

Shipbourne School Design and Technology Curriculum – using Cornerstones Curriculum Maestro

Purpose of Study

Design and Technology provides opportunities for pupils to develop their practical and logical capabilities, combining their designing and making skills with knowledge and understanding in order to create quality products. It develops pupils' skills and knowledge in design, structures, mechanisms, electrical control and a range of materials, including food. Design and Technology encourages children's creativity and encourages them to think about important issues.

Aims and Intent

Our Design and Technology Curriculum aims to ensure all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Our Design and Technology curriculum is designed to engage pupils in a broad range of knowledge, skills, and understanding, and prompts engagement in a wide variety of activities that are carefully linked to other curriculum areas. Pupils design and make products that solve real and relevant problems within a variety of contexts. Through evaluation of past and present Design and Technology, pupils progress through a range of learning opportunities, and develop a critical understanding of technology's impact on daily life and the wider world, thus leaving us prepared to shape their own future and make their own impact on the future that awaits them.

Programmes of Study and Implementation

All pupils access the Design and Technology curriculum at Shipbourne School. In the EYFS, as for Art and Design, children are encouraged to investigate different tools, materials and techniques, exploring how media can be combined to create different outcomes and develop a range of skills and techniques as they construct and share their creations, explaining the processes they have used. Children are given daily access to a range of creative opportunities and enjoy our carefully planned and well-resourced creative areas both indoors and out. Children are encouraged to create on both small and large scales and our outdoor environment supports this well.

Specific Design and Technology lessons occur either weekly or as Design Technology days, which give a longer period of time to work through a project without interruption. Curriculum Maestro knowledge rich companion projects are used to support planning, ensuring a spiral curriculum focused on the key elements of design, structures, mechanisms, electrical control and a range of materials, including food and associated healthy eating. All units start with exploration of existing designs before pupils move on to planning and innovating their own ideas ready to express them in a final piece at the end of the project. Pupils are supported to evaluate their work as they progress through the stages of the project, making adaptations and alterations as appropriate. Design and Technology is an excellent way to develop collaboration and often projects are completed as part of a partnership or with parental support during open classroom sessions.

Our curriculum begins in the Early Years where children will:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Share their creations, explaining the process they have used
- Make use of props and materials when role playing characters in narratives and stories
- Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases
- Use a range of small tools, including scissors, paint brushes and cutlery
- Begin to show accuracy and care when drawing

This will be achieved through:

- Exploring the learning environment, both inside and out
- Targeted activities to develop fine motor skills
- Mark making opportunities
- High quality resources being readily available
- Listening to stories and reading high quality picture books
- Role playing
- Skills-based learning

Key Stage 1

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

Key Stage 2

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

Enrichment, Visits and Visitors

Cross-curricular links are promoted to allow all children to deepen their understanding across the curriculum, including the use of design and technology and how it has impacted Britain and the wider world. Specific Design and Technology days and open classroom events are part of the school year and provide a chance for children to work in collaborative partnerships, groups and with parents to complete a project.

Topic Plan

2022 - 2023	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Tinley (R/1)	Shade and Shelter		Taxi		Chop, Slice and Mash	
Hampton (2/3)	Remarkable Recipes		Beach Hut		Cut, Stitch and Join	Push and Pull
Fairlawne (4/5/6)	Fresh Food, Good Food		Fancy and Functional Fabrics		Tomb Builders	

2023 - 2024	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Tinley (R/1)	Memory Boxes	Shoe Box Winter Habitat	Robots		Shade and Shelter	
Hampton (2/3)	Cook Well, Eat well		Making It Move		Greenhouse	
Fairlawne (4/5/6)	Moving Mechanisms		Eat the Seasons		Architecture	

2024 - 2025	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Tinley (R/1)	Space Vehicles		Shade and Shelter		Chop, Slice and Mash	
Hampton (2/3)	Remarkable Recipes		Beach Hut		Cut, Stitch and Join	Push and Pull
Fairlawne (4/5/6)	Food for Life		Engineer		Make Do and Mend	

