

Science Theme Weeks (3 Week Project)

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

Cross curricular links with DT

Year: 6	Rise of the Robots	
Teaching Ideas	Subject	National Curriculum Objectives
<p>Pupils should investigate and make series circuits [and parallel circuits for HA].</p> <p>Pupils should investigate the effect of adding different components within a circuit, e.g. how to make a bulb brighter; how to make a buzzer louder (e.g. shorter wires, more cells). They should ask and answer questions using scientific evidence, e.g. How does the length of a wire affect the brightness of a bulb? How does the number of cells in a circuit affect the brightness of a bulb?</p> <p>Pupils should learn how to draw circuit diagrams using recognised symbols, including the circuit[s] used in their robot.</p> <p>Pupils should use their knowledge of electrical circuits to research, design and make their own robot using more complex circuits (e.g. Lego robots, junk model robots), for example using lights for eyes, motor for movement, buzzer for sound. Pupils could evaluate existing designs and products, for example bringing in their own robot toys from home (including robots linked to and controlled by iPad apps – e.g. AIBO).</p> <p>The project will culminate in a demonstration stall (e.g. in their classroom) during the ‘Great Exhibition’ of their work, with pupils demonstrating how their robots work.</p>	<p>Electricity</p> <p>Literacy links: Consumer product reports</p> <p>Class novel: The Iron Man The Iron Woman The Robot King</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 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 and causal relationships in oral and written forms such as displays and other presentations • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches • Use recognised symbols when representing a simple circuit in a diagram <p>Design and Technology:</p> <ul style="list-style-type: none"> • Generate, develop, model and communicate their ideas through discussions, annotated sketches, cross-sectional and exploded diagrams, prototypes and computer aided design • Select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in design and technology have helped shape the world • Apply their understanding of computing to program, monitor and control their products • Understand and use electrical systems in their products

Whole School Outcomes:

Friday science fair/exhibition in each class with groups of pupils demonstrating their work and learning on science stalls. There could also be demonstrations in a central hall, including links with companies and secondary schools invited to demonstrate and work with UKS2 pupils at the science fair.