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| <b>Questions to Develop Children's Spirituality in Design Technology:</b> | What does it mean if an object has worth or value?<br>Can the value be different from one person to another?<br>How can an object tell a story?<br>Does it mean more to someone if you have made the gift yourself?<br>Is home-made or factory made best?<br>Do we value what people have made for us?<br>If we believe that God has made us, what does that reveal about our views about our value for God? |
| <b>Development of the child:</b>  | Wonder, consideration and appreciation.  |



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| <p><b>Topic:</b> How Does Your Garden Grow?</p> <p><b>Subject:</b> Design and Technology- Structures</p>                       | <p><b>Prior Knowledge/Links:</b><br/>         The Great Outdoors- Structures (Playground Equipment) (Y1/2)<br/>         Oh I Do Like to Be Beside the Seaside- Structures, Electrical Systems and Mechanisms (Fairground Ride) (Y5/6)</p> <p><b>Children should already know:</b></p> <ul style="list-style-type: none"> <li>• how to build simple structures,</li> <li>• how structures can be made stronger, stiffer and more stable</li> <li>• simple methods for cutting, joining and fixing</li> </ul>   |   |
| <p><b>National Curriculum Objectives</b></p>   | <p><b>Key Knowledge and Vocabulary</b></p>  |   |
| <p><b>Technical knowledge</b> – apply their knowledge of how to strengthen, stiffen and reinforce more complex structures.</p> | <ul style="list-style-type: none"> <li>• Know similar products to the one to be made to give starting points for a design.</li> <li>• Know how to draw/sketch products to help analyse and understand how products are made.</li> <li>• Know what the structure needs to achieve – how it is to be used, where it is to be sited, who is going to use it, to prepare a design brief that outlines the requirements.</li> <li>• Know how garden designers choose the shape, size and materials for planters.</li> <li>• Know how to use annotated sketches to record their ideas as they develop.</li> <li>• Know how to develop simple prototypes of their ideas to take forward.</li> <li>• Know how to plan the making process to consider the stages of making and choice of appropriate tools and skills</li> <li>• Know how to create shell or frame structures.</li> <li>• Know how to strengthen frames with diagonal struts.</li> <li>• Know how to make structures more stable by giving them a wide base.</li> <li>• Know how to measure and mark square section, strip and dowel accurately to one centimetre (work with accuracy).</li> <li>• Know how to evaluate and test against the design criteria, improving or adjusting where necessary.</li> </ul> | <p>research/design/make/evaluate<br/>         purpose<br/>         user<br/>         product<br/>         brief<br/>         design criteria<br/>         model<br/>         evaluate<br/>         strengthen<br/>         stiffen<br/>         reinforce<br/>         annotated<br/>         sketch<br/>         prototype<br/>         structures<br/>         stable<br/>         dowel<br/>         diagonal<br/>         struts<br/>         appealing</p> |



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| <p><b>Topic:</b> Sparks Might Fly</p> <p><b>Subject:</b> Design and Technology-Electrical Systems</p>  | <p><b>Prior Knowledge/Links:</b><br/>         Explorers- Mechanisms: Wheels and Axles (Vehicles) (Y1/2)</p> <p><b>Children should already know:</b></p> <ul style="list-style-type: none"> <li>• how to use mechanisms e.g. levers, sliders, wheels and axles in their products</li> <li>• simple methods for cutting, joining and fixing</li> </ul>   |   |
| <p><b>National Curriculum Objectives</b></p>   | <p><b>Key Knowledge and Vocabulary</b></p>   |   |
| <p><b>Technical knowledge:</b></p> <ul style="list-style-type: none"> <li>• understand and use electrical systems in their products e.g. series circuits, incorporating switches, bulbs, buzzers and motors</li> <li>• apply their understanding of computing to program, monitor and control their products.</li> </ul> | <ul style="list-style-type: none"> <li>• Know existing products that use electrical systems.</li> <li>• Know how a product is appropriate for the intended user, considering purpose, function and aesthetic appeal.</li> <li>• Know how an electrical system functions, using flow charts to explain.</li> <li>• Know what electrical components are used in an electrical system.</li> <li>• Know how to complete a simple series circuit, incorporating on working component e.g. light, bulb, buzzer, motor.</li> <li>• Know methods of creating a switch (breaker) in the circuit.</li> <li>• Know relevant ICT programming to incorporate relevant ICT equipment into the circuit.</li> <li>• Know that size, function, components, incorporation of circuitry into the container and the panel, need to be considered in the design criteria.</li> <li>• Know that their final product needs to be functional and appealing.</li> </ul> | <p>research/design/make/evaluate<br/>         purpose<br/>         user<br/>         product<br/>         brief<br/>         design criteria<br/>         electrical components<br/>         bulb<br/>         buzzer<br/>         motor<br/>         cell<br/>         circuit<br/>         switch</p> |