2022 – 2023 Curriculum Coverage

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
EYFS	<p>Our curriculum begins in the Early Years where children will:</p> <ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function • Share their creations, explaining the process they have used • Make use of props and materials when role playing characters in narratives and stories • Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases • Use a range of small tools, including scissors, paint brushes and cutlery • Begin to show accuracy and care when drawing <p>This will be achieved through:</p> <ul style="list-style-type: none"> • Exploring the learning environment, both inside and out • Targeted activities to develop fine motor skills • Mark making opportunities • High quality resources being readily available • Listening to stories and reading high quality picture books • Role playing • Skills-based learning 					
Year R/1	<p>Shade and Shelter This project teaches children about the purpose of shelters and their materials. They name and describe shelters and design and make shelter prototypes. Children then design and build a play den as a group and evaluate their completed product.</p> <p>Investigating existing products; Designing and making shelters and dens; Prototypes; Safety rules; Materials</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Build structures, exploring how they can be made stronger, stiffer and more stable. • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Evaluate their ideas and products against design criteria. • Explore and evaluate a range of existing products. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 	<p>Taxi! This project teaches children about wheels, axles and chassis and how they work together to make a vehicle move.</p> <p>Mechanisms – wheels, axles and chassis</p>	<p>Chop, Slice and Mash This project teaches children about sources of food and the preparatory skills of peeling, tearing, slicing, chopping, mashing and grating. They use this knowledge and techniques to design and make a supermarket sandwich according to specific design criteria.</p> <p>Sources of food; Food preparation techniques; Hygiene rules; Designing and making salads and sandwiches</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Understand where food comes from. • Use the basic principles of a healthy and varied diet to prepare dishes. 			

2022- 2023 Curriculum Coverage

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 2 / 3	<p>Remarkable Recipes This project teaches children about sources of food and tools used for food preparation. They also discover why some foods are cooked and learn to read a simple recipe. The children choose and make a new school meal that fulfils specific design criteria.</p> <p>Sources of food; Kitchen tools; Reading recipes; Hygiene rules; Making a school meal</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Understand where food comes from. Use the basic principles of a healthy and varied diet to prepare dishes 		<p>Beach Hut This project teaches children about making and strengthening structures, including different ways of joining materials.</p> <p>Structures – strengthening and joining</p>		<p>Cut, Stitch and Join This project teaches children about fabric home products and the significant British brand Cath Kidston. They learn about sewing patterns and using a running stitch and embellishments before making a sewn bag tag.</p> <p>Everyday fabric products; Significant designer – Cath Kidston; Sewing patterns; Running stitch; Adding embellishments; Designing and making a bag tag</p>	<p>Push and Pull This project teaches children about three types of mechanism: sliders, levers and linkages. They make models of each mechanism before designing and making a greetings card with a moving part.</p> <p>Machines and mechanisms; Sliders, levers and linkages; Designing and making greetings cards with moving parts</p>
	<p>Pupils will:</p> <ul style="list-style-type: none"> Build structures, exploring how they can be made stronger, stiffer and more stable. Design purposeful, functional, appealing products for themselves and other users based on design criteria. Evaluate their ideas and products against design criteria. Explore and evaluate a range of existing products. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 					
Year 4/5/6	<p>Fresh Food, Good Food This project teaches children about food decay and preservation. They discover key inventions in food preservation and packaging, then make examples. The children prepare, package and evaluate a healthy snack.</p> <p>Food preservation techniques; Exploring food packaging; Prototypes; Designing, making and packaging healthy snacks</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Understand and apply the principles of a healthy and varied diet. Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. 		<p>Functional and Fancy Fabrics This project teaches children about home furnishings and the significant designer William Morris. They learn techniques for decorating fabric, including block printing, hemming and embroidery and use them to design and make a fabric sample.</p> <p>Fabrics; Design features; Significant designer – William Morris; Stitching a hem; Embellishment; Designing and making patterned and embellished fabrics</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. 		<p>Tomb Builders This project teaches children about simple machines, including wheels, axles, inclined planes, pulleys and levers, exploring how they helped ancient builders to lift and move heavy loads.</p> <p>Simple and compound machines</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages). Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. 	
	<p>Pupils will:</p> <ul style="list-style-type: none"> Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Investigate and analyse a range of existing products. Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Understand how key events and individuals in design and technology have helped shape the world. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 					

