

## Progression in Design Technology

|               | EYFS  | Year 1   | Year 2   | Year 3   | Year 4  | Year 5  | Year 6   |
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| <b>Design</b> | <ul style="list-style-type: none"> <li>- Select appropriate resources.</li> <li>- Use gestures, talking and arrangements of materials and components to show design.</li> <li>- Use contexts set by the teacher, peers and themselves.</li> <li>- Use language of designing and making:</li> <li>- join, build, longer, shorter, heavier, lighter, change, combine, materials, shapes, lines, detail, feelings.</li> </ul>  | <ul style="list-style-type: none"> <li>- I can use my own ideas to make something.</li> <li>- I can describe how something works.</li> <li>- I can make a simple plan before making.</li> <li>- Begin to draw on their own experience to help generate ideas and research conducted on criteria.</li> <li>- Begin to understand the development of existing products: What they are for, how they work, materials used.</li> <li>- Start to suggest ideas and explain what they are going to do.</li> <li>- Understand how to identify a target group for what they intend to design and make, based on a design criteria.</li> <li>- Begin to develop their ideas through talk and drawings.</li> <li>- Make templates and mock ups of their ideas in card and paper or using ICT.</li> </ul> | <ul style="list-style-type: none"> <li>- I can use my own ideas to make something.</li> <li>- Start to generate ideas by drawing on their own and other people's experiences.</li> <li>- Begin to develop their design ideas through discussion, observation, drawing and modelling.</li> <li>- Identify a purpose for what they intend to design and make.</li> <li>- Understand how to identify a target group for what they intend to design and make based on a design criteria.</li> <li>- Develop their ideas through talk and drawings and label parts.</li> <li>- Make templates and mock ups of their ideas in card and paper.</li> </ul>               | <ul style="list-style-type: none"> <li>- I can design a product and make sure that it looks attractive.</li> <li>- Start to generate ideas by drawing on their own and other people's experiences.</li> <li>- Begin to develop their design ideas through discussion, observation, drawing and modelling.</li> <li>- Identify a purpose for what they intend to design and make.</li> <li>- Understand how to identify a target group for what they intend to design and make based on a design criteria.</li> <li>- Develop their ideas through talk and drawings and label parts.</li> <li>- Make templates and mock ups of their ideas in card and paper or using ICT.</li> </ul> | <ul style="list-style-type: none"> <li>- I can use ideas from other people when I am designing.</li> <li>- I can produce a plan and explain it.</li> <li>- I can present a product in an interesting way.</li> </ul>  | <ul style="list-style-type: none"> <li>- I can come up with a range of ideas after collecting information from different sources.</li> <li>- I can explain how a product will appeal to a specific audience.</li> <li>- Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and CAD. B criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</li> <li>- With growing confidence apply a range of finishing techniques, including those from art and design.</li> <li>- Draw up a specification for their design- link with Mathematics and Science.</li> <li>- Use results of investigations, information sources, including ICT when developing design ideas.</li> <li>- With growing confidence select appropriate materials, tools and techniques.</li> <li>- Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.</li> </ul> | <ul style="list-style-type: none"> <li>- I can use market research to inform my plans and ideas.</li> <li>- I can justify my plans in a convincing way.</li> <li>- I can show that I consider culture and society in my plans and designs.</li> </ul>  |