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| <p><b>Topic:</b> Hunted</p> <p><b>Subject:</b> Design and Technology-Food and Nutrition</p>  | <p><b>Prior Knowledge/Links:</b><br/>           Growth and Green Fingers- Cooking and Nutrition: Fruit Kebabs (Y1/2)<br/>           The Farm Shop- Cooking and Nutrition: Salads (Y1/2)<br/>           Food, Glorious Food!- Cooking and Nutrition: Celebration Food (Y5/6)<br/>           Heroes and Villains- Cooking and Nutrition: Healthy School Dinner (Y5/6)</p> <p><b>Children should already know:</b></p> <ul style="list-style-type: none"> <li>• the eat well plate</li> <li>• what a healthy diet looks like</li> <li>• how to use the basic principles of a healthy and varied diet to prepare dishes</li> <li>• understand where food comes from</li> </ul>   |   |   |
| <p><b>National Curriculum Objectives</b></p>   | <p><b>Key Knowledge and Vocabulary</b></p>   |   |   |
| <p><b>Cooking and Nutrition:</b></p> <ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet.</li> <li>• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</li> <li>• understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul> | <ul style="list-style-type: none"> <li>• Know existing products from investigating actual examples of individual food items and dishes.</li> <li>• Know the essential elements of the Eatwell Plate to make healthy eating choices.</li> <li>• Know which foods might be found/grown on a desert island.</li> <li>• Know how to secure protein e.g. meat, fish.</li> <li>• Know what different fruits/root vegetables taste, look and smell like.</li> <li>• Know how to alter the texture of foods by preparing them differently.</li> <li>• Know sensory vocabulary using smell, taste, texture and feel.</li> <li>• Know how to analyse the taste, texture, smell and appearance of predominantly savoury foods.</li> <li>• Know how to draw/sketch products and annotate drawings to analyse and understand how products are made.</li> <li>• Know how to draw up appropriate design criteria for a simple meal.</li> <li>• Know the sequence of actions needed to make a dish.</li> <li>• Know how to follow instructions/recipes.</li> <li>• Know the tools to prepare ingredients and how to use them safely.</li> <li>• Know how to prepare food by baking and boiling.</li> <li>• Know that adult supervision is required when baking and boiling.</li> <li>• Know the ingredients needed to achieve their design ideas.</li> <li>• Know how to join and combine a range of ingredients.</li> <li>• Know how to meet aesthetic qualities of a dish, ensuring it tastes, looks and smells appetising (finishing, serving, presentation techniques).</li> <li>• Know how to improve the product in light of how successful the dish meets the design criteria.</li> </ul> | <p>research/design/make/evaluate<br/>           purpose<br/>           user<br/>           product<br/>           brief<br/>           design criteria<br/>           utensils/equipment<br/>           techniques<br/>           ingredients<br/>           texture/taste/smell<br/>           sweet/sour<br/>           savoury<br/>           hot/spicy<br/>           appearance<br/>           preference<br/>           greasy<br/>           moist</p> | <p>cook<br/>           fresh<br/>           edible<br/>           grown<br/>           reared<br/>           caught<br/>           frozen<br/>           tinned<br/>           processed<br/>           seasonal<br/>           harvested<br/>           health/varied diet<br/>           eat well plate<br/>           carbohydrates/protein/fibre/fats/sugars/fruit and vegetables<br/>           hygiene/hygienic</p> |



