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**Design & Technology Overview 2023-2024 – Cycle B**

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|  | Autumn | Spring | Summer |
| EYFS | Children will engage with a variety of stimulating resources and rich learning opportunities and will be supported to take risks and explore. Opportunities for children to play with materials before using them in planned tasks will be given. A learning community which focuses on how and not just what we are learning will be developed. Children will be given opportunities to represent and develop their own ideas, and experiences that follow the ideas of children will be planned. |
| Year 1 / 2 | **Mechanisms****Sliders and levers**To explore and use sliders and levers. To know about the movement of simple mechanisms such as levers, sliders, wheels and axlesTo understand that different mechanisms produce different types of movement.  | **Textiles****Templates and joining techniques**To understand that a 3-D textiles product can be assembled from two identical fabric shapes To understand how to join fabrics using different techniques e.g., running stitch, glue, over stitch, stapling. To explore different finishing techniques.  | **Food****Preparing fruit and vegetables**To know that all food comes from plants or animals and that food has to be farmed, grown elsewhere (e.g. home) or caught.To name and sort foods into the five groups in The eatwell plate and understand that everyone should eat at least five portions of fruit and vegetables every day.To understand how to prepare simple dishes safely and hygienically, without using a heat source. |
| Year 3 / 4 | **Textiles****2D shape to 3D product**Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances.  | **Food****Healthy and varied diet**To understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. To know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate. | **Electrical systems****Simple circuits and systems**To understand and use electrical systems in their products linked to science coverage.Apply their understanding of computing to program and control their products.  |
| Year 5 / 6 | **Textiles****Combining different fabric shapes**Measure, mark out, cut and shape materials and components accurately.Assemble, join and combine materials and components with accuracy.Apply a range of finishing techniques, and techniques that involve a number of steps. | **Food****Celebrating culture and seasonality**To recognise that recipes can be adapted to change the appearance, taste, texture and aroma.To know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health. | **Electrical systems****More complex switches and circuits**To understand and use electrical systems in their products.To apply understanding of computing to program, monitor and control their products. |

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| **PROGRESSION OF SKILLS** |
| KS1 | **Designing:*** To state what products they are designing and making
* To describe what their products are for and say how their products will work
* To use simple design criteria to help develop their ideas

**Making*** To select from a range of tools and equipment, explaining their choices and select from a range of materials and components according to their characteristics.
* To follow procedures for safety and hygiene.
* To measure, mark out, cut and shape materials and components.
* To assemble, join and combine materials and components.

**Evaluating*** To make simple judgements about their products and ideas against design criteria.
* To suggest how their products could be improved.
* To explain what they like and dislike about products.

**Technical knowledge*** To know about the simple working characteristics of materials and components
* To use the correct technical vocabulary for the projects they are undertaking
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| Early Key Stage 2 | **Designing*** To describe the purpose of their products and indicate the design features of their products that will appeal to intended users.
* To develop their own design criteria and use these to inform their ideas.
* To model their ideas using prototypes and pattern pieces.
* To generate realistic ideas, focusing on the needs of the user.

**Making*** To follow procedures for safety and hygiene.
* To use a wider range of materials and components.
* To measure, mark out, cut and shape materials and components with some accuracy.
* To assemble, join and combine materials and components with some accuracy.
* To apply a range of finishing techniques.
* To select tools and equipment suitable for the task.
* To explain their choice of tools and equipment in relation to the skills and techniques they will be using.
* To select materials and components suitable for the task.
* To explain their choice of materials and components according to functional properties and aesthetic qualities.
* To order the main stages of making.

**Evaluating*** To identify the strengths and areas for development in their ideas and products.
* To consider the views of others, including intended users, to improve their work.
* •To refer to their design criteria as they design and make.
* To use their design criteria to evaluate their completed products how well products have been designed.
* To investigate and analyse: • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused.

**Technical knowledge*** To know how to use learning from science to help design and make products that work.
* To know how to use learning from mathematics to help design and make products that work.
* To recognise that materials have both functional properties and aesthetic qualities.
* To know that materials can be combined and mixed to create more useful characteristics.
* To understand that mechanical and electrical systems have an input, process and output.
* To know the correct technical vocabulary for the projects they are undertaking.
* To know how mechanical systems such as levers and linkages or pneumatic systems create movement.
* To understand how simple electrical circuits and components can be used to create functional products.
* To know how to program a computer to control their products.
* To know how to make strong, stiff shell structures.
* To understand that a single fabric shape can be used to make a 3D textiles product.
* To know that food ingredients can be fresh, pre-cooked and processed.
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| Upper Key Stage 2As Early Key Stage 2 plus: | **Designing*** To carry out research, using surveys, interviews, questionnaires and web-based resources.
* To identify the needs, wants, preferences and values of particular individuals and groups.
* To develop a simple design specification to guide their thinking.
* To generate innovative ideas, drawing on research.
* To make design decisions, taking account of constraints such as time, resources and cost.

**Making*** To produce appropriate lists of tools, equipment and materials that they need.
* To formulate step-by-step plans as a guide to making.
* To accurately measure, mark out, cut and shape materials and components.
* To accurately assemble, join and combine materials and components.
* To accurately apply a range of finishing techniques, including those from art and design.
* To use techniques that involve a number of steps.
* To demonstrate resourcefulness when tackling practical problems.

**Evaluating*** To critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.
* To evaluate their ideas and products against their original design specification.
* To investigate how much products cost to make.
* To analyse how innovative products are.
* To investigate how sustainable the materials in products are.
* To recognise what impact products have beyond their intended purpose.

**Technical knowledge*** To know how mechanical systems such as cams or pulleys or gears create movement.
* To understand how more complex electrical circuits and components can be used to create functional products
* To know how to program a computer to monitor changes in the environment and control their products.
* To know how to reinforce and strengthen a 3D framework.
* To know that a 3D textiles product can be made from a combination of fabric shapes.
* To understand that a recipe can be adapted by adding or substituting one or more ingredients.
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| Across Key Stage 2 children should know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. |  |
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