| <b>Making</b> | <ul style="list-style-type: none"> <li>- Construct with a purpose, using a variety of resources</li> <li>- Use simple tools and techniques</li> <li>- Build / construct with a wide range of objects and construction kits.</li> <li>- Select tools &amp; techniques to shape, assemble and join.</li> <li>- Replicate structures with materials/components</li> <li>- Discuss how to make an activity safe and hygienic</li> <li>- Record experiences by drawing, writing, voice recording &amp; videoing.</li> <li>- Understand different media can be combined for a purpose.</li> </ul> | <ul style="list-style-type: none"> <li>- I can make a product which moves.</li> <li>- I can make my model stronger.</li> <li>- Begin to make their design using appropriate techniques.</li> <li>- Begin to build structures, exploring how they can be made stronger, stiffer and more stable.</li> <li>- Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</li> <li>- With help measure, mark out, cut and shape a range of materials.</li> <li>- Explore using tools e.g. scissors and a hole punch safely.</li> <li>- Begin to assemble, join and combine materials.</li> </ul>  | <ul style="list-style-type: none"> <li>- I can make a product which moves.</li> <li>- I can make my model stronger.</li> <li>- Begin to select tools and materials; use correct vocabulary to name and describe them.</li> <li>- Build structures, exploring how they can be made stronger, stiffer and more stable.</li> <li>- With help measure, cut and score with some accuracy.</li> <li>- Learn to use hand tools safely and appropriately.</li> <li>- Start to assemble, join and combine materials in order to make a product.</li> <li>- Demonstrate how to cut, shape and join fabric to make a simple product.</li> <li>- Use basic sewing</li> </ul> | <ul style="list-style-type: none"> <li>- I can work accurately to measure, make cuts and make holes.</li> <li>- I can follow a step-by-step plan, choosing the right equipment and materials.</li> <li>- Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.</li> <li>- Explain their choice of tools and equipment they will be using.</li> <li>- Start to understand that mechanical and electrical systems have an input and output.</li> <li>- Start to understand that mechanical systems such as levers and linkages create</li> </ul>    | <ul style="list-style-type: none"> <li>- I can measure accurately.</li> <li>- I can persevere and adapt my work when my original ideas do not work.</li> <li>- Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.</li> <li>- Explain their choice of tools and equipment in relation to the skills and techniques they will be using.</li> <li>- Start to understand that mechanical and electrical systems have an input, process and output.</li> <li>- Start to understand that mechanical systems such as levers and linkages or</li> </ul> | <ul style="list-style-type: none"> <li>- I can use a range of tools and equipment competently.</li> <li>- I can make a prototype before making a final version.</li> <li>- Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately.</li> <li>- Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Understand how mechanical systems such as cams or pulleys or gears create movement.</li> <li>- Know how more complex electrical circuits and</li> </ul>  | <ul style="list-style-type: none"> <li>- With confidence pin, sew and stitch materials together to create a product.</li> <li>- Demonstrate when make modifications as they go along.</li> <li>- Construct products using permanent joining techniques.</li> <li>- Understand how mechanical systems such as cams or pulleys or gears create movement.</li> <li>- Confidently select appropriate tools, materials, components and techniques and use them.</li> <li>- Use tools safely and accurately.</li> <li>- Assemble components to make working models.</li> <li>- Aim to make and to achieve a quality product.</li> <li>- Know how more complex</li> </ul> |

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|                 |   |  | <p>techniques.</p> <ul style="list-style-type: none"> <li>- Start to choose and use appropriate finishing techniques based on own ideas.</li> </ul>  | <p>movement.</p> <ul style="list-style-type: none"> <li>- Know how simple electrical circuits and components can be used to create functional products.</li> <li>- Measure, mark out, cut and assemble components with more accuracy.</li> <li>- Start to work safely and accurately with a range of simple tools.</li> <li>- Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.</li> <li>- Start to measure, tape or pin, cut and join fabric.</li> </ul>   | <p>pneumatic systems create movement.</p> <ul style="list-style-type: none"> <li>- Know how simple electrical circuits and components can be used to create functional products.</li> <li>- Measure, mark out, cut, score and assemble components with more accuracy.