

Science Theme Weeks (2 Week Project)

Title: The Great Exhibition (Research, design and Make Project)

Cross curricular links with DT

Year: 3		Recycling Machine	
Teaching Ideas	Subject	National Curriculum Objectives	
<p>Pupils should explore how magnets attract and repel each other and draw conclusions and make predictions from their observations.</p> <p>Pupils should carry out tests to investigate which materials are magnetic</p> <p>Pupils should be able to design and carry out their own fair test to investigate the strength of different magnets, including using measuring equipment such as scales or a newton metre. Children could test the distance away from an object that a magnet works or how many paper clips it can 'pick up'</p> <p>Children should use their knowledge of magnets to research, design and make their own recycling machine. Children should research existing designs (e.g. watching a video/internet clip/Toy Story 3 to see how a recycling machine works)</p> <p>Pupils should first explore the use of cams, levers, pulleys and mechanisms to use in their machine (e.g. investigating using lego kits/k-Nex) Madke their own simple levers/pulley systems etc.</p> <p>Pupils should design a machine that uses ONE of these simple mechanisms (e.g. individually or in pairs/small groups)</p> <p>In making their machine, they should develop their skill in</p>	<p>Forces and magnets</p> <p>Literacy links: Instructions – How to Use A Recycling Machine Persuasive Poster – encouraging people to recycle</p>	<ul style="list-style-type: none"> • To be able to set up simple practical enquiries, comparative and fair tests • To be able to take accurate measurements using standard units, using a range of equipment • Gather, record and present data in a variety of ways to help in answering questions • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Notice that some forces need contact between two objects, but magnetic forces can act at a distance • Observe how magnets attract or repel each other and attract some materials and not others • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials • Describe magnets as having two poles • Predict whether two magnets will attract or repel each other, depending on which poles are facing. • Compare how things move on different surfaces <p>Design and Technology:</p> <ul style="list-style-type: none"> • Use research and develop design criteria to inform the design of innovative and functional products that are fit for purpose, aimed at particular individuals and groups • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams • Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining) accurately. • Investigate and analyse a range of existing products 	

<p>design and technology, including measuring, marking, cutting and joining wood, including using different equipment safely.</p> <p>(A recycling machine could be a simple lever with a magnet on string attached to the end.)</p> <p>The project will culminate in a demonstration stall (e.g. in their classroom) during the 'Great Exhibition' of their work, with pupils explaining to visitors how their recycling machine works.</p>		<ul style="list-style-type: none">• Understand how key events and individuals in design and technology have helped shape the world• Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages)
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