

Laughton All Saints' D&T Overview - Mechanisms

Mechanisms	Disciplinary Knowledge			Substantive Knowledge	Vocabulary
	Designing	Making	Evaluating		
EYFS	<p>Design by talking about what they intend to do, are doing and have done.</p> <p>Say who and what their products are for.</p> <p>Draw what they have made, with some children draw their ideas before they make.</p>	<p>Opportunities to make their own choices and to discuss the reasons for these.</p> <p>Learn procedures for safety and hygiene.</p> <p>Develop practical skills and techniques using a range of textile materials.</p>	<p>Ask questions about a range of existing products.</p> <p>Explore the designed and made world through the indoor and outdoor environment, and through roleplay.</p>	<p><u>Levers and Sliders</u></p> <p>-Early experiences of working with paper and card to make simple flaps and hinges.</p> <p>-Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.</p> <p><u>Wheels and Axles</u></p> <p>-Assemble vehicles with moving wheels using construction kits.</p> <p>-Explore moving vehicles through play.</p> <p>-Develop some cutting, joining and finishing skills with card.</p> <p>-Learn and using appropriate technical vocabulary.</p>	<p>Flaps</p> <p>Hinge</p> <p>Join</p> <p>Vehicle</p> <p>Wheels</p> <p>Forwards</p> <p>Backwards</p>
Key Stage 1	<p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper. 	<p><u>Making</u></p> <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. 	<p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. 	<p><u>(Levers and Sliders)</u></p> <ul style="list-style-type: none"> • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project. <p><u>(Wheels and Axles)</u></p> <ul style="list-style-type: none"> • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project. 	<p><u>Sliders and Levers</u></p> <p>Mechanism</p> <p>Lever</p> <p>Slider</p> <p>Slot</p> <p>Guide or bridge</p> <p><u>Wheels and axles</u></p> <p>Axle</p> <p>Dowel</p> <p>Axle holder</p> <p>Chassis</p> <p>Friction</p>

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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Lower Key Stage 2</p>	<p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. 	<p><u>Making</u></p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating. 	<p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate and analyse books and, where available, other products with lever and linkage mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. 	<p><u>Levers and Linkages</u></p> <ul style="list-style-type: none"> • Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project <p><u>Pneumatics</u></p> <p>Understand and use pneumatic mechanisms.</p> <ul style="list-style-type: none"> • Know and use technical vocabulary relevant to the project. 	<p><u>Levers and Linkages</u></p> <p>Mechanism Lever Linkage Slot Guide or bridge Loose / Fixed pivot System</p> <p><u>Pneumatics</u></p> <p>Compressed Input Output Pivot Lever Pneumatic Hydraulic Pressure Inflate Deflate Syringe System</p>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Upper Key Stage 2</p>	<p><u>Designing</u></p> <ul style="list-style-type: none"> • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. 	<p><u>Making</u></p> <ul style="list-style-type: none"> • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost. 	<p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Compare the final product to the original design specification. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project. <p>Technical knowledge and understanding</p>	<p><u>Pulleys and Gears</u></p> <ul style="list-style-type: none"> • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project. <p><u>Cams</u></p> <ul style="list-style-type: none"> • Understand that mechanical systems have an input, process and an output. • Understand how cams can be used to produce different types of movement and change the direction of movement. • Know and use technical vocabulary relevant to the project. 	<p><u>Pulleys and Gears</u></p> <p>Pulley Gear Drive belt Gearing up or down Mechanical system Driver Follower Mesh Motor spindle</p> <p><u>Cams</u></p> <p>Rotary motion Oscillating motion Reciprocating motion Cam Follower Lever Slider Guide Spacer</p>
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