</li> <li>- Start to work safely and accurately with a range of tools.</li> <li>- Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.</li> <li>- Start to measure, tape or pin, cut and join fabric with some accuracy.</li> </ul> | <p>components can be used to create functional products and how to program a computer to monitor changes in the environment.</p> <ul style="list-style-type: none"> <li>- Understand that mechanical and electrical systems have an input, process and output.</li> <li>- Begin to measure and mark out more accurately.</li> <li>- Demonstrate how to use different tools and equipment for different skills, safely and accurately.</li> <li>- With growing confidence cut and join with accuracy to ensure a good-quality finish to the product.</li> <li>- Weigh and measure accurately (time, dry ingredients, liquids).</li> <li>- Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</li> </ul> | <p>electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products.</p> <ul style="list-style-type: none"> <li>- Know how to reinforce and strengthen a 3D framework.</li> <li>- Understand that mechanical and electrical systems have an input, process and output.</li> <li>- Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</li> </ul>  |
| <b>Evaluate</b> | <ul style="list-style-type: none"> <li>- Adapt work if necessary.</li> <li>- Dismantle, examine, talk about existing objects/structures.</li> <li>- Consider and manage some risks.</li> <li>- Practise some appropriate safety measures independently.</li> <li>- Talk about how things work.</li> <li>- Look at similarities and differences between existing objects/materials/tools</li> <li>- Show an interest in technological toys.</li> <li>- Describe textures.</li> </ul> | <ul style="list-style-type: none"> <li>- Explore existing products and investigate how they have been made.</li> <li>- Decide how existing products do/do not achieve their purpose.</li> <li>- Talk about their design as they develop and identify good and bad points.</li> <li>- Note changes made during the making process as annotation to plans/drawings.</li> <li>- Say what they like and do not like about items they have made and attempt to say why.</li> <li>- Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.</li> </ul> | <ul style="list-style-type: none"> <li>- Explore existing products and investigate how they have been made.</li> <li>- Decide how existing products do/do not achieve their purpose.</li> <li>- Talk about their design as they develop and identify good and bad points.</li> <li>- Note changes made during the making process as annotation to plans/drawings.</li> <li>- Say what they like and do not like about items they have made and attempt to say why.</li> <li>- Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.</li> </ul> | <ul style="list-style-type: none"> <li>- Investigate similar products to the one to being made to give starting points for a design.</li> <li>- Draw/sketch products to help analyse and understand how products are made.</li> <li>- Research needs of user.</li> <li>- Identify the strengths and weaknesses of their design ideas in relation to purpose/user.</li> <li>- Decide which design idea to develop.</li> <li>- Consider and explain how the finished product could be improved.</li> <li>- Discuss how well the finished product meets the design criteria of the user.</li> <li>- Investigate key events and individuals in Design and Technology.</li> </ul> | <ul style="list-style-type: none"> <li>- I can evaluate and suggest improvements for my designs.</li> <li>- I can evaluate products for both their purpose and appearance.</li> <li>- Evaluate their products carrying out appropriate tests.</li> <li>- Start to their work both during and at the end of the assignment.</li> <li>- Be able to disassemble and evaluate familiar products and consider the views of others to improve them.</li> <li>- Evaluate the key designs of individuals in design and technology has helped shape the world.</li> </ul>                     | <ul style="list-style-type: none"> <li>- I can suggest alternative plans; outlining the positive features and draw backs.</li> <li>- I can evaluate appearance and function against original criteria.</li> <li>- Start to evaluate a product against the original design specification and by carrying out tests.</li> <li>- Evaluate their work both during and at the end of the assignment.