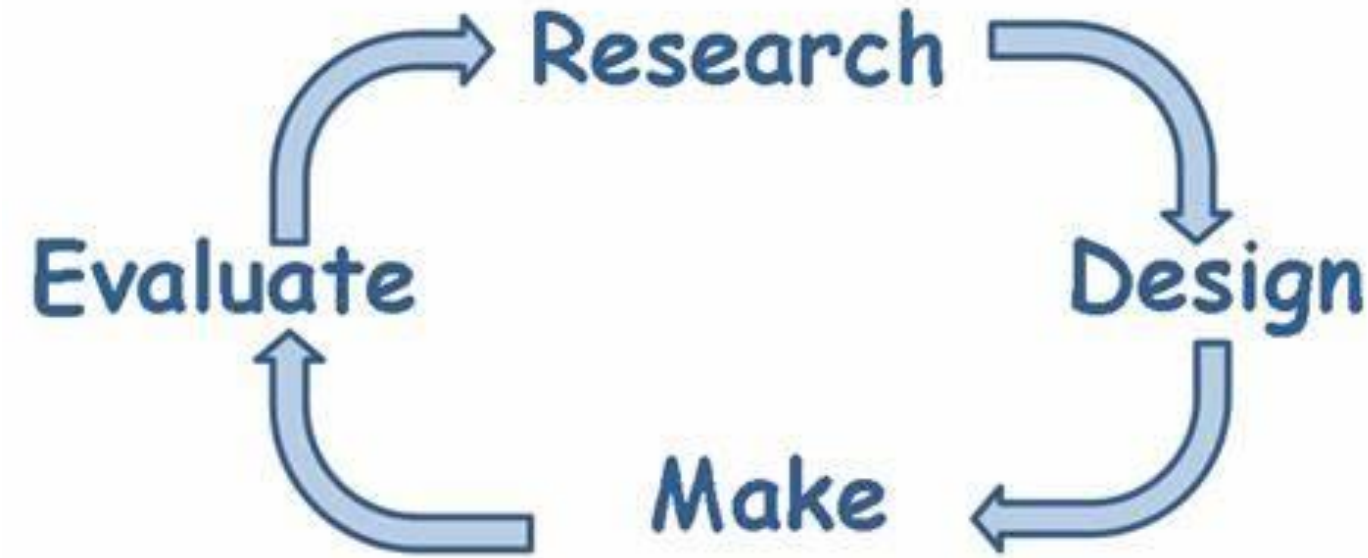
Curriculum
Design technology - Whole School



Curriculum
Design Technology - Intent

Intent:	"Technology makes possibilities. Design makes solutions." **John Maeda** Design and Technology prepares children to perform everyday tasks confidently and to deal with tomorrows rapidly changing, increasingly technological world. Our curriculum is designed for our children to build and apply knowledge, understanding and skills in order to design and make prototypes and products for a wide range of users. Through our Design Technology curriculum, we encourage children to become independent, creative problem solvers who work effectively as individuals and as part of a team. Our curriculum is designed to enable children to identify needs and to respond to them by developing a range of ideas. Through the study of Design and Technology, we combine practical skills with the ability to critique, evaluate and test ideas and products considering social and environmental issues, as well as function. At Victoria Road, we understand the importance of nutrition so in addition to designing and making functional and purposeful products we offer opportunities for our children to cook a variety of dishes that will develop their knowledge and understanding of what it means to eat a balanced diet.

Curriculum
Design Technology - Implementation

Implementation	Design Technology is taught in all year groups. Over the course of the year our children will engage in three units of work (to be delivered on a termly basis). Each year group will undertake a unit of work relating to nutrition which is designed to develop our children's understanding of where food comes from, the importance of a varied and healthy diet and how food is prepared. The teaching of Design Technology follows the National Curriculum. A clear rationale and skills progression has been mapped out for each year group to ensure progression year on year. Our curriculum design enables our pupils to make products that solve real and relevant problems within a variety of contexts. Through our plan, make and evaluate cycle our children learn to take risks, be reflective, innovative, enterprising, and resilient.

Curriculum
Design Technology - Impact

Impact	Children will understand the impact design technology has on their own lives and the world around them. Children will have the ability to manage risks to work safely and hygienically. Children will select tools and materials appropriate to the task. Children will demonstrate their knowledge and skills when using a range of tools. Children will apply skills and knowledge across other curriculum areas. Children will develop long lasting skills that can be used beyond school and into adulthood. Children will investigate existing designs and use them to inspire their own. Children will have the ability to carry out research and ask relevant questions to deepen their knowledge of the user. Children will adapt and change their work where necessary. Children will confidently discuss their products and the process involved in creating these. Children will critically evaluate and test their products to ensure they are fit for purpose.

