Whipton Barton Federation Design Technology Long Term Curriculum Map

Design Technology (DT) lessons at Whipton Barton Federation are an exciting new direction in our practical work, allowing the children a greater opportunity to use problem solving, engineering based techniques that can explore real world issues and try to find solutions for them in a classroom environment.

Each unit of work has its roots in a 'real problem', making the children test their understanding of the issue discussed in a practical, creative manner. Teamwork, prototypes, preliminary sketches, all are used in order to help the children with their problem solving.

The curriculum is based around the topic areas taught within each year group, allowing the classes a chance to explore the subjects in greater depth and develop an investigative approach to their studies. We want our children to discover their practical potential and utilise engineering know-how in a creative and innovative way.

Children in our Reception classes begin to develop their understanding of Design and Technology from the very beginning. Through the safe use of scissors, paintbrushes, playdough modelling tools and construction, children learn 'the best tools for the job'. Throughout the year, children have access to a well-resourced creative area where they design and make their own models; it is here they discover the joys of PVA glue compared to a glue stick or masking tape compared to sticky tape. In the Spring term of Reception they design, make and evaluate their own chairs for baby bear, selecting the tools they need to join their components together.

Key Stage One and Key Stage Two class teachers lead the lessons at school and guide the class through the tasks, demonstrating techniques and safety procedures to ensure every child in the class can feel their confidence grow and develop and no one feels left out or unable to be successful. The lessons progress through Research, Design and Make stages, and the skills learned in each section accumulate with the children utilising all of them in their final product design. Children are taught safe procedures at all times when using any tools, and safe working practices are used at all times.

Success in DT comes on different levels and due to the nature of the subject can take many forms. The joy of solving a problem and then seeing an idea come to life can be really rewarding, and then spending time to develop the idea further, creating a finished product to the highest level, is immensely satisfying and the children can display their work with pride to their peers. The children might be asked to show their work during a Celebration assembly, demonstrating the processes they went through to reach the final product, or they might be given a Headteacher Award and get the chance to show their success to Mrs Moretta. They might even have their work shared through our social media network!

Using Design ideas and techniques, we aim to show that the creative side of engineering can be just as artistic as drawing or painting.
Design Technology touches on many areas, both practical and theoretical, and we want our children at Whipton Barton Federation to be successful and have fun with all the design work. Future Engineers and Designers have to start somewhere, and the classes at school are a great place to begin!

Year	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Reception	Children in our Reception classes begin to develop their understanding of Design and Technology from the very beginning. Through the safe use of scissors, paintbrushes, playdough modelling tools and construction, children learn 'the best tools for the job'. Throughout the year, children have access to a well-resourced creative area where they design and make their own models; it is here they discover the joys of PVA glue compared to a glue stick or masking tape compared to sticky tape. In the Spring term of Reception they design, make and evaluate their own chairs for baby bear, selecting the tools they need to join their components together.					
Year	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Year 1		**Making a Roly-Poly as a 3D Model**. Ask simple questions about existing products and those that he/she has made. (Processes) Create simple designs for a product. (Processes) Use pictures and words to describe what he/she wants to do. (Processes)		**Designing and Creating a Vehicle Using Cardboard and Axels** Ask simple questions about existing products and those that he/she has made. (Processes) Create simple designs for a product. (Processes) Use pictures and words to describe what he/she wants to do. (Processes)		**Making healthy breakfast pots** 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)

		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) Build structures, exploring how they can be made stronger, stiffer and more stable. (Processes) Use wheels and axles in a product. (Processes)		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) Build structures, exploring how they can be made stronger, stiffer and more stable. (Processes) Use wheels and axles in a product. (Processes)		Use simple tools with help to prepare food safely. (Cooking and Nutrition)
Year 2		**Creating a Lever Based 3D Christmas Card** Design purposeful, functional, appealing products for himself/herself and other users based on design criteria. (Processes) Generate, develop, model and communicate his/her ideas through talking, drawing, templates, mock-		**Designing and Making a Hand Puppet Using Sewing for a Chinese Myth** Design purposeful, functional, appealing products for himself/herself and other users based on design criteria. (Processes) Generate, develop, model and communicate his/her ideas through talking,		**Creating a Healthy and Nutritious Summer Meal** Understand the need for a variety of food in a diet. (Cooking and Nutrition) Understand that all food has to be farmed, grown or caught. (Cooking and Nutrition)

		ups and, where appropriate, information and communication technology. (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, wheels and axles, in his/her products. (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) Evaluate and assess existing products and those that he/she has made using a design criteria. (Processes)		drawing, templates, mock-ups and, where appropriate, information and communication technology. (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, wheels and axles, in his/her products. (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) Evaluate and assess existing products and those that he/she has made using a design criteria. (Processes)		Use a wider range of cookery techniques to prepare food safely. (Cooking and Nutrition)