</li> <li>- Begin to evaluate it personally and seek evaluation from others.</li> <li>- Evaluate the key designs of individuals in design and technology.</li> </ul>  | <ul style="list-style-type: none"> <li>- I show that I can test and evaluate my products.</li> <li>- Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.</li> <li>- Evaluate their work both during and at the end of the assignment.</li> <li>- Record their evaluations using drawings with labels.</li> <li>- Evaluate against their original criteria and suggest ways that their product could be improved.</li> <li>- Evaluate the key designs of individuals in design and technology has helped shape.</li> </ul> |

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| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical Knowledge</p> | <p><b>Food</b></p>     | <ul style="list-style-type: none"> <li>- Begin to understand some food preparation tools, techniques and processes.</li> <li>- Practise stirring, mixing, pouring, blending.</li> <li>- Discuss how to make an activity safe and hygienic.</li> <li>- Discuss use of senses.</li> <li>- Understand need for variety in food.</li> <li>- Begin to understand that eating well contributes to good health.</li> </ul> | <ul style="list-style-type: none"> <li>- Develop a food vocabulary using taste, smell, texture and feel.</li> <li>- Group familiar food products e.g. fruit and vegetables.</li> <li>- Explain where food comes from.</li> <li>- Cut, peel, grate and chop a range of fruit and vegetables.</li> <li>- Work safely and hygienically.</li> <li>- Understand the need for a variety of foods in a diet.</li> <li>- Measure and weigh food items, non-statutory measures e.g. spoons, cups.</li> </ul>            | <ul style="list-style-type: none"> <li>- Develop sensory vocabulary/knowledge using, smell, taste, texture and feel.</li> <li>- Analyse the taste, texture, smell and appearance of a range of foods.</li> <li>- Follow instructions/recipes.</li> <li>- Make healthy eating choices</li> <li>- Use the Eatwell plate.</li> <li>-Join and combine a range of ingredients.</li> <li>- Prepare and cook using a range of cooking techniques.</li> <li>- Explore seasonality of vegetables and fruit.</li> <li>- Find out which fruit and vegetables are grown in countries/continents studied in Geography.</li> <li>- Develop understanding of how meat/fish are reared/caught.</li> </ul> | <ul style="list-style-type: none"> <li>- Develop sensory vocabulary/knowledge using, smell, taste, texture and feel.</li> <li>- Analyse the taste, texture, smell and appearance of a range of foods.</li> <li>- Follow instructions/recipes.</li> <li>- Make healthy eating choices</li> <li>- Use the Eatwell plate.</li> <li>-Join and combine a range of ingredients.</li> <li>- Prepare and cook using a range of cooking techniques.</li> <li>- Explore seasonality of vegetables and fruit.</li> <li>- Find out which fruit and vegetables are grown in countries/continents studied in Geography.</li> <li>- Develop understanding of how meat/fish are reared/caught.</li> </ul> | <ul style="list-style-type: none"> <li>- Prepare mostly savoury dishes using their own selection of ingredients, taking into account their nutritional properties and sensory characteristics.</li> <li>- Weigh and measure using scales.</li> <li>- Select and prepare foods for a particular purpose.</li> <li>- Work safely and hygienically.</li> <li>- Develop understanding of a healthy diet and apply in their ingredient choices.</li> <li>- Use a range and combine a widening range of ingredients.</li> <li>- Know where and how ingredients are grown and processed.</li> </ul> | <ul style="list-style-type: none"> <li>-Prepare mostly savoury dishes using their own selection of ingredients, taking into account their nutritional properties and sensory characteristics.</li> <li>- Weigh and measure using scales.</li> <li>- Select and prepare foods for a particular purpose.</li> <li>- Work safely and hygienically.</li> <li>- Develop understanding of a healthy diet and apply in their ingredient choices.</li> <li>- Use a range and combine a widening range of ingredients.</li> <li>- Know where and how ingredients are grown and processed.</li> </ul> | <ul style="list-style-type: none"> <li>- Understand a recipe can be adapted by adding / substituting ingredients</li> <li>- Explain seasonality of foods</li> <li>- Learn about food processing methods</li> <li>- Name some types of food that are grown, reared or caught in the UK or wider world</li> <li>-Adapt recipes to change appearance, taste, texture or aroma.</li> <li>-Describe some of the different substances in food and drink, and how they can affect health</li> <li>- Prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.</li> <li>-Use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> </ul> |
