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

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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 | **Structures**  **Freestanding structures**  To explore different types of structures.  To create models from reclaimed materials.  To understand how structures can be made stronger, stiffer and more stable. | **Food**  **Prepare fruit and vegetables**  To examine a range of fruit and vegetables and describe them using sensory vocabulary.  To develop a deeper understanding of the eatwell plate and the importance of eating a healthy and varied diet.  To learn about good food hygiene rules and using kitchen equipment to prepare food safely. | **Mechanisms**  **Wheels and axles**  To explore and use sliders and levers.  To know about the movement of simple mechanisms such as levers, sliders, wheels and axles  To understand that different mechanisms produce different types of movement. |
| Year 3 / 4 | **Mechanisms**  **Levers and linkages**  To understand and use lever and linkage mechanisms.  To distinguish between fixed and loose pivots.  To create a moving product. | **Food**  **Healthy and varied diet**    To investigate a range of food products and explore the principles of a varied and healthy diet.  To gather information about existing products available relating to their final product and learn how a variety of ingredients used in products are grown and harvested, reared, caught and processed.  To select and use a range of utensils and use a range of techniques as appropriate to prepare ingredients hygienically. | **Structures**  **Shell structures including CAD**  To investigate a collection of different shell structures.  To use simple drawing software to design and make their own products.  To know how to construct strong, stiff shell structures. |
| Year 5 / 6 | **Structures**  **Frame structures**  To investigate a collection of different structures.  To understand how to strengthen, stiffen and reinforce 3-D frameworks.  To evaluate their product against the intended purpose. | **Food**  **Food from around the world.**  To learn where in the world a variety of ingredients flourish building on their understanding of the eatwell plate.  To place different ingredients into the correct food groups.  To learn some basic and advanced cooking techniques. | **Mechanisms**  **Gears and pulleys**  Understand that mechanical and electrical systems have an input, process and an output.  Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. |

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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 |
| 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. |
| Upper Key Stage 2  As 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. |
| Across Key Stage 2 children should know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. | |