



# Cameley Church of England Primary School

## Design and Technology - Our Curriculum

2022/2023



DT

*'Nurturing Faith: Inspiring Learning'*

## Curriculum Intent for Design and Technology at Cameley CEVC Primary School



*"Good buildings come from good people and all problems are solved by good design" Gardiner*

As a result of learning DT in our school, we want our pupils to continue to be curious about and fascinated by how things work, and to know that they themselves can make and design things that can do things better.

Whilst we focus on the key skills intercut in the discipline, links with other learning are a strong feature of the curriculum design. We explicitly help them draw on their learning in maths, science, computing and art to help them complete a design brief and their learning in history is used as valuable sources of original practical design.

Our pupils progressively learn how to evaluate, modify and amend designs from their original ideas, and by using the ideas of others to create something better. The planned opportunities are linked and revisited overtime so that pupils come to understand increasingly complex concepts. They support the wider learning in social, moral and spiritual aspects in that they provide the opportunity to take risks and learn from mistakes. Using the real world situations for the contexts of their designs and talk as a basis for the activities pupils naturally develop their language of comparison, evaluation, explanation and opinion through a succession of tasks require them to present their products confidently to real audiences with purpose.

## Long Term Overview (Implementation)

Area	Foundation/EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			2022/2023		2022/2023		2022/2023
Autumn	Structures: Junk Modelling - Ocean Diorama	Structures: Castles	Textiles: Puppets and Pouches	Textiles: Cross-stitch and Applique - Egyptian Collars	Structures: Pavilions	Mechanisms: Pop-Up Book	Structures: Bridges
British Values	Mutual respect, equality, equity and solidarity						
Christian Values	Compassion (22/23) Perseverance (23/24)						
SMSC Links	Understanding and appreciating cultural capital, traditions, experiencing different buildings and exploring world cuisines,						
Spring	Food: African Stew	Mechanisms: Making a Moving Storybook	Cooking and Nutrition: A Balance Diet	Cooking and Nutrition: Eating Seasonally	Mechanisms: Making a Slingshot Car	Cooking and Nutrition: What Could be Healthier?	Electrical: Steady Hand Game.
British Values	Mental health and wellbeing, self-help and self-responsibility						
Christian Values	Forgiveness (22/23) Trust (23/24)						
SMSC Links	Understanding and appreciating cultural capital, traditions, experiencing different buildings and exploring world cuisines,						
Summer	Textiles: Bookmarks	Cooking and Nutrition: Fruit and Vegetables	Mechanisms: Wheels and Axles and Making a Moving Monster	Mechanisms: Pneumatic Toys	Electrical: Torches (Taught in Science) Food: Adapting a Recipe	Textiles: Stuffed Toys	Cooking and Nutrition: Come Dine with Me - Three Course Menus
British Value	Rule of law, equity and solidarity						
Christian Values	Respect (22/23) Thankfulness (23/24)						
SMSC Links	Understanding and appreciating cultural capital, traditions, experiencing different buildings and exploring world cuisines,						

## Progression of Skills

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms	Design		<p>Explaining how to adapt mechanisms, using bridges or guides to control the movement.</p> <p>Designing a moving story book for a given audience.</p>	<p>Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move.</p> <p>Creating clearly labelled drawings that illustrate movement.</p>	<p>Designing a toy which uses a pneumatic system.</p> <p>Developing design criteria from a design brief.</p> <p>Generating ideas using thumbnail sketches and exploded diagrams.</p> <p>Learning that different types of drawings are used in design to explain ideas clearly</p> <p>Use 3D CAD software</p>	<p>Designing a shape that reduces air resistance.</p> <p>Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design</p>	<p>Designing a pop-up book which uses a mixture of structures and mechanisms.</p> <p>Naming each mechanism, input and output accurately.</p> <p>Storyboarding ideas for a book.</p> <p>Use 3D CAD software</p>	
	Make		<p>Following a design to create moving models that use levers and sliders.</p>	<p>Adapting mechanisms, when:</p> <ul style="list-style-type: none"> <li>• they do not work as they should.</li> <li>• to fit their vehicle design.</li> <li>• to improve how they work after testing their vehicle</li> </ul>	<p>Creating a pneumatic system to create a desired motion.</p> <p>Building secure housing for a pneumatic system.</p> <p>Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy.</p> <p>Selecting materials due to their functional and aesthetic characteristics.</p> <p>Manipulating materials to create different effects by cutting, creasing, folding and weaving.</p>	<p>Measuring, marking, cutting and assembling with increasing accuracy.</p> <p>Making a model based on a chosen design.</p>	<p>Following a design brief to make a pop up book, neatly and with focus on accuracy.</p> <p>Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</p> <p>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</p>	