Curriculum
Design Technology Rationale EYFS and KS1

EYFS	By the end of reception children will be able to safely use and explore a variety of materials, tools and techniques. With support, children will create simple products, thinking about its use and purpose.
Year 1	In Key stage 1 children will build on knowledge obtained in reception and will explore and use, wheels and axles. By the end of year 1 children should have a good understanding of where fruit and vegetables come from and they should understand the basic principles of a healthy and varied diet.
Year 2	In Year 2 children will continue to develop their knowledge of mechanisms and will begin to use sliders and levers in their products. Children will have a deeper understanding of how different types of mechanisms create different movements. When working with textiles, children will understand how simple products are made and will know that when making a 3D textile product this can be assembles using two identical fabric shapes. Children will also know that different methods can be used to join fabric pieces.

Curriculum
Design Technology Rationale LKS2

Year 3	In year 3 children will further develop their knowledge of textiles and will begin joing fabrics using basic stitching. Building on from KS1 children will develop their knowledge of structures further and will begin to construct a strong, stiff shell structure using their mathematics knowledge of nets. In year 3 children will show an increasing knowledge of how to use appropriate equipment/utensils to prepare and combine food.
Year 4	By the end of year 4, Children will have an increasing knowledge of where our food comes from. They will be able to say if food products are grown, reared or caught. Children will have a deeper understanding of what it means to eat a balanced diet and will be able to choose products effectively from each of the food groups. In Year 4 children will explore pneumatics and create their own moving monster using a pneumatic system. Using there science knowledge children will begin to create a product fit for purpose using an electrical system.

Curriculum
Design and Technology Rationale UKS2

Year 5	By the end of year 5 children will have further developed their knowledge of mechanisms – exploring the use of cams. Children will be able to produce a 3D textile product using a combination of fabrics. Children will understand how fabrics can be strengthened where appropriate to ensure their product is fit for purpose. When working with food, children will know how to use utensils and equipment, including heat sources to prepare and cook. In addition, children will have a greater understanding of where food comes from – exploring seasonality.
Year 6	In Year 6 children will strengthen their previous knowledge of structure and will demonstrate an understanding of how to strengthen, stiffen and reinforce 3D frameworks. They will develop their knowledge of food and nutrition and will show an understanding of what happens to our food before it is stocked in the supermarkets. Building on from the use of electrical systems in year 4 children will know how to control a product using a simple programme.

Curriculum Map
Whole School

	Autumn	Spring	Summer
Year 1	Vehicles (Wheels and Axles)	Freestanding Structure	Food & Nutrition (Fruit Salad)
Year 2	Textiles (Puppets)	Sliders and Levers (moving picture book)	Food & Nutrition (Salad)
Year 3/4	Moving Monsters – pneumatics	Food & Nutrition (Pizza)	Electrical systems – Torches
Year 4/5	Textiles - reusable shopping bags	Moving Toys – cam mechanism	Food and Nutrition (Quesadillas)
Year 6	Food & Nutrition (food from around the world)	Frame Structures - Bridges	Electrical Systems

Curriculum Map
End points - EYFS

Designing

To know how to make verbal plans.

To know how to visually represent their ideas.

Food and Nutrition	Structures	Mechanisms	Textiles
To know that fruits and vegetables are grown. To know the names of common food products. To know that different foods taste, smell and feel different. To know that fruits and vegetables are good for us. To know that is important to wash our hands before handling food. • .	• To know that different materials can be used to make a model.	To know how to use construction kits eg Kinects, Lego	• To know that different materials have different properties. • To know how to cut fabric and use this in their products

Evaluating

To know how to verbally evaluate their own products and others.

To know which part of their product they liked the best.

Curriculum Map
End points – Year 1

	Autumn term	Spring Term	Summer term
Design	To know how to follow a simple design criteria. To know how to use my own experiences and to participate in discussions that generate ideas. To know how to develop ideas through discussion and drawing (labelled). To know what the purpose of my product is and who I am making it for. To know how similar products have been made.		
Make	**<u>Mechanisms</u>** **To know how to make a moving mechanism with wheels** To know that there are different types of axles (moving and fixed)) To know that wheels can be used to make a product move.	**<u>Structures</u>** **To know how to make a free-standing structure.** To know that different structures are used for different purposes. To know that a stable structure is one which is firmly fixed and unlikely to change or move. To know that materials can be joined in different ways. To know that the shape of a structure affects its strength. To know that structures with wide, flat bases are the most stable.	**<u>Food and Nutrition</u>** **To know how to make a simple dish using fruits and/or vegetables.** To know the difference between fruits and vegetables. To know that fruits and vegetables grow in different ways. To know that we need a variety of foods in our diet. To know how to chop, peel and squeeze. I know how to prepare for cooking e.g., wash hands, put on apron and tie hair back.
Evaluate	To know how to use design criteria to evaluate product.		