| <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical Knowledge</p> | <p><b>Textiles</b></p> | <ul style="list-style-type: none"> <li>- Measure, cut and join textiles to make a product, with some support</li> <li>- Choose suitable textiles</li> </ul>   | <ul style="list-style-type: none"> <li>- Start to use the appropriate vocabulary to refer to fabrics and tools.</li> <li>- Cut out shapes which have been created by drawing round a template onto the fabric.</li> <li>- Join fabrics by using e.g. running stitch, glue, staples, over sewing, tape.</li> <li>- Decorate fabrics with attached items e.g. buttons, beads, sequins, braids, ribbons.</li> <li>- Colour fabrics using a range of techniques e.g. fabric paints, printing, painting.</li> </ul> | <ul style="list-style-type: none"> <li>- Develop vocabulary for tools materials and their properties.</li> <li>- Understand seam allowance.</li> <li>- Join fabrics using running stitch, over sewing, blanket stitch.</li> <li>- Use prototype to make pattern.</li> <li>- Explore strengthening and stiffening of fabrics.</li> <li>- Explore fastenings and recreate some.</li> <li>- Sew on buttons and make loops.</li> <li>- Use appropriate decoration techniques.</li> </ul>  | <ul style="list-style-type: none"> <li>- Develop vocabulary for tools materials and their properties.</li> <li>- Understand seam allowance.</li> <li>- Join fabrics using running stitch, over sewing, blanket stitch.</li> <li>- Use prototype to make pattern.</li> <li>- Explore strengthening and stiffening of fabrics.</li> <li>- Explore fastenings (inventors?) and recreate some.</li> <li>- Sew on buttons and make loops.</li> <li>- Use appropriate decoration techniques.</li> </ul>   | <ul style="list-style-type: none"> <li>- Use the correct vocabulary appropriate to the project.</li> <li>- Create 3D products using patterns pieces and seam allowance.</li> <li>- Understand pattern layout.</li> <li>- Decorate textiles appropriately (often before joining components).</li> <li>- Pin and tack fabric pieces together.</li> <li>- Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision).</li> <li>- Combine fabrics to create more useful properties.</li> <li>- Make quality products.</li> </ul>                      | <ul style="list-style-type: none"> <li>- Think about user's wants/needs and aesthetics when choosing textiles.</li> <li>- Make product attractive and strong</li> <li>- Make a prototype</li> <li>- Use a range of joining techniques</li> <li>- Think about how product might be sold</li> <li>- Think carefully about what would improve product</li> <li>-Understand that a single 3D textiles project can be made from a combination of fabric shapes.</li> </ul>   |   |

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| <p style="text-align: center;"><b>Technical Knowledge</b></p> | <p style="text-align: center;"><b>Structures</b></p>                |  | <ul style="list-style-type: none"> <li>- Refer to materials tools and techniques using appropriate vocabulary.</li> <li>- Explore how to make structures stronger.</li> <li>- Investigate different techniques for stiffening a variety of materials.</li> <li>- Test different methods of enabling structures to remain stable.</li> <li>- Join appropriately for different materials and situations e.g. glue, tape.</li> <li>- Mark out materials to be cut using a template.</li> <li>- Use a glue gun with close supervision.</li> </ul> | <ul style="list-style-type: none"> <li>- Measure materials</li> <li>- Describe some different characteristics of materials</li> <li>- Join materials in different ways</li> <li>-Use joining, rolling or folding to make it stronger</li> <li>- Use own ideas to try to make product stronger</li> </ul>   | <ul style="list-style-type: none"> <li>- Develop vocabulary related to the project.</li> <li>- Create shell or frame structures.</li> <li>- Strengthen frames with diagonal struts.</li> <li>- Make structures more stable by giving them a wide base.