	<b>Evaluate</b>	<p>Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.</p> <p>Reviewing the success of a product by testing it with its intended audience.</p>	<p>Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.</p>	<p>Using the views of others to improve designs.</p> <p>Testing and modifying the outcome, suggesting improvements.</p> <p>Understanding the purpose of exploded diagrams through the eyes of a designer and their client.</p>	<p>Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</p>	<p>Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.</p>
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		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Structures</b>	<b>Design</b>	<p>Making verbal plans and material choices.</p> <p>Developing a junk model.</p>	<p>Learning the importance of a clear design criteria.</p> <p>Including individual preferences and requirements in a design.</p>			<p>Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.</p> <p>Building frame structures designed to support weight.</p>		<p>Designing a stable structure that is able to support weight.</p> <p>Creating a frame structure with a focus on triangulation</p>

Make	<p>Improving fine motor/scissor skills with a variety of materials.</p> <p>Joining materials in a variety of ways (temporary and permanent).</p> <p>Joining different materials together.</p> <p>Describing their junk model, and how they intend to put it together.</p>	<p>Making stable structures from card, tape and glue.</p> <p>Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the drawbridge using simple pulleys (mechanisms)</p>			<p>Creating a range of different shaped frame structures.</p> <p>Making a variety of free standing frame structures of different shapes and sizes.</p> <p>Selecting appropriate materials to build a strong structure and cladding.</p> <p>Reinforcing corners to strengthen a structure.</p> <p>Creating a design in accordance with a plan.</p> <p>Learning to create different textural effects with materials.</p>	<p>Making a range of different shaped beam bridges.</p> <p>Using triangles to create truss bridges that span a given distance and support a load.</p> <p>Building a wooden bridge structure.</p> <p>Independently measuring and marking wood accurately.</p> <p>Selecting appropriate tools and equipment for particular tasks.</p> <p>Using the correct techniques to saws safely.</p> <p>Identifying where a structure needs reinforcement and using card corners for support.</p> <p>Explaining why selecting appropriating materials is an important part of the design process.</p> <p>Understanding basic wood functional properties.</p>
Evaluate	<p>Giving a verbal evaluation of their own and others' junk models with adult support.</p> <p>Checking to see if their model matches their plan.</p> <p>Considering what they would do differently if they were to do it again.</p> <p>Describing their favourite and least favourite part of their model.</p>	<p>Evaluating a castle according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't.</p> <p>Suggest points for improvements.</p>			<p>Evaluating structures made by the class.</p> <p>Describing what characteristics of a design and construction made it the most effective.</p> <p>Considering effective and ineffective designs.</p>	<p>Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.</p> <p>Suggesting points for improvements for own bridges and those designed by others.</p>

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	Design	<p>Discussing what a good design needs.</p> <p>Designing a simple pattern with paper.</p> <p>Designing a bookmark.</p> <p>Choosing from available materials.</p>		<p>Using a template to create a design for a puppet.</p> <p>Designing a pouch.</p>	<p>Designing and making a template from an existing cushion and applying individual design criteria.</p>		<p>Designing a stuffed toy, considering the main component shapes required and creating an appropriate template.</p> <p>Considering the proportions of individual components.</p>	
	Make	<p>Developing fine motor/cutting skills with scissors.</p> <p>Exploring fine motor/threading and weaving (under, over technique) with a variety of materials.</p> <p>Using a prepared needle and wool to practise threading.</p>		<p>Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet.</p> <p>Sequencing steps for construction.</p> <p>Selecting and cutting fabrics for sewing.</p> <p>Decorating a pouch using fabric glue or running stitch.</p> <p>Threading a needle.</p> <p>Sewing running stitch, with evenly spaced, neat, even stitches to join fabric.</p> <p>Neatly pinning and cutting fabric using a template.</p>	<p>Following design criteria to create a cushion or Egyptian collar.</p> <p>Selecting and cutting fabrics with ease using fabric scissors.</p> <p>Threading needles with greater independence.</p> <p>Tying knots with greater independence.</p> <p>Sewing cross stitch to join fabric.</p> <p>Decorating fabric using appliqué.</p> <p>Completing design ideas with embellishing the collars based on design ideas (Egyptian collars).</p>		<p>Creating a 3D stuffed toy from a 2D design.</p> <p>Measuring, marking and cutting fabric accurately and independently.</p> <p>Creating strong and secure blanket stitches when joining fabric.</p> <p>Threading needles independently.</p> <p>Using appliqué to attach pieces of fabric decoration.</p> <p>Sewing blanket stitch to join fabric.</p> <p>Applying blanket stitch so the spaces between the stitches are even and regular.</p>	

Evaluate	Reflecting on a finished product and comparing to their design.		Reflecting on a finished product, explaining likes and dislikes.	Evaluating an end product and thinking of other ways in which to create similar items		Testing and evaluating an end product and giving point for further improvements.
	Troubleshooting scenarios posed by teacher.		Discussing as a class, the success of their stitching against the success criteria.			Identifying aspects of their peers' work that they particularly like and why.