2023 – 2024 Curriculum Coverage

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
EYFS	<p>Our curriculum begins in the Early Years where children will:</p> <ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function • Share their creations, explaining the process they have used • Make use of props and materials when role playing characters in narratives and stories • Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases • Use a range of small tools, including scissors, paint brushes and cutlery • Begin to show accuracy and care when drawing <p>This will be achieved through:</p> <ul style="list-style-type: none"> • Exploring the learning environment, both inside and out • Targeted activities to develop fine motor skills • Mark making opportunities • High quality resources being readily available • Listening to stories and reading high quality picture books • Role playing • Skills-based learning 					
Year R/1	<p>Memory Boxes</p> <p>Making picnic foods; Celebration cards; Making a memory box</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Use the basic principles of a healthy and varied diet to prepare dishes. 	<p>Shoe Box Winter Habitat</p> <p>Creating with materials; Being imaginative and expressive</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Make use of props and materials when role playing characters in narratives and stories. • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Explore and create using a wide range of materials and components, including upcycled materials, construction kits, textiles and ingredients. 	<p>Robots</p> <p>Investigating existing products; Designing and making robots; Prototypes; Safety rules; Materials</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Build structures, exploring how they can be made stronger, stiffer and more stable. • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Evaluate their ideas and products against design criteria. • Explore and evaluate a range of existing products. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 	<p>Shade and Shelter</p> <p>This project teaches children about the purpose of shelters and their materials. They name and describe shelters and design and make shelter prototypes. Children then design and build a play den as a group and evaluate their completed product.</p> <p>Investigating existing products; Designing and making shelters and dens; Prototypes; Safety rules; Materials</p>		

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Year 2/3	<p>Cook Well, Eat Well This project teaches children about food groups and the Eatwell guide. They learn about methods of cooking and explore these by cooking potatoes and ratatouille. The children choose and make a taco filling according to specific design criteria.</p> <p>Food groups; Eatwell guide; Methods of cooking; Cooking appliances; Hygiene rules; Making taco fillings</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. • Understand and apply the principles of a healthy and varied diet. • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 		<p>Making It Move This project teaches children about cam mechanisms. They experiment with different shaped cams before designing, making and evaluating a child's automaton toy.</p> <p>Cam mechanisms; Designing and making automaton toys; Cutting, joining, strengthening and finishing</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages). 		<p>Greenhouse This project teaches children about the purpose, structure and design features of greenhouses, and compares the work of two significant greenhouse designers. They learn techniques to strengthen structures and use tools safely. They use their learning to design and construct a mini greenhouse.</p> <p>Features of greenhouses; Significant designers – Sir Joseph Paxton and Sir Nicholas Grimshaw; Strengthening techniques; Using tools and safety rules; Properties of materials; Constructing strong frameworks</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 	
	<p>Pupils will:</p> <ul style="list-style-type: none"> • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. • Investigate and analyse a range of existing products. • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. • Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately. • Understand how key events and individuals in design and technology have helped shape the world. • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. 					
Year 4/5/6	<p>Moving Mechanisms This project teaches children about pneumatic systems. They experiment with pneumatics before designing, making and evaluating a pneumatic machine that performs a useful function.</p> <p>Pneumatic systems; Joining and finishing; Iterative design process; Building pneumatic machine prototypes</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. • Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages). • Critique, evaluate and test their ideas and products and the work of others. 		<p>Eat the Seasons This project teaches children about the meaning and benefits of seasonal eating, including food preparation and cooking techniques.</p> <p>Cooking; Nutrition</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. • Understand and apply the principles of a healthy and varied diet. • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 		<p>Architecture This project teaches children about how architectural style and technology has developed over time and then use this knowledge to design a building with specific features.</p> <p>Architecture over time; Greek architecture; Structural support, stiffness and stability; Computer-aided design; Building design</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. • Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages). • Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. 	
	<p>Pupils will:</p> <ul style="list-style-type: none"> • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. • Investigate and analyse a range of existing products • Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. • Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately. 					

