

## Design and Technology – Long Term Plan

| Year<br>Group | Cooking and Nutrition                                                                                                                                                                                                                                                                                                                                                                   | Mechanical                                                                                                                                                                                                                        | Structures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Textiles | Electrical Systems |
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| F1            | <ul style="list-style-type: none"> <li>● <b>Methley Magic</b><br/>Autumn 1 topic<br/><br/>Food science- Making gingerbread, icing, melting chocolate</li> <li>● <b>Sparkle and Shine</b><br/><br/>Autumn 2 topic<br/>Baking Christmas food.</li> <li>● <b>Our Amazing World</b><br/><br/>Spring 1 topic<br/><br/>Food science- Baking bread, Making soup, melting chocolate.</li> </ul> | <ul style="list-style-type: none"> <li>● <b>Our Amazing World</b><br/><br/>Spring 1 topic<br/><br/>Science Objective:<br/>Toys- How they work.<br/>Battery operated, mechanical...<br/>Materials and purposes of toys.</li> </ul> | <ul style="list-style-type: none"> <li>● Uses various construction materials, joining materials, stacking vertically and horizontally, balancing making enclosures and creating spaces (use in small world imaginative play).<br/><b>CONTINUOUS THROUGHOUT THE YEAR IN PROVISION.</b></li> <li>● <b>Sparkle and Shine</b><br/>Autumn 2 topic<br/><br/>Making Christmas table<br/><br/>decorations. ● <b>Our Amazing World</b><br/><br/>Spring 1 topic<br/><br/>Designing toys. Box modelling and colour mixing – MAKING A TOY.<br/>Making trees</li> <li>● <b>Once Upon a Time</b><br/><br/>Spring 2 topic<br/><br/>Sculptures in the environment. Make story character representations using a variety of different media and taught skills.</li> <li>● <b>Life as we Know It</b><br/><br/>Summer 1 topic<br/><br/>Build minibeast hotels and make plasticine sculptures of minibeast.</li> </ul> |          |                    |

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| F2 | <ul style="list-style-type: none"><li>● <b>Sparkle and Shine</b><br/>Autumn 2 topic<br/>Making Christmas cookies.</li><li>● <b>Life as we Know It</b><br/>Summer 1 topic<br/>Fruit salad.</li><li>● <b>We love Adventures</b><br/>Summer 2 topic<br/>Make food for our seaside trip – picnic.</li></ul> | <ul style="list-style-type: none"><li>● <b>Our Amazing World</b><br/>Spring 1 topic<br/>Space project – alien paper plate masks</li></ul> | <ul style="list-style-type: none"><li>● <b>Methley Magic</b><br/>Autumn 1 topic<br/>Build a combine harvester out of boxes.</li><li>● <b>Once Upon a Time</b><br/>Spring 2 topic<br/>Make dinosaur fossils.</li></ul> |  |  |
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| <b>Year 1</b> | <ul style="list-style-type: none"> <li>Should we call Grace O'Malley a pirate?<br/>Summer 2<br/><u>Design and make a healthy pirate sandwich snack.</u></li> </ul>                                                                           | <ul style="list-style-type: none"> <li>What was life like for our grandparents in Methley?<br/>Autumn 2<br/><u>Design and make a pop-up puppet – Sliding mechanism</u></li> </ul>                                   | <ul style="list-style-type: none"> <li>The Great Fire of London<br/>Spring 1<br/><u>Design and make a freestanding bridge structure.</u></li> </ul>                                                                  |                                                                                                                                                                                                                                        |                                                                                                                                                                         |
| <b>Year 2</b> | <ul style="list-style-type: none"> <li>Grace Darling<br/>Summer 1<br/><u>Design and make a healthy pizza for Mr. Grinling the lighthouse keeper.</u></li> </ul>                                                                              | <ul style="list-style-type: none"> <li>Remembrance<br/>Autumn 2<br/><u>Design and make a Christmas vehicle to carry presents for Santa - Wheels and axles.</u><br/><br/>Stand-alone unit – no topic link</li> </ul> |                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>A day in the life<br/>Spring 2<br/><u>Design and make an animal hand puppet - basic sewing skills, cutting and joining fabrics.</u><br/><br/>Science link – animals including humans</li> </ul> |                                                                                                                                                                         |
| <b>Year 3</b> | <ul style="list-style-type: none"> <li>Mapping land distribution and changes over time<br/>Summer 2<br/><u>Make an Italian Pasta Dish Carbonara, Spag bol (Gino D'acampo – Adapt one of his recipes to make their own recipe)</u></li> </ul> | <ul style="list-style-type: none"> <li>Rivers<br/>Spring 2<br/><u>Design and make a moving picture – levers and linkages</u><br/><br/>Topic link – pictures to include river scene</li> </ul>                       | <ul style="list-style-type: none"> <li>Countries and regions of the UK<br/>Autumn 2<br/><u>Explore nets to build own shell structure packaging for a lightbulb or torch</u><br/><br/>Science link – light</li> </ul> |                                                                                                                                                                                                                                        |                                                                                                                                                                         |
| <b>Year 4</b> | <ul style="list-style-type: none"> <li>The Earth our Home<br/>Autumn 2<br/><u>Design and make savoury scones</u><br/><br/>Stand-alone unit</li> </ul>                                                                                        |                                                                                                                                                                                                                     |                                                                                                                                                                                                                      | <ul style="list-style-type: none"> <li>Raiders or Traders<br/>Autumn 1<br/><u>Design and make a pouch for a Viking using applique as decoration.</u></li> </ul>                                                                        | <ul style="list-style-type: none"> <li>Renewable Energy<br/>Summer 1<br/><u>Nightlight including light up element – programme and control using Crumbles</u></li> </ul> |
| <b>Year 5</b> | <ul style="list-style-type: none"> <li>Mayans<br/>Spring 2<br/><u>DT – Food - Design own bread (GBBO) creation inspired by Paul Hollywood's recipe.</u><br/>Science link – changes of state</li> </ul>                                       | <ul style="list-style-type: none"> <li>The Great, the Bold and the Brave<br/>Autumn 2<br/><u>Design and make a moving toy using cam mechanisms.</u><br/><br/>Christmas present for a child</li> </ul>               | <ul style="list-style-type: none"> <li>20<sup>th</sup> Century Conflict<br/>Summer 1<br/><u>Make a frame structure using strengthening and reinforcing techniques</u></li> </ul>                                     |                                                                                                                                                                                                                                        |                                                                                                                                                                         |