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electrical	Design					Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.		Designing a steady hand game - identifying and naming the components required. Drawing a design from three different perspectives. Generating ideas through sketching and discussion. Modelling ideas through prototypes. Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.
	Make					Making a torch with a working electrical circuit and switch. Using appropriate equipment to cut and attach materials. Assembling a torch according to the design and success criteria.		Constructing a stable base for a game. Accurately cutting, folding and assembling a net. Decorating the base of the game to a high quality finish. Making and testing a circuit. Incorporating a circuit into a base.
	Evaluate					Evaluating electrical products. Testing and evaluating the success of a final product.		Testing own and others finished games, identifying what went well and making suggestions for improvement. Gathering images and information about existing children's toys. Analysing a selection of existing children's toys.

		EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cooking and Nutrition	Design	Designing a soup recipe as a class.  Designing soup packaging.	Designing smoothie carton packaging by-hand or on ICT software.	Designing a healthy wrap based on a food combination which work well together	Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.	Designing a biscuit within a given budget, drawing upon previous taste testing judgements.	Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients.  Writing an amended method for a recipe to incorporate the relevant changes to ingredients.  Designing appealing packaging to reflect a recipe	Writing a recipe, explaining the key steps, method and ingredients.  Including facts and drawings from research undertaken.
	Make	Chopping plasticine safely.  Chopping vegetables with support.	Chopping fruit and vegetables safely to make a smoothie.	Slicing food safely using the bridge or claw grip.  Constructing a wrap that meets a design brief.	Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination.  Following the instructions within a recipe	Following a baking recipe, from start to finish, including the preparation of ingredients.  Cooking safely, following basic hygiene rules.  Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).	Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe.	Following a recipe, including using the correct quantities of each ingredient.  Adapting a recipe based on research.  Working to a given timescale.  Working safely and hygienically with independence

	<b>Evaluate</b>	<p>Tasting the soup and giving opinions.</p> <p>Describing some of the following when tasting food: look, feel, smell and taste.</p> <p>Choosing their favourite packaging design and explaining why</p>	<p>Tasting and evaluating different food combinations.</p> <p>Describing appearance, smell and taste.</p> <p>Suggesting information to be included on packaging.</p>	<p>Describing the taste, texture and smell of fruit and vegetables.</p> <p>Taste testing food combinations and final products.</p> <p>Describing the information that should be included on a label.</p> <p>Evaluating which grip was most effective.</p>	<p>Establishing and using design criteria to help test and review dishes.</p> <p>Describing the benefits of seasonal fruits and vegetables and the impact on the environment.</p> <p>Suggesting points for improvement when making a seasonal tart.</p>	<p>Evaluating a recipe, considering: taste, smell, texture and appearance.</p> <p>Describing the impact of the budget on the selection of ingredients.</p> <p>Evaluating and comparing a range of food products.</p> <p>Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins).</p>	<p>Identifying the nutritional differences between different products and recipes.</p> <p>Identifying and describing healthy benefits of food groups.</p>	<p>Evaluating a recipe, considering: taste, smell, texture and origin of the food group.</p> <p>Taste testing and scoring final products.</p> <p>Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process.</p> <p>Evaluating health and safety in production to minimise cross contamination.</p>
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## Assessment in Design and Technology (Impact)

Our children will have a secure set of skills, knowledge, behaviours and Christian values to progress their education and prepare them for their future life.

During their next phase of learning we aspire for them to learn more, remember more, enjoy more and develop more spiritually, socially and emotionally.

Ongoing informal assessment takes place in every lesson against the assessment criteria we have developed at Cameley. More formal tasks can be used to inform and support planning and areas for further support. Additionally, Point of Progress tasks (see below) are used at the end of each topic against assessment criteria. We work with in a cluster of Church schools in our MAT to moderate our judgments externally as well as carrying out internal moderation.

Area	Foundation/EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
			2022/2023		2022/2023		2022/2023
Autumn	Structures: Junk Modelling Ocean Diorama	Structures: Castles Crossing the Drawbridge	Textiles: Puppets and Pouches Making pouches	Textiles: Cross-stitch and Applique Egyptian Collars	Structures: Pavilions Class EXPO	Mechanisms: Pop-Up Book My Illustrated Book	Structures: Bridges Wooden Truss Bridge
Spring	Food - African Stew Making Stew	Mechanisms: Making a Moving Storybook My Story	Cooking and Nutrition: A Balance Diet Wraps	Cooking and Nutrition: Eating Seasonally Tarts	Mechanisms: Making a Slingshot Car Car Race	Cooking and Nutrition: What Could Be Healthier? Spaghetti Bolognese	Electrical: Steady Hand Game Ready, steady, go!
Summer	Textiles: Bookmarks My bookmark	Cooking and Nutrition: Fruit and Vegetables Smoothies	Mechanisms: Wheels and Axles and Making a Moving Monster Moving Monsters	Mechanisms: Pneumatic Toys My Pneumatic Toy	Electrical: Torches (Taught in Science)  Food: Adapting a Recipe Biscuit Bake Off	Textiles: Stuffed Toys My Stuffed Toy	Cooking and Nutrition: Come Dine with Me - Three Course Menus Come Dine with Me