Curriculum Map
End points – Year 2

	Autumn term	Spring Term	Summer term
Design	To know how to model my ideas using templates and mock ups. To know how my product can be used in the real world.		
Make	**Textiles** **To know how to make a simple textile product** To know how simple textile products are made. To know that when making a 3D textile product this can be assembled using two identical shapes. To know you can join fabrics using different techniques e.g. stitching, glue, stappling.	**Mechanisms** **To know how to make a moving picture** To know that mechanical systems create movement. To know to use split pins and hole punch to make a simple lever. To know how to make a slider.	**Food and Nutrition** **To know how to prepare a healthy dish safely and hygienically.** To know that a balanced diet includes eating foods from the five main food groups (carbohydrates, fruits and vegetables, protein, diary and food high in fat and sugar) To know how to find the nutritional information on food packaging. To know how to slice food safely using the bridge or claw grip. To know the importance of preparing and cooking food safely and hygienically, e.g., handwashing, cleaning up regularly and keep work surfaces clean.
Evaluate	To know how to evaluate the effectiveness of my product.		

Curriculum Map
End points – Year 3/4

	Autumn term	Spring Term	Summer term
Design	To know how to gather information about needs and wants and use this to develop design criteria with a particular individual user or group in mind.		
Make	**<u>Mechanisms</u>** **To know how to create a pneumatic system** To know that pneumatics use compressed air to create motion To know how to use a pneumatic system accurately	**<u>Food and Nutrition</u>** **To know how to adapt a recipe.** To know that foods provide health benefits (vitamins, minerals. Fibres) To know that food can be grown, reared, or caught. To Know that food can be fresh or processed. To know the five main food groups and that a balanced diet means eating food from each of these. To know how to safely use hot appliances e.g wearing oven gloves. To know how to prepare ingredients appropriately. To know how to adapt a recipe to suit my personal taste.	**<u>Electrical Systems</u>** **To know how to make a product using and electrical system** To know how to incorporate an electrical circuit into a product (including switches, bulbs and buzzers). To know how a range of different switches work - e.g. push switch, toggle switch.
Evaluate	I know how to explain how particular parts of my product work. I know how to investigate and analyse how existing products have been made. *I know how to use the views of others to improve my product.*		

Curriculum Map
End points – Year 4/5

	Autumn term	Spring Term	Summer term
Design	To develop ideas through the use of prototypes and pattern pieces. To know how to carry out a products analyse to look at the purpose of the product along with its strengths and weaknesses. To know how to generate, develop, model and communicate ideas through discussion, annotated sketches and cross-sectional designs. To know how to identify the design features that would appeal to the intended user. To know which materials are best suited to my product, taking into account their characteristics, properties and aesthetic qualities.		
Make	**<u>Textiles</u>** **To know how to make a textile product that is fit for purpose.** *To know how to use appropriate stitching to join textiles e.g. back stitch, running stitch.* *To Know how to choose and use fabrics and fastenings according to their function.* *To know how to thread a needle.* *To know why patterns and seam allowance are needed.* *To Know that a 3D product can be made from a combination of pattern pieces.* To know that fabrics can be strengthened, stiffened, and reinforced.	**<u>Mechanisms</u>** **To know how to make a moving toy using a cam Mechanism** To know that mechanical systems have an input and an output. I know how different types of cams can be used to produce different types of movement. To know how to use a range of tools accurately and safely (hacksaw, glue gun etc) To know how to measure components accurately.	**<u>Food and Nutrition</u>** **To know how to use a range of cooking skills to make a central American inspired dish.** To know how to identify nutritional difference between different products and recipes. To know about seasonality. To know what cross contamination means. To know that certain meats come from specific animals.
Evaluate	To know how to make continual refinements to your product. To know how to record evaluations in simple graphs and/or tables.		

Curriculum Map
End points – Year 6

	Autumn term	Spring Term	Summer term
Design	To know how to use more complex CAD to support the planning process. To know how to Investigate how innovative products are; how sustainable the materials in the products are and how much products cost to make.		
Make	**Food and Nutrition** **To know how to make several dishes using appropriate techniques.** To know that many countries have national dishes. To know that processed foods mean foods that have been put through multiple changes in a factory. To know what happens to certain foods before it appears on the supermarket shelves (farm to fork) To know what is meant by sustainable food.	**Structures** **To know how to make a stable structure that can support weight.** To know that there are different ways to reinforce a structure. To know that different materials have different properties and know how to select the most appropriate material for the given structure. To know that triangles can be used to support structures.	**Electrical Systems** **To know how to use a simple program to control and monitor an electrical system.** To know how electrical systems work. To know how to use an electrical system to control a product.
Evaluate	To know how to Critically evaluate the quality of the design, manufacture and fitness for purpose. To know how to analyse whether changes in configuration positively or negatively affect and existing product.		