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| <ul style="list-style-type: none"> <li>• <i>Make design decisions, taking account of constraints such as time, resources and cost</i></li> <li>• <i>Across KS2 children should know about inventors, designers, chefs and manufacturers who have developed ground breaking products.</i></li> <li>• Research famous inventors, designers, chefs and manufacturers linked to product</li> </ul>   | <ul style="list-style-type: none"> <li>• Demonstrate resourcefulness when tackling practical problems</li> <li>• <i>Formulate step-by-step plans as a guide to making</i></li> </ul>   |  | <ul style="list-style-type: none"> <li>• How to use learning from Science and Mathematics to help design and make products that work.</li> <li>• The mechanical and electrical systems have an input, process and out output.</li> <li>• Understand that materials have both functional properties and aesthetic qualities</li> <li>• Understand that mechanical and electrical systems have an input, process and output</li> <li>• <i>Confidently use correct technical vocabulary for the projects they are undertaking</i></li> </ul> | <ul style="list-style-type: none"> <li>• <i>That recipes can be adapted to change the appearance, taste, texture and aroma</i></li> </ul>   |
| Design   | Make   | Evaluate   | Technical Knowledge   | Food  |
| <p><b>Understanding contexts, users and purposes</b></p> <ul style="list-style-type: none"> <li>• Carry out research, using surveys, interviews, questionnaires and web-based resources</li> <li>• Develop a simple design specification to guide their thinking.</li> <li>• Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and wider environment.</li> <li>• Indicate the design features of their products that will appeal to intended users</li> <li>• Identify the needs, wants, preferences and values of particular individuals and groups.</li> </ul> | <p><b>Planning</b></p> <ul style="list-style-type: none"> <li>• <i>Produce appropriate lists of tools, equipment and materials that they need</i></li> <li>• Explain their choice of tools and equipment in relation to the task.</li> <li>• Select tools and equipment suitable for the task.</li> <li>• Explain their choice of materials and components according to functional properties and aesthetic properties.</li> </ul>   | <p><b>Own ideas and products</b></p> <ul style="list-style-type: none"> <li>• Identify the strengths and areas for development in their ideas and products</li> <li>• Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>• <i>Evaluate their ideas and products against their original design specification</i></li> </ul>  | <p><b>Making products work</b></p> <ul style="list-style-type: none"> <li>• How mechanical systems such as cams or pulleys or gears create movement</li> <li>• How more complex electrical circuits and components can be used to create functional products</li> <li>• How to program a computer to monitor changes in the environment and control their products</li> <li>• How to reinforce and strengthen a 3D framework</li> </ul>   | <p><b>Where food comes from</b></p> <ul style="list-style-type: none"> <li>• Understand that seasons may affect the food available</li> <li>• Understand how food is processed into ingredients that can be eaten or used in cooking</li> <li>• Understand that food is grown (e.g. tomatoes, wheat, potatoes) reared (pigs and cattle)and caught (fish) in the UK, Europe and the wider world.</li> <li>• That different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</li> </ul> |
| <p><b>Generating, developing, modelling and communicating ideas</b></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas, drawing on research.</li> <li>• Share and clarify ideas through discussion.</li> <li>• Use annotated sketches, prototypes, pattern pieces, cross sectional and exploded diagrams to communicate their ideas.</li> <li>• Use computer aided design to develop and communicate ideas</li> <li>• Explain how particular parts of their products work.</li> </ul>  | <p><b>Practical skills activities and techniques</b></p> <ul style="list-style-type: none"> <li>• Accurately measure, mark out, cut and shape materials and components</li> <li>• Accurately assemble, join and combine materials and components</li> <li>• Accurately apply a range of finishing techniques, including those from art and design</li> <li>• Follow procedures for safety and hygiene</li> <li>• Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul> | <p><b>Existing products</b></p> <p>Children should investigate and analyse;</p> <ul style="list-style-type: none"> <li>• How much products cost to make</li> <li>• How innovative products are</li> <li>• How sustainable the materials in products are.</li> <li>• What impact products have beyond their intended purpose.</li> <li>• How well products have been designed</li> <li>• How well products have been made</li> <li>• Why materials have been chosen</li> <li>• What methods of construction have been used</li> <li>• How well products work</li> <li>• How well products achieve their purpose</li> <li>• How well products meet user needs and wants</li> </ul> |   | <p><b>Food preparation, cooking and nutrition</b></p> <ul style="list-style-type: none"> <li>• How to use a range of techniques such a peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> <li>• Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including where appropriate the use of a heat source.</li> </ul>  |