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| Year 6 | <p>● <b>Journey to the Rainforest</b><br/>Autumn 2</p> <p><u>Make a bag for travelling.</u><br/><u>Use software to design product.</u></p> |  |  |  | <p>● <b>Solar Buddy Project</b><br/>Summer 2</p> <p><u>Understand and use electrical and mechanical systems in a fairground ride. Programme and control products using a Crumble.</u><br/><u>Design includes science knowledge.</u></p> |
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|           | Autumn                                                                                                                                                                                              |                                                                                                                                                                                                                                         | Spring                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                              | Summer                                                                                                                                                                                                              |                                                                                                                                                                                                                                                  |
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| <b>F1</b> | <p><b>Unit: Methley Magic</b></p> <p><b>Subject Overview:</b><br/>During this unit, in D&amp;T the children will learn...</p> <p>✓ To make gingerbread, icing and melt chocolate (food science)</p> | <p><b>Unit: Sparkle and Shine</b></p> <p><b>Subject Overview:</b><br/>During this unit, in D &amp; T the children will learn...</p> <p>✓ Bake Christmas food.</p> <p>✓ Making Christmas table decorations using range of materials.</p> | <p><b>Unit: Up above and down below</b></p> <p><b>Subject Overview:</b><br/>During this unit, in D &amp; T the children will learn...</p> <p>✓ Baking bread, making soup (food science).</p> <p>✓ Design and make a toy using boxes and colour mixing.</p> <p>✓ Explore how toys work (battery operated, mechanical)</p> | <p><b>Unit: Once Upon a Time</b></p> <p><b>Subject Overview:</b><br/>During this unit, in D &amp; T children will learn...</p> <p>✓ Make a story character sculpture using a variety of different media.</p> | <p><b>Unit: Life as we Know It</b></p> <p><b>Subject Overview:</b><br/>During this unit, in D &amp; T the children will learn...</p> <p>✓ Build minibeast hotels and plasticine sculptures to add to the hotel.</p> | <p><b>Unit:</b></p> <p><b>Subject Overview:</b><br/>During this unit, in D &amp; T the children will learn...</p> <p><b>NO D&amp;T planned – various activities will be accessible through provision – joining, exploring materials etc.</b></p> |

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|                                                                  | <p><b>Subject Specific Skills:</b><br/>During this unit the skills in D &amp; T being taught are...</p> <ul style="list-style-type: none"><li>● Subject specific vocabulary.</li><li>● Purpose of product.</li><li>● Aesthetics - appearance and finish.</li><li>● Using the senses.</li><li>● Designing throughout making process – moving and changing things for a reason.</li></ul> | <p><b>Subject Specific Skills:</b><br/>During this unit the skills in D &amp; T being taught are...</p> <ul style="list-style-type: none"><li>● Purpose of product.</li><li>● Aesthetics - appearance and finish.</li><li>● Using the senses.<ul style="list-style-type: none"><li>● Joining different materials and exploring textures.</li></ul></li><li>● Designing throughout making process – moving and changing things for a reason.</li></ul> | <p><b>Subject Specific Skills:</b><br/>During this unit the skills in D &amp; T being taught are...</p> <ul style="list-style-type: none"><li>● Purpose of product and function.</li><li>● Explore moving parts.</li><li>● Play with and explore products.</li><li>● Aesthetics - appearance and finish.</li><li>● Using the senses.<ul style="list-style-type: none"><li>● Joining different materials and exploring textures.</li></ul></li><li>● Designing throughout making process – moving and changing things for a reason.</li></ul> | <p><b>Subject Specific Skills:</b> During this unit the skills in D &amp; T being taught are...</p> <ul style="list-style-type: none"><li>● Purpose of product.</li><li>● Aesthetics - appearance and finish.</li><li>● Using the senses.</li><li>● Joining different materials and exploring textures.<ul style="list-style-type: none"><li>● Designing throughout making process – moving and changing things for a reason.</li></ul></li></ul> | <p><b>Subject Specific Skills:</b> During this unit the skills in D &amp; T being taught are...</p> <ul style="list-style-type: none"><li>● Purpose of product.</li><li>● Aesthetics - appearance and finish.</li><li>● Using the senses.</li><li>● Joining different materials and exploring textures.<ul style="list-style-type: none"><li>● Designing throughout making process – moving and changing things for a reason.</li></ul></li></ul> |  |
| <p><b>Technology</b></p> <p><b>(Understanding the World)</b></p> | <p><b>16-26 months</b></p> <p>Shows interest in toys with buttons, flaps and simple mechanisms and beginning to learn to operate them.</p>                                                                                                                                                                                                                                              | <p><b>22-36 months</b></p> <p>Operates mechanical toys, eg. Turns the knob on wind-up toys or pulls back friction cars.</p>                                                                                                                                                                                                                                                                                                                           | <p><b>30-50 months</b></p> <p>Shows interest in technological toys with knobs or pulleys, or real objects such as cameras and mobile phones.</p> <p>Shows skills in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.</p>                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |

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| <p><b>Other<br/>Linked<br/>Areas of<br/>Learning</b></p> | <p><b><u>Communication and Language:</u></b><br/>Learn new vocabulary.<br/>Ask questions to find out more and check understanding.</p> <p><b><u>Physical Development</u></b><br/>Build independently with a range of appropriate resources.<br/>Develop manipulation and control.<br/>Explore different materials and tools.<br/>Use large and small motor skills to do things independently.</p> <p><b><u>Mathematics:</u></b><br/>Combine objects like stacking cups and blocks.<br/>Compare amounts / sizes / weights.<br/>Build with a range of resources.</p> <p><b><u>Understanding the World:</u></b><br/>Explore materials with different properties.<br/>Explore natural materials (inside and outside).</p> <p><b><u>Expressive Arts and Design:</u></b><br/>Start to make marks intentionally.<br/>Explore paint – fingers, brushes, tools.<br/>Explore different materials using all their senses to investigate them. Manipulate and play with different materials.<br/>Make simple models which express their ideas.</p> | <p><b><u>Communication and Language:</u></b><br/>Learn new vocabulary.<br/>Ask questions to find out more and check understanding.</p> <p><b><u>Personal, Social and Emotional Development</u></b><br/>Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen, or one which is suggested to them.</p> <p><b><u>Physical Development</u></b><br/>Continue to develop movement and balance.<br/>Choose the right resources to carry out their own plan.<br/>Use one handed tools and equipment.</p> <p><b><u>Mathematics:</u></b><br/>Talk about 2D and 3D shapes.<br/>Select shapes appropriately for building.<br/>Combine shapes to make new ones.<br/>Talk about and identify patterns (spot, stripes, zig-zag).</p> <p><b><u>Understanding the World:</u></b><br/>Use their senses in exploration of natural materials.<br/>Explore collections of materials with similar and / or different properties.<br/>Talk about what they see using a wide range of vocabulary.<br/>Explore how things work.<br/>Explore and talk about different forces they can feel.<br/>Talk about the differences between materials and changes they notice.</p> <p><b><u>Expressive Arts and Design:</u></b><br/>Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as cities with different buildings and a park.<br/>Join different materials and explore different textures.</p> |
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|                                             | Autumn                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                    | Spring                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                    | Summer                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                    |
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| F2                                          | <b>Unit: Methley Magic</b><br><br><b>Subject Overview:</b><br>During this unit, in D&T the children will learn...<br><br>✓ To build a combine harvester using boxes and joining.                                                                                                         | <b>Unit: Sparkle and Shine</b><br><br><b>Subject Overview:</b><br>During this unit, in D & T the children will learn...<br><br>✓ Bake Christmas cookies.                                                                                                           | <b>Unit: Up above and down below</b><br><br><b>Subject Overview:</b><br>During this unit, in D & T the children will learn...<br><br>✓ Make an alien mask.                                                                                                         | <b>Unit: Once Upon a Time</b><br><br><b>Subject Overview:</b><br>During this unit, in D & T children will learn...<br><br>✓ Make dinosaur fossils.                                                                                                                 | <b>Unit: Life as We Know It</b><br><br><b>Subject Overview:</b><br>During this unit, in D & T the children will learn...<br><br>✓ Make a fruit salad.                                                                                                              | <b>Unit: We Love Adventures</b><br><br><b>Subject Overview:</b><br>During this unit, in D & T the children will learn...<br><br>✓ Make food for a picnic to the seaside.                                                                                           |
|                                             | <b>Subject Specific Skills:</b> During this unit the skills in D & T being taught are...<br><br>• Purpose of product.<br>• Aesthetics - appearance and finish.<br>• Using the senses and exploring texture.<br>• Designing throughout making process – moving and changing for a reason. | <b>Subject Specific Skills:</b> During this unit the skills in D & T being taught are...<br><br>• Purpose of product.<br>• Aesthetics - appearance and finish.<br>• Using the senses.<br>• Designing throughout making process – moving and changing for a reason. | <b>Subject Specific Skills:</b> During this unit the skills in D & T being taught are...<br><br>• Purpose of product.<br>• Aesthetics - appearance and finish.<br>• Using the senses.<br>• Designing throughout making process – moving and changing for a reason. | <b>Subject Specific Skills:</b> During this unit the skills in D & T being taught are...<br><br>• Purpose of product.<br>• Aesthetics - appearance and finish.<br>• Using the senses.<br>• Designing throughout making process – moving and changing for a reason. | <b>Subject Specific Skills:</b> During this unit the skills in D & T being taught are...<br><br>• Purpose of product.<br>• Aesthetics - appearance and finish.<br>• Using the senses.<br>• Designing throughout making process – moving and changing for a reason. | <b>Subject Specific Skills:</b> During this unit the skills in D & T being taught are...<br><br>• Purpose of product.<br>• Aesthetics - appearance and finish.<br>• Using the senses.<br>• Designing throughout making process – moving and changing for a reason. |
| <b>Technology (Understanding the World)</b> | <b>ELG (40-60 months)</b><br>Children recognise that a range of technology is used in places such as the home and schools.<br>They select and use technology for particular purposes.<br>Begin to use computing technology.                                                              |                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                    |

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| <b>Other<br/>Linked<br/>Areas of<br/>Learning</b> | <p><b><u>Communication and Language:</u></b></p> <p>Learn new vocabulary.<br/>Ask questions to find out more and check they understand what has been said to them.<br/>Articulate their ideas and thoughts in well formed sentences.<br/>Engage in non-fiction books.</p> <p><b><u>Personal, Social and Emotional Development:</u></b></p> <p>Show resilience and perseverance on the face of challenge.<br/>Manage their own needs.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                                   | <p><b><u>Physical Development:</u></b></p> <p>Develop their small motor skills so that they can use a range of tools competently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons.</p> <p><b><u>Mathematics:</u></b></p> <p>Select, rotate and manipulate shapes in order to develop spatial reasoning skills.<br/>Compose and decompose shapes so that children can recognise a shape can have other shapes within it, just as numbers can.<br/>Continue to copy and create repeating patterns.<br/>Compare length, weight and capacity.</p> <p><b><u>Understanding the World:</u></b></p> <p>Explore the natural world around them.</p> <p><b><u>Expressive Arts and Design:</u></b></p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.<br/>Create collaboratively, sharing ideas, resources and skills.</p> |

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|           | Autumn                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Spring                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Summer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| Year 1    | <b>Unit: MECHANISMS:</b> sliders – pop-up puppets<br><b>Overview:</b> During this unit, the children will learn... ✓ How to design and make their own pop-up puppet. ✓ How slider mechanisms work and the types of movements they can make.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Unit: STRUCTURE:</b> Freestanding structures – bridges<br><b>Subject Overview:</b> During this unit, the children will learn... ✓ How to build a bridge.<br>✓ How to test different materials for their use and purpose. ✓ How to build a sturdy and stable structure.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Unit: FOOD:</b> A healthy sandwich snack for a pirate<br><b>Subject Overview:</b> During this unit, the children will learn... ✓ About the food pirates ate.<br>✓ What makes a balanced meal.<br>✓ How to plan and make a pirate packed lunch.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Knowledge | <ul style="list-style-type: none"> <li>How products are used everyday and the effect this has on people's lives (mechanisms are all around us and are how things work – books, drawers, scissors etc).</li> <li>Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>What is the purpose of the product? Say how it will work. • How to use a design criteria to design and create their own product.</li> <li>Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.</li> <li>Know about the simple characteristics of materials and components.</li> <li>Know the movements of simple mechanisms – sliders and levers (side to side / up and down)</li> </ul> | <ul style="list-style-type: none"> <li>How products are used everyday and the effect this has on people's lives (structures are things that are built for a purpose, to support something or hold something).</li> <li>Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>Use simple design criteria, state what their products are, who and what they are for and how they will work.</li> <li>Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.</li> <li>Know about the simple characteristics of materials and components, how free-standing structures can be made stronger, stiffer, more stable.</li> </ul> | <ul style="list-style-type: none"> <li>How products are used everyday and the effect this has on people's lives (food / kitchen equipment to safely prepare fruit and vegetables).</li> <li>Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>Know that everyone should eat at least five portions of fruit and vegetables a day – Eatwell Plate (Science Link).</li> <li>Know that food comes from plants and animals and is farmed or caught.</li> <li>Know the importance of washing hands and hygiene before preparing food. • How to prepare themselves and a work area to be ready for cooking (jewellery removed, hair tied back, sleeves rolled up, aprons on, hands are washed).</li> <li>To know that different utensils and equipment can be used to prepare and cut a range of fruit and vegetables.</li> <li>To know and use technical vocabulary relevant to the project.</li> </ul> |
| Skills    | <ul style="list-style-type: none"> <li>Generate ideas using their own experiences and existing products.</li> <li>Use talk, drawing, templates, mock-ups and where appropriate computers to show and explain ideas.</li> <li>Plan by suggesting what to do next.</li> <li>Measure, mark out, cut, shape, assemble, join, combine and finish with a range of materials and components.</li> <li>Select from a range of tools, materials and components. • Make simple judgements about their products against design criteria.</li> <li>Use the correct technical vocabulary for the product they are undertaking.</li> <li>Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                  | <ul style="list-style-type: none"> <li>Generate ideas using their own experiences and existing products. • Use talk drawing, templates, mock-ups and where appropriate computers.</li> <li>Plan by suggesting what to do next.</li> <li>Select from a range of tools, materials and components. • Measure, mark out, cut, shape, assemble, join, combine and finish with a range of materials and components.</li> <li>Make simple judgements about their products against design criteria. • Use the correct technical vocabulary for the product they are making. • Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                | <ul style="list-style-type: none"> <li>Generate ideas using their own experiences and existing products. • Taste and evaluate a range of fruit and vegetables to determine the intended users' preferences, using our senses.</li> <li>Plan by suggesting what to do next and describe their plans in pictures and words.</li> <li>Select from a range of utensils and equipment to prepare fruit and vegetables (grating, peeling, slicing).</li> <li>Select from a range of vegetables and fruit according to their characteristics (colour, taste, texture).</li> <li>Make simple judgements about their products against design criteria. • Use the correct technical vocabulary for the product they are making. • Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                  |