</li> <li>- Measure and mark square section, strip and dowel accurately to 1cm.</li> </ul>  | <ul style="list-style-type: none"> <li>- Develop vocabulary related to the project.</li> <li>- Explain how the shape of a structure affects its stability.</li> <li>- Know that the weight of the structure needs to be evenly spread on the base to make it secure. Investigate ways of making a structure more stable.</li> <li>- Select and use appropriate tools and materials.</li> </ul>                                  | <ul style="list-style-type: none"> <li>- Use the correct terminology for tools materials and processes.</li> <li>- Select appropriate materials and tools to create an instrument.</li> <li>- Join materials using appropriate methods.</li> <li>- Build frameworks to support mechanisms.</li> <li>- Investigate and analyse a range of African instruments.</li> <li>- Use different methods to strengthen or reinforce their designs.</li> <li>- Predict and test the strength of different beam shapes using paper and card.</li> <li>- Explain what a truss is and how they make bridges stronger.</li> <li>- Can make an arch frame</li> </ul> | <ul style="list-style-type: none"> <li>- Select materials carefully, considering intended use of the product, the aesthetics and functionality.</li> <li>- Explain how product meets design criteria</li> <li>- Reinforce and strengthen a 3D frame</li> </ul>  |
| <p style="text-align: center;"><b>Technical Knowledge</b></p> | <p style="text-align: center;"><b>Mechanical and Electrical</b></p> |  | <ul style="list-style-type: none"> <li>- Make a sliding mechanism out of card.</li> <li>- Understand and use a pivot and lever mechanism using card and a split pin.</li> <li>- Make a wheel mechanism using card and a split pin.</li> <li>- Match a mechanism to the type of movement it makes.</li> </ul>  | <ul style="list-style-type: none"> <li>- Use technical vocabulary when describing mechanisms, tools and materials they use.</li> <li>- Join appropriately for different materials and situations e.g. glue, tape.</li> <li>- Try out different axle fixings and their strengths and weaknesses.</li> <li>- Make vehicles with construction kits which contain free running wheels.</li> <li>- Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels.</li> <li>- Cut dowel using hacksaw and bench hook.</li> <li>- Attach wheels to a chassis using an axle.</li> <li>- Use a hole punch and insert paper fasteners for card.</li> </ul> | <ul style="list-style-type: none"> <li>- Develop vocabulary related to the project.</li> <li>- Explain how simple pneumatic systems work using appropriate vocabulary.</li> <li>- Recognise familiar objects that use air to make them work.</li> <li>- Describe how objects use air to make them work.</li> <li>- Create simple effective pneumatic systems.</li> <li>- Investigate ways of using pneumatic systems with other materials to control movement.</li> <li>- Recognise the uses to which alarm systems can be put.</li> <li>- Understand that switches work in different ways.</li> <li>- Understand the dangers of main electricity.</li> <li>- Explain how a simple circuit works.</li> <li>- Investigate different ways of creating switches and circuits.</li> </ul> | <ul style="list-style-type: none"> <li>- Refine product after testing</li> <li>-Grow in confidence about trying new / different ideas</li> <li>- Begin to use cams, pulleys or gears to create movement</li> <li>- Incorporate switch into product</li> <li>- Confidently use number of components in circuit</li> <li>-Begin to be able to program a computer to monitor changes in environment and control product</li> </ul> | <ul style="list-style-type: none"> <li>- Refine product after testing, considering aesthetics, functionality and purpose</li> <li>- Incorporate hydraulics and pneumatics</li> <li>- Be confident to try new / different ideas</li> <li>- Use cams, pulleys and gears to create movement.</li> </ul>   | <ul style="list-style-type: none"> <li>- Develop a technical vocabulary appropriate to the project.</li> <li>- Explore how different transmissions create different movements.</li> <li>- Use a crank to change the motion on a transmission from circular to linear.</li> <li>- Explain how computers and computer programs are used in different products.</li> <li>- Explain how modern memory chips work to store information.</li> <li>- Know what a computer engineer is and what they do.</li> </ul> |