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| <p><b>Topic:</b> The Iron Man</p> <p><b>Subject:</b> Design and Technology-Mechanisms</p>  | <p><b>Prior Knowledge/Links:</b><br/>         Fire! Fire!- Mechanisms: Pop Ups and Levers (Y1/2)<br/>         Explorers- Mechanisms: Wheels and Axles (Y1/2)<br/>         Inventors and Inventions- Mechanisms: CAMS, Pulleys and Gears (Y5/6)</p> <p><b>Children should already know:</b></p> <ul style="list-style-type: none"> <li>• explore and use mechanisms e.g. levers, sliders, wheels and axles in their products</li> <li>• simple methods for cutting, joining and fixing</li> </ul>  |   |
| <p><b>National Curriculum Objectives</b></p>   | <p><b>Key Knowledge and Vocabulary</b></p>  |   |
| <p><b>Technical knowledge:</b></p> <ul style="list-style-type: none"> <li>• understand and use mechanical systems in their products e.g. gears, pulleys, cams, levers and linkages.</li> </ul> | <ul style="list-style-type: none"> <li>• Know examples of 'pop-up' mechanisms which use systems of levers and linkages to change direction, make a movement larger or make two movements interact.</li> <li>• Know how to use mechanical systems such as levers and linkages, making diagrams of how they work.</li> <li>• Know how different outputs can be achieved from varying or adapting mechanical systems</li> <li>• Know how to use lolly sticks or card to make levers and linkages.</li> <li>• Know how to use linkages to make movement larger or more varied.</li> <li>• Know how to use tools with accuracy.</li> <li>• Know how to cut slots.</li> <li>• Know how to cut internal shapes.</li> <li>• Know appropriate finishing techniques.</li> <li>• Know how to stiffen and strengthen materials.</li> <li>• Know how to select materials and tools that will meet the design criteria</li> <li>• Know how their finished product meets the design criteria and how they could further improve it.</li> </ul> | <p>research/design/make/evaluate<br/>         purpose<br/>         user<br/>         product<br/>         brief<br/>         design criteria<br/>         structure<br/>         mechanism<br/>         lever<br/>         linkage<br/>         pivot<br/>         slot<br/>         bridge<br/>         guide system<br/>         input<br/>         output<br/>         process<br/>         linear<br/>         rotary<br/>         oscillatory<br/>         reciprocating</p> |



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| <p><b>Topic:</b> Passport to Europe</p> <p><b>Subject:</b> Design and Technology-Textiles</p>   | <p><b>Prior Knowledge/Links:</b><br/>         Wind in the Willows- Textiles: Puppets (Y1/2)<br/>         Amazon Adventure- Textiles: Aprons and Toolbelts (Y5/6)</p> <p><b>Children should already know:</b></p> <ul style="list-style-type: none"> <li>• how to build simple structures</li> <li>• how structures can be made stronger, stiffer and more stable</li> <li>• simple methods for cutting, joining and fixing</li> </ul>   |   |
| <p><b>National Curriculum Objectives</b></p>  | <p><b>Key Knowledge and Vocabulary</b></p>  |   |
| <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• select from and use a wider range of materials and components, including textiles according to their functional properties and aesthetic qualities.</li> </ul> | <ul style="list-style-type: none"> <li>• Know similar existing products from disassembling to investigate how pattern pieces have been made and fit together.</li> <li>• Know the user and purpose of the passport holder.</li> <li>• Know how the holder protects the passport e.g. from being crumpled.</li> <li>• Know what stitches have been used.</li> <li>• Know how fabric has been strengthened or stiffened to help protect the passport e.g. using card inserts or iron-on webbing.</li> <li>• Know about seam allowance and how to join fabrics using a running stitch, over sewing or blanket stitch.</li> <li>• Know how to prototype a product using J-cloths.</li> <li>• Know fastenings and recreate some – sew on buttons and make loops.</li> <li>• Know appropriate decoration techniques.</li> <li>• Know how to evaluate against the design criteria and what might be done differently.</li> </ul> | <p>research/design/make/evaluate<br/>         purpose<br/>         user<br/>         product<br/>         brief<br/>         design criteria<br/>         fabric<br/>         materials<br/>         fastenings<br/>         compartments<br/>         zip<br/>         buttons<br/>         structure<br/>         pattern<br/>         seam allowance<br/>         seam<br/>         stitch/stitches<br/>         finishing technique<br/>         stiffen<br/>         strengthen<br/>         strengths/weaknesses<br/>         templates</p> |





