

Science Theme Weeks (3 Week Project)

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

Cross curricular links with DT

Year: 5	Save Mi-shell	
Teaching Ideas	Subject	National Curriculum Objectives
<p>In this project, pupils will explore the effect of different forces while facing the challenge of finding different methods and solutions to protect and save an egg (blown egg shell):</p> <p>Pupils will be presented with the question:</p> <p style="text-align: center;">How will you save Mi-shell?</p> <p>Pupils will be challenged to save and protect Mi-shell while using different modes of transport that they will design and make:</p> <ul style="list-style-type: none"> Parachutes (pupils will learn about the effects of gravity and air resistance). They will investigate key questions such as ‘Does the size of a parachute affect the speed at which it falls? Does the material a parachute is made from affect the speed at which it falls?’ <p>OR</p> <p>Gliders (gravity, air resistance) They will investigate key questions such as ‘Does the length of the wings of the glider affect the distance it travels? Which glider design is the most effective in protecting the egg?’</p> <ul style="list-style-type: none"> Sailing ships (water resistance, wind power) Pupils could investigate questions such as ‘Does the size of the sail affect the speed at which the ship travels?’ Pupils could investigate different designs of sailing ship. They could investigate if different types of liquid are easier/harder to travel through or the effect of different strengths of wind. Cars (friction) Pupils could investigate the friction created by different surfaces using different surface materials or different types of materials for the wheels on their cars. They could investigate if the incline of a slope affects the speed or distance the car travels. <p>After carrying out fair tests and investigations, pupils should work collaboratively to design and make their final design of each mode of transport. Throughout the project, pupils should have opportunities to evaluate their own and others’ designs and improve their models. Pupils will compete to see which design is most effective in protecting Mi-shell each time and why,</p>	<p>Forces</p> <p>Key focus on working scientifically</p> <p>Literacy links: Scientific reports (presenting results)</p>	<ul style="list-style-type: none"> To be able to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary To be able to take measurements, using a range of scientific equipment with increasing accuracy and precision, taking repeated readings where appropriate To be able to record data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphs To use test results to make predictions to set up further comparative and fair tests To be able to report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations To be able to identify scientific evidence that has been used to support or refute ideas or arguments Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Identify the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <p>Design and Technology:</p> <ul style="list-style-type: none"> Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes and computer-aided design Select from and use a wider range of tools and equipment to perform practical tasks Select from and use a wider range of materials and components, including construction materials

The project will culminate in a demonstration stall (e.g. in their classroom) during the 'Great Exhibition' of their work, with pupils demonstrating their different experiments, modes of transport and explaining their findings.

- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures