

Moving Toys Workshop Years 5 and 6

Curriculum Links

Please note:	Our workshops may not cover all of the links below in great depth as we are restricted by time, however you have the opportunity to cover them in the follow up activities you will be receiving from us.	
Aims and Activities taken from the workshop booklet	<p>A design & technology practical activity in which the pupils learn about controlling movement with a cam mechanism as a simple toy.</p> <p>Pupils investigate a collection of moving toys containing cam mechanisms that produce different movements. The children then construct their own moving toy/cam mechanism using various materials, which they keep.</p> <p>Our aim is to provide Year 5 & 6 pupils with an enjoyable stimulating workshop. Children will:</p> <ul style="list-style-type: none"> - learn about different types of cam mechanisms and the movements they produce - understand the characteristics of each component part and its use - measure, mark out, cut, join, assemble and combine components accurately - learn how to use tools safely and accurately. <p>Children will then be encouraged to test the finished mechanism and to reflect on what they have made.</p>	
	National Curriculum	Non-Statutory Opportunities
Science	<p>Working Scientifically (UKS2)</p> <ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments 	<p>Pupils will have the opportunity to:</p> <ul style="list-style-type: none"> - carry out experiments to test the effectiveness of cam mechanisms - Explore and ask questions about factors that affect the effectiveness of cam mechanisms - take measurements and make systematic and careful observations about the effectiveness cam mechanisms, thinking about ways to collect data - Report their findings using scientific vocabulary linked to properties of materials, cam mechanisms and forces, friction and motion
DT	<p>Design</p> <ul style="list-style-type: none"> • use research and develop design criteria to inform the design of innovative, functional, appealing 	Become a toy engineer and design and build a moving toy with a cam mechanism

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	<p>products that are fit for purpose, aimed at particular individuals or groups</p> <ul style="list-style-type: none"> • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities <p>Evaluate</p> <ul style="list-style-type: none"> • 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] 	<ul style="list-style-type: none"> - explore different cam mechanisms and apply your findings to design your own moving toy with a cam mechanism - Use a range of tools and equipment to perform practical tasks accurately, including using hack saws safely - Measure, cut, shape, join and assemble components accurately - Test and evaluate the finished toy based on specific criteria and reflect on ways to improve it, using vocabulary linked to properties of materials, forces and mechanical systems - Consider the uses of cam mechanisms in the real world
Maths	<p>Measurement: (Y4); convert between different units of metric measure (centimetre and millimetre (Y5); use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places (Y6)</p> <p>Statistics: read and interpret information in tables (Y5); calculate and interpret the mean as an average (Y6)</p>	<p>Opportunities to measure accurately for real-world purpose and record and interpret results</p>
English	<ul style="list-style-type: none"> • ask relevant questions to extend their understanding and knowledge • articulate and justify answers, arguments and opinions • developing a broader, deeper and richer vocabulary 	