

	Mechanisms (Y3)	Structures (Y4)	Food (Y3+4)	Textiles (Y3)	Electrical Systems (Y4)
Lower key stage 2	Skills				
	<p>Designing</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>Making</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>Evaluating</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 	<p>Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. • Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Plan the order of the main stages of making. • Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. 	<p>Designing</p> <ul style="list-style-type: none"> • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make 	<p>Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. <p>Making</p> <ul style="list-style-type: none"> • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate a range of 3-D textile products relevant to the project. 	<p>Designing</p> <ul style="list-style-type: none"> • Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. <p>Making (Simple Circuits & Switches)</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. <p>Making (programming and control)</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Connect simple electrical components and a battery in a series circuit to achieve a functional outcome.

<p>criteria and user needs, as they design and make.</p>	<ul style="list-style-type: none"> • Use computer-generated finishing techniques suitable for the product they are creating. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. 	<p>appropriate food products, thinking about sensory characteristics.</p> <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. 	<ul style="list-style-type: none"> • Test their product against the original design criteria and with the intended user. • Take into account others' views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. 	<ul style="list-style-type: none"> • Program a standalone control box, microcontroller or interface box to enhance the way the product works. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Investigate and analyse a range of existing battery-powered products. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.
<p>Technical knowledge and understanding</p>				
<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. 	<ul style="list-style-type: none"> • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately 	<ul style="list-style-type: none"> • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project. 	<p><u>Simple circuits and switches</u></p> <ul style="list-style-type: none"> - Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. - Apply their understanding of computing to program and control their products - Know and use technical vocabulary relevant to the project. <p><u>Programming and Control</u></p> <p>Understand and use computing to program and control products containing electrical systems, such as</p>

				<p>series circuits incorporating switches, bulbs and buzzers.</p> <ul style="list-style-type: none"> • Know and use technical vocabulary relevant to the project.
Vocabulary				
<p><u>Levers and Linkages</u> Mechanism Lever Linkage Slot Guide or bridge Loose pivot Fixed pivot System</p> <p><u>Pneumatics</u> Compressed Input Output Pivot Lever Pneumatic Hydraulic Pressure Inflate Deflate Syringe System</p>	<p><u>CAD – computer-aided design.</u> Shell structure Edge Face Vertex Font Net Cuboid Prism</p>	<p>Appearance Texture Sensory evaluation – Preference test Strawberry huller Processed food</p>	<p>Appliqué Pattern/Template Seam Seam Allowance Prototype Aesthetics</p>	<p><u>Simple circuits and switches</u> Circuit Conductor Insulator Prototype Push-to-break switch Push-to-make switch Reed switch Toggle switch System Output devices Input devices</p> <p><u>Programming and Control</u> Program Microcontroller Light emitting diode (LED) System Output devices Input devices Process</p>