2024-2025 Curriculum Coverage

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Year R/1	<p>Space Vehicles This project teaches children about wheels, axles and chassis and how they work together to make a vehicle move.</p> <p>Mechanisms – wheels, axles and chassis</p>	<p>Taxi! This project teaches children about wheels, axles and chassis and how they work together to make a vehicle move.</p> <p>Mechanisms – wheels, axles and chassis</p>	<p>Chop, Slice and Mash This project teaches children about sources of food and the preparatory skills of peeling, tearing, slicing, chopping, mashing and grating. They use this knowledge and techniques to design and make a supermarket sandwich according to specific design criteria.</p> <p>Sources of food; Food preparation techniques; Hygiene rules; Designing and making salads and sandwiches</p> <p>Pupils will:</p> <ul style="list-style-type: none"> • Understand where food comes from. • Use the basic principles of a healthy and varied diet to prepare dishes. 	<p>Pupils will:</p> <ul style="list-style-type: none"> • Build structures, exploring how they can be made stronger, stiffer and more stable. • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Evaluate their ideas and products against design criteria. • Explore and evaluate a range of existing products. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. • Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. • Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 		

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Year 2 / Year 3	<p>Remarkable Recipes This project teaches children about sources of food and tools used for food preparation. They also discover why some foods are cooked and learn to read a simple recipe. The children choose and make a new school meal that fulfils specific design criteria.</p> <p>Sources of food; Kitchen tools; Reading recipes; Hygiene rules; Making a school meal</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Understand where food comes from. Use the basic principles of a healthy and varied diet to prepare dishes 		<p>Beach Hut This project teaches children about making and strengthening structures, including different ways of joining materials.</p> <p>Structures – strengthening and joining</p>		<p>Cut, Stitch and Join This project teaches children about fabric home products and the significant British brand Cath Kidston. They learn about sewing patterns and using a running stitch and embellishments before making a sewn bag tag.</p> <p>Everyday fabric products; Significant designer – Cath Kidston; Sewing patterns; Running stitch; Adding embellishments; Designing and making a bag tag</p>	<p>Push and Pull This project teaches children about three types of mechanism: sliders, levers and linkages. They make models of each mechanism before designing and making a greetings card with a moving part.</p> <p>Machines and mechanisms; Sliders, levers and linkages; Designing and making greetings cards with moving parts</p>	
	<p>Pupils will:</p> <ul style="list-style-type: none"> Build structures, exploring how they can be made stronger, stiffer and more stable. Design purposeful, functional, appealing products for themselves and other users based on design criteria. Evaluate their ideas and products against design criteria. Explore and evaluate a range of existing products. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing). Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. 						
Year 4/5/6	<p>Food for Life This project teaches children about processed food and healthy food choices. They make bread and pasta sauces and learn about the benefits of whole foods. They plan and make meals as part of a healthy daily menu and evaluate their completed products.</p> <p>Whole foods; Processed foods; Making healthy meals; Hygiene and safety</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Understand and apply the principles of a healthy and varied diet. Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 		<p>Engineer This project teaches children about remarkable engineers and significant bridges, learning to identify features, such as beams, arches and trusses. They complete a bridge-building engineering challenge to create a bridge prototype.</p> <p>Significant engineers and bridges; Features of bridges; Strengthening techniques; Iterative design; Building prototypes</p> <p>Pupils will:</p> <ul style="list-style-type: none"> Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Understand how key events and individuals in design and technology have helped shape the world. Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups 		<p>Make Do and Mend This project teaches children a range of simple sewing stitches, including ways of recycling and repurposing old clothes and materials.</p> <p>Investigating clothing; Sewing – running stitch, whip stitch and blanket stitch; Repairing clothes; Making products from recycled materials</p>		
	<p>Pupils will:</p> <ul style="list-style-type: none"> Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Investigate and analyse a range of existing products. Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately. 						