising and controlling variables. • Continue to use scientific equipment to measure but with increasing accuracy. • How to record data in increasing complexity through diagrams, labels, tables, bar and line graphs. • Using test results to make predictions and set up comparative and fair tests. • Reporting and presenting findings from investigations in oral and written forms for display and other presentations. • Identify how scientific evidence has been used to support or discount ideas and arguments.

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Vocabulary

Earth, planets, Sun, solar system, Moon, celestial body, sphere/spherical, rotate/rotation, spin, night & day, orbit, opinion/fact, support/refute, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, 'dwarf' planet, orbit, accuracy, precision, scatter graphs, line graphs, geocentric & heliocentric models, star, rotate/rotation, axis, shadow clocks, sundials, astronomical clocks, variables, accuracy, precision, time-zone, Greenwich Meantime, gnomon, eclipse, light, reflection, telescope, satellite, tide, mass, gravity.

Sequence of learning	Objectives and suggested details provided by subject leader.
1	i). Develop scientific enquiry questions that match a series of statements about space. ii). Match possible scientific enquiry approaches to specific scientific enquiry questions. <ul style="list-style-type: none"> • Develop scientific enquiry questions that match a series of statements about space. • Match possible scientific enquiry approaches to specific scientific enquiry questions.
2	i). Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. ii) Describe the Sun, Earth and Moon as approximately spherical bodies. <ul style="list-style-type: none"> • Create a scaled solar system model using spherical representations. • Research and collate planetary data online and represent it graphically. • Use ratios for scale and calculate and measure distances using a scaled system. • Select and use an effective medium to create an artistic representation of a chosen planet. • Use fruit to create a model of the solar system. • Calculate scales and ratios for a model of the solar system. • Research, collate and create graphs for data about the planets. • Paint the planets from known images and the nature of the planets.
3	i). Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. ii) Describe the Sun, Earth and Moon as approximately spherical bodies. <ul style="list-style-type: none"> • Understand the difference between geo and heliocentric solar system and how views have evolved. • Reconstruct a model of the solar system in the form of an orrery. • Present information and findings in the form of a video programme, create episode one of Stargazing which explains how the solar system works and what is in it.
4	i). Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. <ul style="list-style-type: none"> • Plan and carry out a shadow investigation that supports the idea that the Earth moves on its axis.

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	<ul style="list-style-type: none"> Observe, measure, record and identify patterns for changing shadows throughout a day. Present scientific evidence in the form of a working 'shadow clock' model. Go on to provide an explanation of the model.
5	<p>i) use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <ul style="list-style-type: none"> Track the Earth's movement by making and observing a sundial. Add calibration of your sundial for key school times. Explore the Earth's movement through simulation and time zones. Solve problems using scientific evidence, logic and knowledge to solve time problems.
6	<p>i) Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>ii) Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <ul style="list-style-type: none"> Carry out a simulation to investigate and demonstrate why the moon appears as it does in the sky. Look at photos of the moon and identify key features. Link lunar phases to the position of the Moon, Earth and Sun in the form of a diagram.

Learning Outcome/product

Mr Mearns hopes to provide a series of Stargazing programmes aimed at young children and he's hoping you are willing to help him out. He needs three episodes that cover the planets and solar system; night and day; and the lunar month. You will need to come up with a title for each episode and include practical and clear explanations and demonstrations of the science behind each phenomenon. Are you up for the challenge and do you have what it takes to be a Space Presenter?

Assessment records	List only those children who have not achieved the expected outcomes.

Assessment records	List only those children who have exceeded the expected outcomes.

End of unit assessment question

E.g. How does the movement and orbits of the Earth and the Moon affect my life on Earth?

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