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| <b>Curriculum Coverage</b>    | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li> <li>Generate, develop, model and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>Select and use a range of tools and equipment.</li> <li>Select and use components and materials.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>Explore and evaluate a range of existing products.</li> <li>Evaluate products against design criteria.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>Explore and use mechanisms in products.</li> </ul> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li> <li>Generate, develop, model and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>Select and use a range of tools and equipment.</li> <li>Select and use components and materials.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>Explore and evaluate a range of existing products.</li> <li>Evaluate products against design criteria.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li> <li>Generate, develop, model and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>Select and use a range of tools and equipment.</li> <li>Select and use components and materials.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>Explore and evaluate a range of existing products.</li> <li>Discuss flavours identified and use of senses.</li> <li>Evaluate products against design criteria.</li> </ul> <p><b>COOKING AND NUTRITION</b></p> <ul style="list-style-type: none"> <li>Principles of a varied and healthy diet.</li> <li>Knowing where food comes from.</li> </ul> |
| <b>Cross Curricular Links</b> | <p><b>Maths</b> – measuring (cm)</p> <p><b>English</b> – role play using puppets. Write instructions. <b>History</b> - What puppets looked like in the past.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p><b>Maths</b> – measuring (cm/m/non-standard units)</p> <p><b>Science</b> – material properties</p> <p><b>Geography</b> – Different bridges uses – size / shape.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>Science</b> – balanced diet</p> <p><b>Geography</b> – where food comes from in the world.</p> <p><b>English</b> – Reading and writing instructions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

|                  | <b>Autumn</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <b>Spring</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Summer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <b>Year 2</b>    | <p><b>Unit:</b> <b>MECHANISMS</b>: Wheels an axel – Christmas vehicle <b>Overview:</b> During this unit, the children will learn... ✓ How to make a ‘vehicle’ to transport a small toy from one place to another.</p> <p>✓ How vehicles move using wheels and axels. ✓ How to test their vehicles to see how well they work.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p><b>Unit:</b> <b>FOOD</b>: A healthy pizza for the Lighthouse Keeper’s lunch <b>Subject Overview:</b> During this unit, the children will learn... ✓ How to make a pizza.</p> <p>✓ Where food comes from in the world.</p> <p>✓ What makes a balanced diet.</p> <p>✓ How to evaluate food using the senses.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p><b>Unit:</b> <b>TEXTILES</b>: Animal hand puppets <b>Subject Overview:</b> During this unit, the children will learn...</p> <p>✓ How to plan and make a hand puppet made from felt.</p> <p>✓ How to evaluate existing products to develop own ideas, suitable for the user.</p> <p>✓ How to use running stitch or blanket stitch to join fabric.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Knowledge</b> | <ul style="list-style-type: none"> <li>How products are used everyday and the effect this has on people’s lives (mechanisms are all around us and are how things work – books, drawers, scissors etc).</li> <li>Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>What is the purpose of the product? Say how it will work.</li> <li>How to use a design criteria to design and create their own product.</li> <li>Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.</li> <li>Know about the simple characteristics of materials and components, the movement of simple mechanisms.</li> <li>Know the movements of simple mechanisms – sliders and levers (side to side / up and down).</li> <li>Use the correct technical vocabulary for the product.</li> </ul> | <ul style="list-style-type: none"> <li>How products are used everyday and the effect this has on people’s lives (food / kitchen equipment to safely prepare fruit and vegetables).</li> <li>Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>Know that everyone should eat at least five portions of fruit and vegetables a day – Eatwell Plate (Science Link).</li> <li>Know that food comes from plants and animals and is farmed or caught.</li> <li>Know the importance of washing hands and hygiene before preparing food (including use of coloured chopping boards).</li> <li>How to prepare themselves and a work area to be ready for cooking (jewellery removed, hair tied back, sleeves rolled up, aprons on, hands are washed).</li> <li>To know that different utensils and equipment can be used to prepare and cut a range of fruit and vegetables.</li> <li>To know and use technical vocabulary relevant to the project.</li> </ul> | <ul style="list-style-type: none"> <li>How products are used everyday and the effect this has on people’s lives (textiles are used in clothing, sheets, towels, carpets).</li> <li>Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>What is the purpose of the product?</li> <li>How to use a design criteria to design and create their own product.</li> <li>Explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.</li> <li>Use simple design criteria, state what their products are, who and what they are for and how they will work.</li> <li>Know about the simple characteristics of materials and components.</li> <li>Use the correct technical vocabulary for the product they are undertaking.</li> </ul> |

