

### 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"> <li>• To be able to set up simple practical enquiries, comparative and fair tests</li> <li>• To be able to take accurate measurements using standard units, using a range of equipment</li> <li>• Gather, record and present data in a variety of ways to help in answering questions</li> <li>• Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</li> <li>• Notice that some forces need contact between two objects, but magnetic forces can act at a distance</li> <li>• Observe how magnets attract or repel each other and attract some materials and not others</li> <li>• 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</li> <li>• Describe magnets as having two poles</li> <li>• Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> <li>• Compare how things move on different surfaces</li> </ul> <p>Design and Technology:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams</li> <li>• Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining) accurately.</li> <li>• Investigate and analyse a range of existing products</li> </ul>

<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"><li>• Understand how key events and individuals in design and technology have helped shape the world</li><li>• Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages)</li></ul>
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