Year 3		**Investigating How Hydraulics Can Power An Item** Investigate and analyse existing products and those he/she has made, considering a wide range of factors. (Processes) Understand how mechanical systems such as levers and linkages or pneumatic systems create movement. (Processes) Use knowledge of existing products to design his/her own functional product. (Processes) Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. (Processes) Create designs using annotated sketches, cross-sectional diagrams and		**Using Pneumatics to Create an Erupting Volcano** Investigate and analyse existing products and those he/she has made, considering a wide range of factors. (Processes) Understand how mechanical systems such as levers and linkages or pneumatic systems create movement. (Processes) Use knowledge of existing products to design his/her own functional product. (Processes) Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. (Processes) Create designs using annotated sketches, cross-sectional diagrams and		**Kneading bread!** 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)

		simple computer programmes. (Processes) Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. (Processes) Strengthen frames using diagonal struts. (Processes Safely measure, mark out, cut, assemble and join with some accuracy. (Processes) 2/ Evaluate and assess existing products and those that he/she has made using a design criteria. (Processes)		simple computer programmes. (Processes) Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them. (Processes) Strengthen frames using diagonal struts. (Processes) Safely measure, mark out, cut, assemble and join with some accuracy. (Processes) 2/ Evaluate and assess existing products and those that he/she has made using a design criteria. (Processes)		
Year 4		**Make a Two-Point Lever Christmas Card** Use knowledge of existing products to design a functional and appealing product for a particular		**Create Housing for a Working Torch** Use knowledge of existing products to design a functional and appealing		**Lovely lunch - Making a sandwich** Understand what makes a healthy and balanced diet, and that different foods and drinks provide different substances the

		purpose and audience. (Processes) Create designs using exploded diagrams. (Processes Use his/her knowledge of techniques and the functional and aesthetic qualities of a wide 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) Use techniques which require more accuracy to cut, shape, join and finish his/her work e.g. Cutting internal shapes, slots in frameworks. (Processes) Apply techniques he/she has learnt to strengthen structures		product for a particular purpose and audience. (Processes) Create designs using simple electrical diagrams. (Processes) Use his/her knowledge of techniques and the functional and aesthetic qualities of a wide 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) Understand and use electrical systems in products. (Processes) Use techniques which require more accuracy to cut, shape, join and finish his/her work e.g. Cutting internal		body needs to be healthy and active. (Cooking and Nutrition) Understand seasonality and the advantages of eating seasonal and locally produced food. (Cooking and Nutrition) Read and follow recipes which involve several processes, skills and techniques. (Cooking and Nutrition)

		and explore his/her own ideas. (Processes) 2/3/ Evaluate and assess existing products and those that he/she has made using a design criteria. (Processes)		shapes, slots in frameworks. (Processes) 2/3/ Evaluate and assess existing products and those that he/she has made using a design criteria. (Processes)		
Year 5		**To Create and Test a Working Portable Water Filter** Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product. (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) Create prototypes to show his/her ideas. (Processes)		**To Create a Geodesic Dome** Use his/her research into existing products and his/her market research to inform the design of his/her own innovative product. (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) Create prototypes to show his/her ideas. (Processes) Make careful and precise measurements so that joins,		**To Create a Healthy Pasta Sauce to Go With a Meal** 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) Select appropriate ingredients and use a wide range of techniques to combine them. (Cooking and Nutrition)

		Make careful and precise measurements so that joins, holes and openings are in exactly the right place. (Processes) Understand how to use more complex mechanical systems. (Processes) Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable. (Processes) Make detailed evaluations about existing products and his/her own considering the views of others to improve his/her work. (Processes)		holes and openings are in exactly the right place. (Processes) Understand how to use more complex electrical systems. (Processes) Build more complex 3D structures and apply his/her knowledge of strengthening techniques to make them stronger or more stable. (Processes) Make detailed evaluations about existing products and his/her own considering the views of others to improve his/her work. (Processes)		
Year 6		**Create a Christmas Cam Toy** Use research he/she has done into famous designers and inventors to inform the design of his/her own		**Designing and Creating in 3D a House of the Future** Use research he/she has done into famous designers and inventors to inform the design of his/her own		**Designing and Making a Healthy Oat Bar with Packaging** Confidently plan a series of healthy meals based on the principles of a healthy

		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 and exploded diagrams, prototypes, pattern pieces and computer aided design. (Processes) Use technical knowledge accurate skills to problem solve during the making process. (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)		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 and exploded diagrams, prototypes, pattern pieces and computer aided design. (Processes) Apply his/her understanding of computing to program, monitor and control his/her product. (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)		and varied diet. (Cooking and Nutrition) Use information on food labels to inform choices. (Cooking and Nutrition) Research, plan and prepare and cook a savoury dish, applying his/her knowledge of ingredients and his/her. (Cooking and Nutrition)

		Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately. (Processes)		Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately. (Processes)		