## Design and Technology – Long Term Plan

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| Skills                 | <ul style="list-style-type: none"><li>• Generate ideas using their own experiences and existing products. • Use talk, drawing, templates, mock-ups and where appropriate computers to show and explain ideas.</li><li>• Plan by suggesting what to do next.</li><li>• Select from a range of tools, materials and components. • Measure, mark out, cut, shape, assemble, join, combine and finish with a range of materials and components.</li><li>• Make simple judgements about their products against design criteria.</li><li>• Follow procedures for safety and hygiene</li></ul>                                                                                                            | <ul style="list-style-type: none"><li>• Generate ideas using their own experiences and existing products. • Taste and evaluate a range of fruit and vegetables to determine the intended users' preferences, using our senses.</li><li>• Plan by suggesting what to do next and describe their plans in pictures and words.</li><li>• Select from a range of utensils and equipment to prepare fruit and vegetables (grating, peeling, slicing, squeezing, cutting).</li><li>• Select from a range of vegetables and fruit according to their characteristics (colour, taste, texture).</li><li>• Make simple judgements about their products against design criteria. • Use the correct technical vocabulary for the product they are making. • Follow procedures for safety and hygiene.</li></ul>     | <ul style="list-style-type: none"><li>• Generate ideas using their own experiences and existing products. • Use talk drawing, templates, mock-ups and where appropriate computers.</li><li>• Plan by suggesting what to do next and describe their plans in pictures and words.</li><li>• Select from a range of tools, materials and components. • Measure, mark out, cut, shape, assemble, join, combine and finish with a range of materials and components.</li><li>• Make simple judgements about their products against design criteria. • Follow procedures for safety.</li><li>• Use running stitch, over stitch or blanket stitch to join fabrics.</li></ul> |
| Curriculum Coverage    | <p>DESIGN</p> <ul style="list-style-type: none"><li>• Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li><li>• Generate, develop, model and communicate ideas.</li></ul> <p>MAKE</p> <ul style="list-style-type: none"><li>• Select and use a range of tools and equipment.</li><li>• Select and use components and materials.</li></ul> <p>EVALUATE</p> <ul style="list-style-type: none"><li>• Explore and evaluate a range of existing products.</li><li>• Evaluate products against design criteria.</li></ul> <p>TECHNICAL KNOWLEDGE</p> <ul style="list-style-type: none"><li>• Explore and use mechanism in products.</li></ul> | <p>DESIGN</p> <ul style="list-style-type: none"><li>• Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li><li>• Generate, develop, model and communicate ideas.</li></ul> <p>MAKE</p> <ul style="list-style-type: none"><li>• Select and use a range of tools and equipment.</li><li>• Select and use components and materials.</li></ul> <p>EVALUATE</p> <ul style="list-style-type: none"><li>• Explore and evaluate a range of existing products.</li><li>• Discuss flavours identified and use of senses.</li><li>• Evaluate products against design criteria.</li></ul> <p>COOKING AND NUTRITION</p> <ul style="list-style-type: none"><li>• Principles of a varied and healthy diet.</li><li>• Knowing where food comes from.</li></ul> | <p>DESIGN</p> <ul style="list-style-type: none"><li>• Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li><li>• Generate, develop, model and communicate ideas.</li></ul> <p>MAKE</p> <ul style="list-style-type: none"><li>• Select and use a range of tools and equipment.</li><li>• Select and use components and materials.</li></ul> <p>EVALUATE</p> <ul style="list-style-type: none"><li>• Explore and evaluate a range of existing products.</li><li>• Evaluate products against design criteria.</li></ul>                                                                                        |
| Cross Curricular Links | <p>Maths – measuring (cm/m)</p> <p>Science – material properties</p> <p>English – Reading and writing instructions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>Science – balanced diet</p> <p>Geography – where food comes from in the world.</p> <p>English – Reading and writing instructions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Science – material properties</p> <p>Maths – measuring (cm/m)</p> <p>English – Reading and writing instructions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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|               | <b>Autumn</b>                                                                                                                                                                                                                                                                                                                                                                                             | <b>Spring</b>                                                                                                                                                                                                                                                           | <b>Summer</b>                                                                                                                                                                                                                                                                                      |
| <b>Year 3</b> | <p><b>Unit:</b> <b>STRUCTURES</b>: Shell structures using CAD – packaging for lightbulb or torch.</p> <p><b>Design focused unit – using CAD</b></p> <p><b>Subject Overview:</b> During this unit, the children will learn... ✓ How to design packaging using CAD in Microsoft Word ✓ How to create a 3D product from a net.</p> <p>✓ Build on previous skills to build a sturdy and stable structure.</p> | <p><b>Unit:</b> <b>MECHANISMS</b> Moving pictures using linkages and levers. <b>Subject Overview:</b> During this unit, the children will learn... ✓ How lever and linkage mechanisms work and their uses. ✓ How to use a lever mechanism to make a moving picture.</p> | <p><b>Unit:</b> <b>FOOD</b> Make an Italian pasta dish.</p> <p><b>Subject Overview:</b> During this unit, the children will learn... ✓ Use a chef as inspiration for own Italian pasta recipe. ✓ Evaluate existing products to design own dish.</p> <p>✓ Use a heat source to make their dish.</p> |

## Design and Technology – Long Term Plan

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| <p><b>Knowledge</b></p> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (structures are things that are built for a purpose, to support something or hold something – shell structures have solid outer surface but hollow in the middle, boxes, shelter, tunnel).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• Know how to use learning from Science and Maths to help design and make products that work.</li> <li>• Use the correct technical vocabulary for the project they are undertaking.</li> <li>• Know about designers - <b>William Peterson and Oscar Carl Kerrison – Designers of the Anderson Shelter (shell structure)</b></li> <li>• Gather information about user needs and develop their own design criteria.</li> <li>• Know and order the main stages of making.</li> <li>• Know and understand why materials have been chosen, the methods of construction used and how well they work.</li> </ul> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (levers and linkage mechanisms are all around us – scissors, in books, in machinery).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• Know how to use learning from Science and Maths to help design and make products that work.</li> <li>• Use the correct technical vocabulary for the project they are undertaking.</li> <li>• Know about significant people: - <b>Archimedes was the first known person to record mathematical understanding of how levers multiply force.</b></li> <li>• Gather information about user needs and develop their own design criteria.</li> <li>• Know and order the main stages of making.</li> <li>• Know and understand why materials have been chosen, the methods of construction used and how well they work.</li> <li>• Know that materials have both functional and aesthetic qualities.</li> </ul> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (food / kitchen equipment to safely prepare ingredients).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• Know how to use learning from Science and Maths to help design and make suitable products.</li> <li>• Know that food ingredients can be fresh, pre-cooked and processed.</li> <li>• Know that food is grown, reared and caught in the UK and wider world.</li> <li>• Know how to prepare a savoury dish safely and hygienically.</li> <li>• Know how to use a heat source.</li> <li>• Know that a healthy diet is made up from a balance of different food and drink (Eatwell plate).</li> <li>• Know that to be active and healthy, food and drink are needed to provide energy for the body.</li> <li>• Know about significant people: - <b>Chef –Gino D'Acampo: An Italian chef who has made his dishes popular through presenting on TV.</b></li> </ul> |
| <p><b>Skills</b></p>    | <ul style="list-style-type: none"> <li>• Generate realistic ideas based on user needs.</li> <li>• Analyse existing products and explore whether they are fit for purpose and meet user needs.</li> <li>• Use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design.</li> <li>• Measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy.</li> <li>• Design a product using CAD (Microsoft Word) planning a net to then make into a 3D structure.</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Be able to identify and implement improvements to their designs and products.</li> <li>• Follow procedures for safety and hygiene.</li> <li>• Evaluate ideas against the design criteria.</li> </ul>                                                                                                                                                                                                                                           | <ul style="list-style-type: none"> <li>• Generate realistic ideas based on user needs.</li> <li>• Analyse existing products and explore whether they are fit for purpose and meet user needs – moving pictures in children books or cards.</li> <li>• Use a range of drawing skills, discussion, prototypes and pattern pieces.</li> <li>• Measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy.</li> <li>• Be able to use simple tools and equipment with some accuracy (rulers, scissors, split pins).</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Be able to identify and implement improvements to their designs and products.</li> <li>• Follow procedures for safety and hygiene.</li> <li>• Evaluate ideas against the design criteria.</li> </ul>                                                                                                                                                                                                                 | <ul style="list-style-type: none"> <li>• Generate realistic ideas based on user needs.</li> <li>• Taste and evaluate a range of ingredients to determine the users' preferences, using our senses.</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Select from a range of utensils and equipment to prepare ingredients (chopping, slicing, grating, peeling, mixing, spreading).</li> <li>• Select from a range of ingredients according to their characteristics (colour, taste, texture).</li> <li>• Make simple judgements about their products against design criteria.</li> <li>• Use the correct technical vocabulary for the product they are making.</li> <li>• Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                                                                                                                                        |