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| <ul style="list-style-type: none"> <li>Across KS2 children should know about inventors, designers, chefs and manufacturers who have developed ground breaking products.</li> <li>Research famous inventors, designers, chefs and manufacturers linked to product</li> </ul>  | <ul style="list-style-type: none"> <li>Explain their choice of tools and equipment in relation to the task.</li> </ul>   | <ul style="list-style-type: none"> <li>Consider the views of others including intended users, to improve their work.</li> </ul>  | <ul style="list-style-type: none"> <li>Begin to understand that mechanical and electrical systems have an input, process and output</li> <li>Begin to understand that food ingredients can be fresh, pre-cooked and processed.</li> <li>Begin to understand that materials have both functional properties and aesthetic qualities</li> <li>Use correct technical vocabulary for the projects they are undertaking</li> <li>Understand that a single fabric shape can be used to make a 3D textiles product.</li> </ul> | <ul style="list-style-type: none"> <li>That a recipe can be adapted by adding or substituting one or more ingredients</li> </ul>   |
| Design   | Make   | Evaluate   | Technical Knowledge   | Food   |
| <p><b>Understanding contexts, users and purposes</b></p> <ul style="list-style-type: none"> <li>Gather information about needs and wants of particular individuals and groups.</li> <li>Develop their own design criteria and use these to inform their ideas.</li> <li>Work within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and wider environment.</li> <li>Indicate the design features of their products that will appeal to intended users.</li> <li>Identify the needs, wants, preferences and values of particular individuals and groups.</li> </ul> | <p><b>Planning</b></p> <ul style="list-style-type: none"> <li>Order the main stages of making</li> <li>Select tools and equipment suitable for the task.</li> <li>Explain their choice of materials and components according to functional properties and aesthetic properties.</li> </ul>   | <p><b>Own ideas and products</b></p> <ul style="list-style-type: none"> <li>Refer to their design criteria as they design and make.</li> <li>Use their design criteria to evaluate their completed products</li> <li>Identify the strengths and areas for development in their ideas and products</li> </ul>   | <p><b>Making products work</b></p> <ul style="list-style-type: none"> <li>How mechanical systems such as levers and linkages or pneumatic systems create movement.</li> <li>How simple electrical circuits and components can be used to create functional products.</li> <li>How to program a computer to control their products.</li> <li>How to make strong, stiff shell structures</li> </ul>   | <p><b>Where food comes from</b></p> <ul style="list-style-type: none"> <li>Understand that food is grown (e.g. tomatoes, wheat, potatoes) reared (pigs and cattle) and caught (fish) in the UK, Europe and the wider world</li> </ul>  |
| <p><b>Generating, developing, modelling and communicating ideas</b></p> <ul style="list-style-type: none"> <li>Generate realistic ideas, focusing on the needs of the user.</li> <li>Share and clarify ideas through discussion.</li> <li>Use annotated sketches, prototypes, pattern pieces, cross sectional and exploded diagrams to communicate their ideas.</li> <li>Use computer aided design to develop and communicate ideas</li> <li>Explain how particular parts of their products work.</li> </ul>   | <p><b>Practical skills activities and techniques</b></p> <ul style="list-style-type: none"> <li>Measure, mark out, cut and shape materials and components with some accuracy.</li> <li>Assemble, join and combine materials and components with some accuracy.</li> <li>Apply a range of finishing techniques, including those from art and design, with some accuracy.