



| Phase | Cycle | Autumn | Spring | Summer |
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| KS1 | A | <p>Mechanisms – sliders and levers 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> | <p>Freestanding structures Know how to make freestanding structures stronger, stiffer and more stable. Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</p> | <p>Food – preparing fruits and vegetables Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The eatwell plate. Know and use technical and sensory vocabulary relevant to the project.</p> |
| | B | <p>Cooking Cut, peel, or grate ingredients safely and hygienically Measure or weigh using measuring cups or electronic scales Assemble or cook ingredients</p> | <p>Mechanisms - wheels and axles Create products using levers, wheels and winding mechanisms</p> | <p>Textiles – templates and joining Shape textiles using templates Join textiles using running stitch Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing)</p> |
| LKS2 Yr 3/4 | A | <p>Mechanical systems- levers and linkages Use annotated sketches and prototypes to develop, model and communicate ideas. Investigate a range of 3-D textile products relevant to the project. 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. Test their product against the original design criteria and with the intended user. Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots.</p> | <p>Food- healthy and varied diet 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 appropriate food products, thinking about sensory characteristics. 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.</p> | <p>Shell structures using CAD Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas. Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. Use computer-generated finishing techniques suitable for the product they are creating. Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. 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.</p> |

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| | B | <p>Food- healthy and varied diet 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 appropriate food products, thinking about sensory characteristics. 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.</p> | <p>Electrical systems- simple circuits and switches 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. 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.</p> | <p>Textiles Project- 2D shape to 3D product 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. Investigate a range of 3-D textile products relevant to the project. Test their product against the original design criteria and with the intended user. Understand how a key event/individual has influenced the development of the chosen product and/or fabric. 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.</p> |
| | C (2024- 2025) | <p>Structures- shell structures Investigate and evaluate a range of existing 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. •Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</p> | <p>Mechanical systems- pneumatics Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. Select from and use finishing techniques suitable for the product they are creating. Investigate and analyse books, videos and products with pneumatic mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make. Understand and use pneumatic mechanisms.</p> | <p>Electrical systems- simple programming and control Connect simple electrical components and a battery in a series circuit to achieve a functional outcome. Program a standalone control box, microcontroller or interface box to enhance the way the product works. Investigate and analyse a range of existing battery-powered products, including pre-programmed and programmable products. Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. Understand and use computing to program and control products containing electrical systems, such as series circuits incorporating switches, bulbs and buzzers.</p> |
| UKS2 Yr 5/6 | A | <p>Monitoring and control Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable their electrical product to respond to changes in the environment. Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness Understand and use electrical systems in their products.</p> | <p>Pulleys and gears Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Investigate famous manufacturing and engineering companies relevant to the project. 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.</p> | <p>Textiles- combining different fabric shapes Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer-aided design. Produce detailed lists of equipment and fabrics relevant to their tasks. Investigate and analyse textile products linked to their final product. 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. Know a 3-D textile product can be made from a</p> |

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| Year 4/5 | | <p>Understand the use of computer control systems in products.</p> <p>Apply their understanding of computing to program, monitor and control their products.</p> | | <p>combination of accurately made pattern pieces, fabric shapes and different fabrics.</p> <p>Know fabrics can be strengthened, stiffened and reinforced where appropriate.</p> |
| | B | <p>Structures- frame structures</p> <p>Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</p> <p>Use finishing and decorative techniques suitable for the product they are designing and making.</p> <p>Investigate and evaluate a range of existing frame structures.</p> <p>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Research key events and individuals relevant to frame structures.</p> <p>Investigate and evaluate a range of existing frame structures.</p> <p>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Research key events and individuals relevant to frame structures.</p> | <p>Electrical systems- more complex switches and circuits</p> <p>Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.</p> <p>Continually evaluate and modify the working features of the product to match the initial design specification.</p> <p>Test the system to demonstrate its effectiveness for the intended user and purpose.</p> <p>Investigate famous inventors who developed ground-breaking electrical systems and components.</p> <p>Understand and use electrical systems in their products.</p> <p>Apply their understanding of computing to program, monitor and control their products.</p> | <p>Food- celebrating culture and seasonality</p> <p>Write a step-by-step recipe, including a list of ingredients, equipment and utensils</p> <p>Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</p> <p>Make, decorate and present the food product appropriately for the intended user and purpose.</p> <p>Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.</p> <p>Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p> <p>Understand how key chefs have influenced eating</p> |
| | C (2024- 2025) | <p>Food- celebrating culture and seasonality</p> <p>Write a step-by-step recipe, including a list of ingredients, equipment and utensils</p> <p>Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</p> <p>Make, decorate and present the food product appropriately for the intended user and purpose.</p> <p>Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.</p> <p>Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p> <p>Understand how key chefs have influenced eating</p> | <p>Textiles- using computer-aided design in textiles</p> <p>Produce detailed lists of equipment and fabrics relevant to their tasks.</p> <p>Select from and use a range of tools and equipment, including CAD, to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</p> <p>Investigate and analyse textile products linked to their final product.</p> <p>Compare the final product to the original design specification.</p> | <p>Mechanical systems- simple systems</p> <p>Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</p> <p>Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</p> <p>Compare the final product to the original design specification.</p> <p>Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for</p> <p>Test products with intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</p> <p>Know a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.</p> |

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| | | habits to promote varied and healthy diets. | | Know fabrics can be strengthened, stiffened and reinforced where appropriate. |
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