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| <b>Curriculum Coverage</b>    | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>TECHNICAL KNOWLEDGE:</b><br/>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>● Understand and use of mechanical systems in their products.</li> </ul> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools. <ul style="list-style-type: none"> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> </li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>COOKING AND NUTRITION</b></p> <ul style="list-style-type: none"> <li>● Apply principles of healthy and varied diet.</li> <li>● Cook predominantly savoury dishes.</li> <li>● Become competent in range of cooking techniques.</li> <li>● Understand the source and seasonality of ingredients.</li> </ul> |
| <b>Cross Curricular Links</b> | <p><b>Maths</b> – measuring (cm/mm).</p> <p><b>Computing</b> – using Microsoft Words to design nets.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <p><b>Science</b> – forces.</p> <p><b>Maths</b> – measuring (cm/mm)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p><b>Geography</b> – where foods come from.</p> <p><b>Maths</b> – Measuring (g/kg/ml/l).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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|               | <b>Autumn 2</b>                                                                                                                                                                                                                                                                                                                                            | <b>Autumn 1</b>                                                                                                                                                                                                                                                                                                                                            | <b>Summer</b>                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Year 4</b> | <p><b>Unit:</b> <b>TEXTILES</b> Applique bag or pouch for a Christmas gift.</p> <p><b>Subject Overview:</b> During this unit, the children will learn...</p> <ul style="list-style-type: none"> <li>✓ How to applique &amp; add detail to a product.</li> <li>✓ Make a felt pouch or bag.</li> <li>✓ Draw and use templates to create products.</li> </ul> | <p><b>Unit:</b> <b>FOOD</b> Design and make savoury scones.</p> <p><b>Subject Overview:</b> During this unit, the children will learn...</p> <ul style="list-style-type: none"> <li>✓ How to plan and prepare savoury scones.</li> <li>✓ Use a chef's recipe as inspiration for own.</li> <li>✓ How to safely use a heat source to make a dish.</li> </ul> | <p><b>Unit:</b> <b>ELECTRICAL SYSTEMS &amp; MECHANISMS</b><br/>Electricity (Science unit taught previous term)</p> <p><u>Skills focused unit</u></p> <p><b>Subject Overview:</b> During this unit, the children will learn...</p> <ul style="list-style-type: none"> <li>✓ How to apply their knowledge of electric circuits into a product.</li> <li>✓ How to programme and control a product using a Crumble.</li> </ul> |

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| <b>Knowledge</b>           | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (textiles are used in clothing, sheets, towels, carpets).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• Know how to use learning from Science and Maths to help design and make products that work.</li> <li>• Use the correct technical vocabulary for the project they are undertaking.</li> <li>• Know about designers – <b>Louise Baldwin: A contemporary applique and embroidery designer.</b></li> <li>• Gather information about user needs and develop their own design criteria.</li> <li>• Know and order the main stages of making.</li> <li>• Know and understand why materials have been chosen and the methods of construction used.</li> <li>• Know that the way in which products in everyday use are designed and made affects their usefulness.</li> </ul> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (food / kitchen equipment to safely prepare ingredients).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• Know how to use learning from Science and Maths to help design and make suitable products.</li> <li>• Know that food ingredients can be fresh, pre-cooked and processed.</li> <li>• Know that food is grown, reared and caught in the UK and wider world.</li> <li>• Know how to prepare a savoury dish safely and hygienically.</li> <li>• Know how to use a heat source.</li> <li>• Know that a healthy diet is made up from a balance of different food and drink (Eatwell plate).</li> <li>• Know that to be active and healthy, food and drink are needed to provide energy for the body.</li> <li>• Know about significant people: - <b>Chef –Mary Berry: A professional chef, baker, food writer and television presenter.</b></li> </ul> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (toys with electrical components / programable toys).</li> <li>• Know that the way in which products in everyday use are designed and made affects their usefulness.</li> <li>• How to use learning from Science and Maths to help design and make products that work.</li> <li>• That materials have both functional and aesthetic qualities.</li> <li>• That mechanical and electrical systems have an input, process and output.</li> <li>• How simple electrical circuits and components can be used to create functional products.</li> <li>• To programme and control a product using a Crumble controller.</li> <li>• Use the correct technical vocabulary for the project they are undertaking.</li> <li>• Know about significant people: <b>Engineer/roboticist - Ayanna Howard: An American roboticist, entrepreneur and educator who worked for NASA.</b></li> </ul> |
| <b>Skills</b>              | <ul style="list-style-type: none"> <li>• Generate realistic ideas based on user needs.</li> <li>• Analyse existing products and explore whether they are fit for purpose and meet user needs.</li> <li>• Use a range of drawing skills, discussion, prototypes and pattern pieces.               <ul style="list-style-type: none"> <li>• Measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy.</li> </ul> </li> <li>• Be able to use simple tools and equipment with some accuracy (needles, thread, scissors, measuring tapes).</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Be able to identify and implement improvements to their designs and products.</li> <li>• Follow procedures for safety and hygiene.</li> <li>• Evaluate ideas against the design criteria.</li> </ul>                                                                                                                        | <ul style="list-style-type: none"> <li>• Generate realistic ideas based on user needs.</li> <li>• Taste and evaluate a range of ingredients to determine the users' preferences, using our senses.</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Select from a range of utensils and equipment to prepare ingredients (chopping, slicing, grating, peeling, mixing, spreading, kneading).</li> <li>• Select from a range of ingredients according to their characteristics (colour, taste, texture).</li> <li>• Make simple judgements about their products against design criteria.</li> <li>• Use the correct technical vocabulary for the product they are making.</li> <li>• Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                                                                                                                   | <ul style="list-style-type: none"> <li>• Generate realistic ideas based on user needs.</li> <li>• Analyse existing products and explore whether they are fit for purpose and meet user needs.</li> <li>• Use a range of drawing skills, discussion, prototypes and pattern pieces.</li> <li>• Measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy.</li> <li>• Be able to use simple tools and equipment with some accuracy (electrical components, scissors, fixatives).</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Be able to identify and implement improvements to their designs and products.</li> <li>• Follow procedures for safety and hygiene.</li> <li>• Evaluate ideas against the design criteria.</li> <li>• Be able to programme and control the product using Crumble.</li> </ul>                                                                                                                                |
| <b>Curriculum Coverage</b> | <b>DESIGN</b> <ul style="list-style-type: none"> <li>• Use research to develop design criteria, designing products fit for a purpose</li> <li>• Generate and communicate ideas.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>DESIGN</b> <ul style="list-style-type: none"> <li>• Use research to develop design criteria, designing products fit for a purpose</li> <li>• Generate and communicate ideas.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>DESIGN</b> <ul style="list-style-type: none"> <li>• Use research to develop design criteria, designing products fit for a purpose</li> <li>• Generate and communicate ideas.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|                               | <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> | <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools. <ul style="list-style-type: none"> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> </li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>COOKING AND NUTRITION</b></p> <ul style="list-style-type: none"> <li>● Apply principles of healthy and varied diet.</li> <li>● Cook predominantly savoury dishes.</li> <li>● Become competent in range of cooking techniques.</li> <li>● Understand the source and seasonality of ingredients.</li> </ul> | <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities. <b>EVALUATE</b></li> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>● Understand and use of mechanical systems in their products.</li> <li>● Understand and use of electrical systems in their products.</li> </ul> |
| <b>Cross Curricular Links</b> | <p><b>History</b> – what original products looked like and what were they made from.</p> <p><b>Maths</b> – measure (cm/mm).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><b>Science</b> – balanced diets / digestive system.</p> <p><b>Maths</b> – measure (g/kg/ml/l).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p><b>Science</b> – electrical circuits.</p> <p><b>Maths</b> – measure (cm/mm).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