</li> <li>Follow procedures for safety and hygiene</li> <li>Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul> | <p><b>Existing products</b></p> <p>Pupils should investigate and analyse:</p> <ul style="list-style-type: none"> <li>Who designed and made the products</li> <li>Where products were designed and made</li> <li>When products were designed and made</li> <li>Whether products can be recycled or reused</li> <li>How well products have been designed</li> <li>How well products have been made</li> <li>Why materials have been chosen</li> <li>What methods of construction have been used</li> <li>How well products work</li> <li>How well products achieve their purpose</li> <li>How well products meet user needs and wants</li> </ul> |   | <p><b>Food preparation, cooking and nutrition</b></p> <ul style="list-style-type: none"> <li>Understand that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate</li> <li>Understand that to be active and healthy, food and drink are needed to provide energy for the body</li> <li>How to use a range of techniques such a peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> <li>Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including where appropriate the use of a heat source.</li> </ul> |

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| Design  | Make  | Evaluate   | Technical Knowledge  | Food  |
| <p><b>Understanding contexts, users and purposes</b></p> <ul style="list-style-type: none"> <li>• Begin to work within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment.</li> <li>• State what products they are designing and making</li> <li>• Say whether their products are for themselves or other users</li> <li>• Describe what their products are for</li> <li>• Say how their products will work</li> <li>• Say how they will make their products suitable for their intended users.</li> <li>• Use simple design criteria to help develop their ideas.</li> </ul> | <p><b>Planning</b></p> <ul style="list-style-type: none"> <li>• Select from a range of tools and equipment.</li> <li>• Select from a range of materials and components according to their characteristics.</li> </ul>   | <p><b>Own ideas and products</b></p> <ul style="list-style-type: none"> <li>• Talk about their design ideas and what they are making.</li> <li>• Make simple judgements about their products and ideas against design criteria.</li> </ul>   | <p><b>Making products work</b></p> <ul style="list-style-type: none"> <li>• Know about the simple working characteristics of materials and components.</li> <li>• Understand the movement of simple mechanisms such as levers, sliders, wheels and axles.</li> <li>• Know how freestanding structures can be made stronger, stiffer and more stable.</li> <li>• <i>Understand that a 3-D textiles product can be assembled from two identical fabric shapes.</i></li> <li>• <i>Understand that food ingredients should be combined according to their sensory characteristics e.g. bitter, sweet, crunchy etc</i></li> </ul> | <p><b>Where food comes from</b></p> <ul style="list-style-type: none"> <li>• Understand that all food comes from plants or animals.</li> <li>• Understand that food has to be farmed, grown elsewhere (e.g. home) or caught.</li> </ul> |
| <p><b>Generating, developing, modelling and communicating ideas</b></p> <ul style="list-style-type: none"> <li>• Generate ideas by drawing on their own experiences.</li> <li>• Use knowledge of existing products to help come up with ideas.</li> <li>• Develop and communicate ideas by talking and drawing.</li> <li>• Model ideas by exploring materials, components and construction kits and by making templates and mockups.</li> <li>• Use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ul>  | <p><b>Practical skills activities and techniques</b></p> <ul style="list-style-type: none"> <li>• Follow procedures for safety and hygiene.</li> <li>• Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components.</li> <li>• Measure, mark out, cut and shape materials and components.</li> <li>• Assemble, join and combine materials and components.</li> <li>• Use finishing techniques, including those from art and design.</li> </ul> | <p><b>Existing products</b></p> <p>Children should explore:</p> <ul style="list-style-type: none"> <li>• What products are</li> <li>• Who products are for</li> <li>• What products are for</li> <li>• How products work</li> <li>• How products are used</li> <li>• Where products might be used</li> <li>• What materials products are made from</li> <li>• What they like and dislike about a product.</li> </ul> | <p><b>Food preparation, cooking and nutrition</b></p> <ul style="list-style-type: none"> <li>• How to name and sort foods into the five groups in The eat well plate.</li> <li>• Know that everyone should eat at least five portions of fruit and vegetables every day.</li> <li>• How to prepare simple dishes safely and hygienically, without using a heat source.</li> <li>• How to use techniques such as cutting, peeling and grating.</li> </ul>   |   |