St Mary's C of E Primary – Overview of the teaching and learning of Design and Technology

Intent: Our design and technology curriculum is designed to equip children with the skills and creativity to solve problems based on real-world contexts. They will build a repertoire of skills and evaluate their own work as well as current products.

The 'Big Ideas': Throughout the design and technology curriculum **skills & expertise, design** and **evaluate** will be common areas of exploration. These big ideas will be covered throughout each unit across the school.

Implementation:

- Children will learn skills within three key areas: Materials (textiles and woodwork), electronics and food technology.
- Children will be expected to evaluate existing products and draw comparisons with their own creations.
- Pupils will design for a purpose, based on design criteria.

Impact: By the end of their time at St Mary's School, children will have accumulated knowledge to help them make sense of their world today. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. Pupils should have learnt to take risks, becoming resourceful, innovative, enterprising and capable citizens. The children's expertise is developed over time through the progression of skills.

NOTES: In the grid below are listed projects the children will complete and subject specific vocabulary to be introduced. Each child will design, make and evaluate an end product in each unit.

Year One

Autumn	Spring	Summer
Materials (Textiles)- Christmas Puppets - Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing. (Processes) - Use a range of simple tools to cut, join and combine materials and components safely. (Processes)	**Food Technology-** Food Preparation - Use pictures and words to describe what he/she wants to do. (Processes) - Talk about what he/she eats at home and begin to discuss what healthy foods are. (Cooking and Nutrition) - Say where some food comes from and give examples of food that is grown. (Cooking and Nutrition) - Use simple tools with help to prepare food safely. (Cooking and Nutrition)	**Materials -** Design a shield - Create simple designs for a product. (Processes) – Build structures exploring how they can be made stronger, stiffer and more stable (Processes)

Year Two

Autumn	Spring	Summer
Materials - Christmas train - Design purposeful, functional, appealing products for himself/herself and other users based on design criteria (Processes). - Choose appropriate tools, equipment, techniques and materials from a wide range (Processes). - Safely measure, mark out, cut and shape materials and components using a range of tools (Processes). - Explore and use mechanisms (Processes). - Generate, develop, model and communicate his/her ideas through talking, drawing templates, mock-ups and, where appropriate, information and communication technology (Processes). - Evaluate and assess existing products and those that he she has made using a design criteria (Processes).	**Food Technology –** Fruit smoothies - Design purposeful, functional, appealing products for himself/herself and other users based on design criteria (Processes). - Understand that all food has to be farmed, grown or caught (Cooking and Nutrition). - Understand the need for a variety of food in a diet (Cooking and Nutrition). - Use a wider range of cookery techniques to prepare food safely (Cooking and Nurtion). -	**Materials -** Pop-Up Books linked to habitats - Design purposeful, functional, appealing products for himself/herself and other users based on design criteria (Processes). - Investigate different techniques for stiffening a variety of materials and explore different methods of enabling structures to remain stable (Processes). - Explore and use mechanisms e.g. levers, sliders in his/her products (Processes).

Year Three

Autumn	Spring	Summer
Textiles- Christmas stockings - Create designs using annotated sketches and cross-sectional diagrams. - Safely measure, mark out, cut, assemble and join with some accuracy (processes) - Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them (processes)	**Electronic** – design and make an electronic poster — Investigate and analyse existing products and those he/she has made, considering a wide range of factors (processes) – Create designs using annotated sketches and cross-sectional diagrams (processes) – Use knowledge of existing products to design his/her own functional product. (Processes)	**Food Technology-** Healthy Packed Lunch Choices - Talk about the different food groups and name food from each group. (Cooking and Nutrition) - Understand that food has to be grown, farmed or caught in Europe and the wider world. (Cooking and Nutrition) - Use a wider variety of ingredients and techniques to prepare and combine ingredients safely. (Cooking and Nutrition) - Use knowledge of existing products to design his/her own functional product. (Processes)

Year Four

Autumn	Spring	Summer
Materials (Woodwork)- Christmas Photo Frame - Use knowledge of existing products to design a functional and appealing product for a particular purpose and audience - Use techniques which require more accuracy to cut, shape, join and finish his/her work (Processes) - Use his/her knowledge of techniques and the functional and aesthetic qualities of a range of materials to plan how to use them. (Processes) - Consider how existing products and his/her own finished products might be improved and how well they meet the needs of the intended user. (Processes)	**Food Technology-**Vegetable pizza – Understand what makes a healthy diet, and that different foods and drinks provide different substances the body needs to be healthy and active – Understand seasonality and the advantages of eating locally produces food – Read and follow recipes which involve several processes, skills and techniques	**Electronics –** Torch - Understand and use electrical systems in products. (Processes) - Use knowledge of existing products to design a functional and appealing product for a particular purpose and audience. (Processes) - Apply techniques he/she has learnt to strengthen structures and explore his/her own ideas (processes) - Create designs using exploded diagrams (processes)

Year Five

Autumn	Spring	Summer
Materials – Recycled Christmas Bag	**Food Technology-** Design and make biscuits	**Electronics –** Electrical Systems Motorised Machine
- Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product. (Processes) - Create prototypes to show his/her ideas. (Processes) - Make careful and precise measurements so that joins, holes and openings are in exactly the right place. (Processes) - Produce step by step plans to guide his/her making, demonstrating that he/she can apply his/her knowledge of different materials, tools and techniques. (Processes)	– Select appropriate ingredients and use a wide range of techniques to combine them. (Cooking and Nutrition) – Understand the main food groups and the different nutrients that are important for health. (Cooking and Nutrition) – Understand how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable / tasty to eat. (Cooking and Nutrition) – Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product. (Processes)	– Understand how to use more complex mechanical and electrical systems (processes) – Make detailed evaluations about existing products and his/her own considering the views of others to improve his/her work (processes) – Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable (processes)

Year Six

Autumn	Spring	Summer
Electronics- Christmas Decorations	**Materials (Woodwork) –** Automata Toy	**Food Technology –** Spaghetti Bolognaise
- Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross-sectional diagrams. (Processes) - Apply his/her knowledge of materials and techniques to refine and rework his/her product to improve its functional properties and aesthetic qualities. (Processes) - Use technical knowledge accurate skills to problem solve during the making process. (Processes) - Use a wide range of methods to strength, stiffen and reinforce complex structures and can use them accurately and appropriately (Processes)	- Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross-sectional diagrams. (Processes) - Apply his/her knowledge of materials and techniques to refine and rework his/her product to improve its functional properties and aesthetic qualities. (Processes) - Use technical knowledge accurate skills to problem solve during the making process. (Processes) - Use research he/she has done into famous designers and inventors to inform the design of his/her own innovative products (Processes) - Use his/her knowledge of famous designs to further explain the effectiveness of existing products and products he/she have made (Processes)	- Generate, develop, model and communicate his/her ideas through discussion, annotated sketches, cross-sectional diagrams. (Processes) - Confidently plan a series of healthy meals based on the principles of a healthy and varied diet (Cooking and Nutrition) - Use information on food labels to inform choices. - Research, plan and prepare and cook a savoury dish, applying his/her knowledge of ingredients and his/her technical skills (Cooking and Nutrition).