

Theme Overview

Year	5	Term	Spring 1
Theme	Space and Forces	Big Question	Does the Earth move?
<p>Focus of unit and scope of unit:</p> <p>The unit is a Science and Technology based unit that teaches the children about space and forces including scientists that have been instrumental in the development of forces. The children will cover space, the movement of Earth and the moon and the importance of the sun in the solar system. They will learn about friction including water and air resistance and carry out investigations, focusing on collecting data and presenting results.</p> <p>The children will work as part of a team to design, make and evaluate a moon buggy and they will share their design with family and friends.</p>			
Caring	Creative	Critical	SMSC/Equalities/British Values
<p>This unit endeavours to teach the children about the miracle of the solar system.</p> <p>The unit includes group work for children to work on a dT project together and also to work together to solve scientific problems and puzzles.</p>	<p>The unit encourages children to be creative in ways that they can answer a question and solve problems.</p> <p>The children use their creative problem solving skills to design, and improve a space buggy.</p>	<p>The children research and make detailed observations to answer questions. They carry out investigations and use their evidence to draw conclusions and create scientific drawings to explain scientific thinking.</p> <p>The children will make a space buggy using a budget so they have to select resources carefully.</p>	<p>Children will learn about Galileo and standing up for what he believed was right and that people should not be discriminated against because of their beliefs.</p> <p>The unit encourages children to work as a team listening and working together for a joint outcome.</p>
Big Start		Big Finish	Experience
<p>Listen to the War of Words Radio Broadcast – start.</p> <p>Children work together to work out which are Martian soil samples.</p>		<p>Can their buggy navigate the terrain - testing.</p>	<p>Space Centre</p>

Science

Year 5	Spring Term 1: Does the Earth Move?		
Sequence of Learning	Previous Learning		Next Steps in Learning
	Children have previously learnt about how things move. They know the sun is a source of light and that the moon reflects light. Children have previously made simple predictions and planned and carried out investigations with support, recording results and beginning to use science to draw conclusions.		As children move to KS3 they will learn about balanced forces and the movement changes depending of direction and size of force. They will learn about how weight = mass x gravitational field strength and how the Earth's tilt impacts on seasons.
Knowledge and Skills	Planning an Investigation	Carrying Out an Investigation	Presenting Evidence and Drawing Conclusions
	<ul style="list-style-type: none"> I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question. I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations. 	<ul style="list-style-type: none"> I use a range of equipment independently to make a series of observations and measurements I take are adequate for the task. I use information sources provided to find things out. I identify possible risks to myself and others with support. I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams that I can independently construct. 	<ul style="list-style-type: none"> I present the results (data and observations) in a range of formats e.g. bar and line graphs, simple scatter graphs, keys and frequency charts. I draw conclusions from my data and observations. I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion. I can use simple scientific models to present my thinking.
	Substantive Knowledge		Famous Scientists
<p>Earth and space</p> <ul style="list-style-type: none"> Know about and explain the movement of the Earth and other planets relative to the Sun. Know about and explain the movement of the Moon relative to the Earth. Know and demonstrate how night and day are created. Describe the Sun, Earth and Moon (using the term spherical). <p>Forces</p> <ul style="list-style-type: none"> Know what gravity is and its impact on our lives. Identify and know the effect of air resistance. Identify and know the effect of water resistance. Identify and know the effect of friction 		Galileo Isaac Newton	
Vocabulary	Orbit Planet Spherical Solar system	Rotation Gravity Air resistance Water resistance	friction

Design Technology

Year 5	Spring Term 1: Moving Space Buggy		
Sequence of Learning	Previous Learning		Next Steps in Learning
	<p>The children have previously learnt how to make a simple circuit. They have learnt about structures and how to make structures for stable. Children have previously had chances to explore products and begin to design products that meet a success criteria.</p>		<p>The unit starts to introduce measuring accurately which is built on in Year 6 when children begin to make design using nets.</p> <p>The children will move into evaluating the product more independently against success criteria that they have developed.</p> <p>The children will use their knowledge of strengthening structures independently in a 3D shape.</p>
Knowledge and Skills	Design	Make	
	<ul style="list-style-type: none"> • <i>Come up with a range of ideas after collecting information from different sources.</i> • <i>Produce a detailed, step-by-step plan which could include step by step instructions, cross sectional diagram, prototypes.</i> • <i>Suggest alternative plans; outlining the positive features and draw backs.</i> • <i>Explain how a product will appeal to a specific audience and criteria.</i> 	<ul style="list-style-type: none"> • <i>Use a range of tools and equipment competently.</i> 	<ul style="list-style-type: none"> • <i>Evaluate appearance and function against original criteria.</i> • <i>Suggest improvements that could be made, considering material and methods.</i>
	Cooking & Nutrition / Construction & Structures / Textiles / Mechanisms		Famous Designers
<p>Create a wooden frame for space buggy.</p> <ul style="list-style-type: none"> • <i>Create a wooden frame structure to support electrical components.</i> • <i>Understand the terms: compression and tension.</i> • <i>Independently measure and mark wood accurately.</i> • <i>Select appropriate tools and equipment for particular tasks.</i> • <i>Use the correct techniques to saw safely.</i> • <i>Identify where a structure needs reinforcement and use card corners for support.</i> <p>Create a moving space buggy.</p> <ul style="list-style-type: none"> • <i>Make a product using both electrical and mechanical components.</i> • <i>Use a motor to turn an axis and create movement.</i> 		<p>Karl Benz – inventor of car</p>	

	<ul style="list-style-type: none">• Describe mechanisms that can be used to change one kind of motion into another.• Use a hand drill safely to drill holes accurately in the project piece.		
Vocabulary	Axis Mecha	Tension Component	Cross sectional diagram compression