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|               | <b>Autumn</b>                                                                                                                                                                                                                                                                                                                                                                 | <b>Spring</b>                                                                                                                                                                                                                                                                                             | <b>Summer</b>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Year 5</b> | <p><b>Unit:</b> <b>MECHANISMS</b> Make a moving toy using cams. <b>Skills focused unit</b></p> <p><b>Subject Overview:</b> During this unit, children will learn... ✓ How to make a moving toy with a cam mechanism. ✓ Know how different cams work together to create movement in a product.</p> <p>✓ How to use bench hooks, clamps and hacksaws to cut wood and dowel.</p> | <p><b>Unit:</b> <b>FOOD</b> Bread (Science: changes of state using yeast) <b>Subject Overview:</b> During this unit, children will learn... ✓ How to make bread.</p> <p>✓ How to apply different designs to bread (plaiting, twisting etc).</p> <p>✓ Use chef's recipes as inspiration for their own.</p> | <p><b>Unit:</b> <b>STRUCTURES</b> Make a small-scale frame structure. (Science: needs for survival) <b>Skills focused unit</b></p> <p><b>Subject Overview:</b> During this unit, children will learn... ✓ How to build a shelter, den or tent for an animal. ✓ How to stiffen, strengthen and reinforce small scale structures.</p> <p>✓ How to safely use tools to prepare materials with some accuracy to make a structure.</p> |

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| <b>Knowledge</b> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (mechanisms are all around us and are how things work – books, drawers, scissors etc).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• What is the purpose of the product? Say how it will work. • Carry out research to develop a simple design specification.</li> <li>• Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs, why materials have been chosen, the methods of construction used, how well they work and how innovative and sustainable they are.</li> <li>• Know that materials have functional and aesthetic qualities.</li> <li>• Know about significant people: - <b>Rudolph Diesel: a mechanical engineer, creating engines, which use cams to control valves.</b></li> </ul> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (food / kitchen equipment to safely prepare ingredients).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based).</li> <li>• Carry out research, develop a simple design specification. • Know how to use learning from Science and Maths to help design and make suitable products.</li> <li>• Know that food is grown, reared and caught in the UK, Europe and the wider world; that season may affect the food available.</li> <li>• Know how food is processed into ingredients. • Investigate existing products to find how they meet user needs and why certain ingredients may have been chosen.</li> <li>• Know how to prepare and cook a variety of dishes safely and hygienically using where appropriate, a heat source. • That different food and drink contain nutrients, water and fibre that are needed for health.</li> <li>• Know about significant people: - <b>Chef – Paul Hollywood: A celebrity chef and baker and head chef at a number of British and international hotels.</b></li> </ul> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (structures are things that are built for a purpose, to support something or hold something. Frame structures are ridged support structures).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• What is the purpose of the product? Say how it will work.</li> <li>• Carry out research to develop a simple design specification. • Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs, why materials have been chosen, the methods of construction used, how well they work and how innovative and sustainable they are.</li> <li>• Know that materials have functional and aesthetic qualities. • Know about significant people: - <b>Isambard Kingdom Brunel: An English civil engineer who is considered one of the most prolific figures in engineering history.</b></li> </ul> |
| <b>Skills</b>    | <ul style="list-style-type: none"> <li>• Generate innovative ideas drawing on research. • Be able to investigate the way in which simple products in everyday use are designed and made and how they work. • Use a range of drawing skills, discussion and prototypes, pattern pieces.</li> <li>• Formulate lists of resources and step-by-step plans.</li> <li>• Select suitable tools, equipment, materials and components and explain their choices, selecting from a wider range of resources.</li> <li>• Measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</li> <li>• Identify strengths and areas to develop their ideas and products against their design specification and consider the views of others to make improvements.</li> </ul>                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• Generate innovative ideas drawing on research. • Use a range of drawing skills, discussion, prototypes and pattern pieces.</li> <li>• Formulate lists of resources and step-by-step plan. • Taste and evaluate a range of ingredients to determine the users' preferences, using our senses.</li> <li>• Be able to make and use labelled sketches and designs.</li> <li>• Select from a range of utensils and equipment to prepare ingredients (chopping, slicing, grating, peeling, mixing, spreading, kneading).</li> <li>• Select from a range of ingredients according to their characteristics (colour, taste, texture).</li> <li>• Identify strengths and areas to develop their ideas and products against their design specification and consider the views of others to make improvements.</li> </ul>                                                                                                                                                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Generate innovative ideas drawing on research.</li> <li>• Be able to investigate the way in which simple products in everyday use are designed and made and how they work. • Use a range of drawing skills, discussion, prototypes and pattern pieces.</li> <li>• Formulate lists of resources and step-by-step plans. • Select suitable tools, equipment, materials and components and explain their choices, selecting from a wider range of resources.</li> <li>• Measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</li> <li>• Identify strengths and areas to develop their ideas and products against their design specification and consider the views of others to make improvements.</li> <li>• Explore and develop an understanding of using triangulation to add strength to a structure.</li> </ul>                                                                                                                                                      |
|                  | <ul style="list-style-type: none"> <li>• Use the correct technical vocabulary for the product they are undertaking.</li> <li>• Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Use the correct technical vocabulary for the product they are making.</li> <li>• Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Use the correct technical vocabulary for the product they are undertaking.</li> <li>• Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| <b>Curriculum Coverage</b>    | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>● Understand and use of mechanical systems in their products.</li> <li>● Understand and use electrical systems in products.</li> </ul> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities. <b>EVALUATE</b></li> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>COOKING AND NUTRITION</b></p> <ul style="list-style-type: none"> <li>● Apply principles of healthy and varied diet.</li> <li>● Cook predominantly savoury dishes.</li> <li>● Become competent in range of cooking techniques. Understand the source and seasonality of ingredients.</li> </ul> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities. <b>EVALUATE</b></li> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>● Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> </ul> |
| <b>Cross Curricular Links</b> | <p><b>Science</b> – forces / electrical systems.</p> <p><b>Maths</b> – measure (cm/mm)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p><b>Geography</b> – food seasonality / cultural influences in bread design and ingredients.</p> <p><b>Science</b> – yeast reactions / changing states.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p><b>Geography</b> – bridges from around the world.</p> <p><b>History</b> – Famous / influential engineers and their inventions. <b>Maths</b> – measure (cm/mm)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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|        | <b>Autumn</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Spring 2022</b> | <b>Summer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Year 6 | <p><b>Unit:</b> <b>TEXTILES</b> Design and make a bag suitable for a journey – Topic: Journey to the Rainforest (Geography) <b>Design focused unit – using CAD</b></p> <p><b>Subject Overview:</b> During this unit, the children will learn...</p> <ul style="list-style-type: none"> <li>✓ How to use software to design a product (Microsoft Word / Paint)</li> <li>✓ How to design and make a bag suitable for a journey.</li> <li>✓ How to apply applique, different stitches and fastenings to a product (buttons, poppers, velcro) combining knowledge from previous units.</li> <li>✓ Use existing products and designers as</li> </ul> |                    | <p><b>Unit:</b> <b>ELECTRICAL SYSTEMS &amp; MECHANISMS</b></p> <p><b>Skills focused unit – applying electrical systems to mechanics and programming and controlling with a Crumble.</b></p> <p><b>Subject Overview:</b> During this unit, children will learn... ✓ How to create a mechanism using cams.</p> <ul style="list-style-type: none"> <li>✓ How to add an electrical circuit into their product.</li> <li>✓ How to programme and control their product using a Crumble.</li> </ul> |