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| <p><b>Topic:</b> Healthy Humans</p> <p><b>Subject:</b> Design and Technology-Food and Nutrition</p>  | <p><b>Prior Knowledge/Links:</b><br/>         Growth and Green Fingers- Cooking and Nutrition: Fruit Kebabs (Y1/2)<br/>         The Farm Shop- Cooking and Nutrition: Salads (Y1/2)<br/>         Food, Glorious Food!- Cooking and Nutrition: Celebration Food (Y5/6)<br/>         Heroes and Villains- Cooking and Nutrition: Healthy School Dinner (Y5/6)</p> <p><b>Children should already know:</b></p> <ul style="list-style-type: none"> <li>• the eat well plate</li> <li>• what a healthy diet looks like</li> <li>• how to use the basic principles of a healthy and varied diet to prepare dishes</li> <li>• understand where food comes from</li> </ul>   |   |  |
| <p><b>National Curriculum Objectives</b></p>   | <p><b>Key Knowledge and Vocabulary</b></p>   |   |  |
| <p><b>Cooking and nutrition:</b></p> <ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet.</li> <li>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</li> <li>• understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul> | <ul style="list-style-type: none"> <li>• Know about existing picnic products from investigating actual examples, including individual food items and dishes.</li> <li>• Know how dishes suit the requirements of a picnic e.g. transportable, easy to eat, to give starting points for design.</li> <li>• Know the essential elements of the Eatwell Plate to make healthy eating choices.</li> <li>• Know which ingredients we could grow and where they come from.</li> <li>• Know which dishes include protein.</li> <li>• Know how meat and fish are reared and caught.</li> <li>• Know how to analyse taste, texture, smell and appearance of a range of foods which are predominantly savoury.</li> <li>• Know how to draw/sketch products with annotations to design a simple picnic dish.</li> <li>• Know which cooking methods are involved in the food preparation.</li> <li>• Know how to follow instructions and recipes.</li> <li>• Know how to join and combine a range of ingredients, using tools safely.</li> <li>• Know how to prepare food by baking and boiling ingredients.</li> <li>• Know that adult supervision is required when baking and boiling.</li> <li>• Know the order of their work and the tools and ingredients they will need at each stage.</li> <li>• Know if their product will taste, look and smell good, based on the aesthetic qualities of the ingredients chosen</li> <li>• Know appropriate finishing/serving/presentation techniques.</li> <li>• Know how the finished product could be improved in light of how it meets the design criteria.</li> </ul> | <p>research/design/make/evaluate<br/>         purpose<br/>         user<br/>         product<br/>         brief<br/>         design criteria<br/>         utensils/equipment<br/>         techniques<br/>         ingredients<br/>         texture/taste/smell<br/>         sweet/sour<br/>         savoury<br/>         hot/spicy<br/>         appearance<br/>         preference<br/>         greasy<br/>         moist</p> | <p>cook<br/>         fresh<br/>         edible<br/>         grown<br/>         reared<br/>         caught<br/>         frozen<br/>         tinned<br/>         processed<br/>         seasonal<br/>         harvested<br/>         health/varied diet<br/>         eat well plate<br/>         carbohydrates/protein/<br/>         fibre/fats/sugars/fruit<br/>         and vegetables<br/>         hygiene/hygienic</p> |



**Westhead Lathom St James' CE Primary School**

**Year 3 and 4**

**Design and Technology**

**Design, Make and Evaluate National Curriculum Objectives apply to all units:**

### **Design**

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

### **Make**

- 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

### **Evaluate**

- 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