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|                  | inspiration for their own designs.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Knowledge</b> | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (textiles are used in clothing, sheets, towels, carpets).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based) • What is the purpose of the product? Say how it will work.</li> <li>• Carry out research to develop a simple design specification.</li> <li>• Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs, why materials have been chosen, the methods of construction used, how well they work and how innovative and sustainable they are.</li> <li>• Know that materials have functional and aesthetic qualities.</li> <li>• Know about significant people: <b>George de Mestrol: An engineer who discovered a plant which stuck to clothing using little hooks, this was the beginning of inventing the fastening product Velcro.</b></li> </ul> |  | <ul style="list-style-type: none"> <li>• How products are used everyday and the effect this has on people's lives (mechanisms are all around us and are how things work – books, drawers, scissors etc / electrical systems are often added into toys now).</li> <li>• Who is the intended user? (themselves, parents, siblings, friends, visitor, imaginary, story based)</li> <li>• What is the purpose of the product? Say how it will work.</li> <li>• Carry out research to develop a simple design specification. • Investigate how well products have been designed and made, whether they are fit for purpose and meet user needs, why materials have been chosen, the methods of construction used, how well they work and how innovative and sustainable they are.</li> <li>• Know that materials have functional and aesthetic qualities. • Know about significant people: <b>Nikola Tesla: An inventor, electrical engineer and mechanical engineer. His inventions had a huge impact, developing the alternating current (AC) power system that provides electricity for homes and buildings. He also pioneered the field of radio communication. The car manufacturers Tesla is also named after him, as the world's leading electric vehicle manufacturer.</b></li> </ul> |

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| <b>Skills</b>              | <ul style="list-style-type: none"> <li>● Generate innovative ideas drawing on research.</li> <li>● Be able to investigate the way in which simple products in everyday use are designed and made and how they work.</li> <li>● Use a range of drawing skills, discussion, prototypes and pattern pieces.</li> <li>● Formulate lists of resources and step-by-step plans.</li> <li>● Select suitable tools, equipment, materials and components and explain their choices, selecting from a wider range of resources (needles, pins, scissors,</li> </ul>                                                                                                                                                                                                                            |  | <ul style="list-style-type: none"> <li>● Generate innovative ideas drawing on research.</li> <li>● Be able to investigate the way in which simple products in everyday use are designed and made and how they work.</li> <li>● Use a range of drawing skills, discussion, prototypes and pattern pieces.</li> <li>● Formulate lists of resources and step-by-step plans.</li> <li>● Select suitable tools, equipment, materials and components and explain their choices, selecting from a wider range of resources (hacksaws, clamps, bench hooks, dowel, electrical components).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                            | <p>measuring tapes, a range of fastenings and material types)</p> <ul style="list-style-type: none"> <li>● Measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</li> <li>● Identify strengths and areas to develop their ideas and products against their design specification and consider the views of others to make improvements.</li> <li>● Use the correct technical vocabulary for the product they are undertaking.</li> <li>● Follow procedures for safety and hygiene.</li> </ul>                                                                                                                                                                                                                                                             |  | <ul style="list-style-type: none"> <li>● Measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</li> <li>● Identify strengths and areas to develop their ideas and products against their design specification and consider the views of others to make improvements.</li> <li>● Use the correct technical vocabulary for the product they are undertaking.</li> <li>● Follow procedures for safety and hygiene.</li> <li>● Be able to programme and control the product using Crumble.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Curriculum Coverage</b> | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> |  | <p><b>DESIGN</b></p> <ul style="list-style-type: none"> <li>● Use research to develop design criteria, designing products fit for a purpose</li> <li>● Generate and communicate ideas.</li> </ul> <p><b>MAKE</b></p> <ul style="list-style-type: none"> <li>● Perform practical tasks accurately, selecting and using a wider range of tools.</li> <li>● Select and use a wider range of materials and components according to their functional and aesthetic qualities.</li> </ul> <p><b>EVALUATE</b></p> <ul style="list-style-type: none"> <li>● Investigate and analyse existing products.</li> <li>● Evaluate ideas and products against own criteria and consider how to improve work.</li> <li>● Understand how key events and individuals have shaped the world.</li> </ul> <p><b>TECHNICAL KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>● Apply their understanding of computing to programme, monitor and control their products.</li> <li>● Understand and use of mechanical systems in their products.</li> <li>● Understand and use of electrical systems in</li> </ul> |

Design and Technology – Long Term Plan

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|-------------------------------------------|----------------------------|--|------------------------------------------------------------------|
|                                           |                            |  | their products.                                                  |
| <div>Cross<br/>Curricular<br/>Links</div> | Maths – measure (m/cm/mm). |  | Science – sound / electrical systems.<br>Maths – measure (cm/mm) |