



# Design and Technology Subject Leader File



## **Intent**

At Culgaith, we believe

Our curriculum map is structured through a sequence of units of work over two years, which link to our half termly topics, which allows and ensures there are opportunities to experience and develop a structured progression of skills and knowledge that builds upon children's prior learning and experiences. Each year, children will learn about a variety of artists and the artist will underpin the style of art the children will study.

## Aims:

The national curriculum for design and technology aims to ensure that 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

## **Implementation**

This is implemented through:

- A well thought out, whole school, yearly overview of the DT curriculum which allows for progression across year groups in all areas of DT (textiles, mechanisms, structures, food and electrical systems)
- Well planned and resourced projects providing children with a hands-on and enriching experience
- A range of skills being taught ensuring that children are aware of health and safety issues related to the tasks undertaken
- Teachers being given ownership and flexibility to plan for Design and Technology; often teaching DT as a block of lessons to allow the development of skills and engagement with topic.

## **Impact**

The impact of our plans is that children at Culgaith School will develop a love of Design and Technology. From having a hands-on, enriching approach to this subject children in year 6 will have gained skills that will continue building and developing as life-long learners. The study of design and technology is evident and visual throughout the school; in children's sketch books, displays and models they have made in class. Impact can also be measured through the progression children have made through the school.

**KS1 Long Term Plan and Topic Overview**

<b>D.T</b>	A 2023/2024	B 2024/2025	C 2021/2022	D 2022/2023
Autumn	<b>All about me Great Britain</b>  Food and Nutrition – What is a healthy diet?	<b>Polar Explorers extreme environments</b>  Textiles	<b>Transport - journey around the world</b>  Construction and Mechanism – vehicles	<b>Ourselves/ Local Study</b>  Food and Nutrition
Spring	<b>Famous People / Famous explorers</b>  Textiles – making puppets of famous people	<b>The Great Fire of London / London</b>  Construction	<b>People who help us (Florence Nightingale) Traditional Tales</b>  Food and Nutrition – What is a healthy diet? Linked to meals from traditional tales	<b>Space Around the world</b>  Construction
Summer	<b>Toys in the past/ toys from around the world</b>  Construction and mechanism – design and make a toy	<b>Dinosaurs - continents and oceans</b>  Food and Nutrition – Where does food come from?	<b>Farming Victorians</b>  Textiles and Construction – Victorian Toys Eg peg dolls	<b>Seaside</b>  Textiles – weaving / patterns

**KS2 Long Term Plan and Topic Overview**

<b>D&amp;T</b>	A 2021/2022	B 2022/2023	C 2023/2024	D 2024/2025
Autumn	Egyptians + Biomes Black History Month  Design fit for purpose	Stone and Iron Age  volcanoes and earthquakes  Construction / Electrical Systems	Greek  European Geography  Design fit for purpose - product - woodwork	Mayans + South America  Design and construction
Spring Residential	Normans  Europe  Food and Nutrition - healthy diet and cooking	Romans / Fairtrade - global literacy  Local residential  Mapping the local area	Africa - Fairtrade/farming  Food and Nutrition - healthy diet / cooking	Anglo Saxons and celts  Outward bound  Circuits and electrical systems

		Design fit for a purpose - product and packaging? Local produce?		
Summer	Tudors Greenwich Meridian and Timezones Circuits and electrical systems	The Lake District Wainwright, mountains Food and Nutrition - seasonal foods and cooking	Vikings Oceans and coasts Construction / Circuits and electrical systems	Border Reivers The Eden Valley and rivers Food and Nutrition - seasonal foods and cooking

## EYFS: Expressive Arts and Designs

Effective teaching and learning are:

- playing and exploring - children investigate and experience things, and 'have a go'
- active learning - children concentrate and keep on trying if they encounter difficulties, and enjoy achievements
- creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things

### Self Expression, main links to D&T:

- Exploring materials helps children to express themselves and communicate their thoughts, actions and ideas in many different ways.
- A good range of quality materials will help children develop their creativity.
- You can use found materials as well as more traditional bought art materials.
- Children's interaction and exploration with materials supports their wider knowledge and understanding of the world around them.

### Progression of skills in design and technology for EYFS, KS1 and KS2

<b>National Curriculum Reference for KS1</b>	<b><u>Design</u></b>	<b><u>Make</u></b>	<b><u>Evaluate</u></b>	<b><u>Technical Knowledge</u></b>	<b><u>Cooking and Nutrition</u></b>
<b>EYFS</b>	<ul style="list-style-type: none"> <li>-Begin to use the language of designing and making, e.g. join, build and shape.</li> <li>-Learning about planning and adapting initial ideas to make them better.</li> </ul>	<ul style="list-style-type: none"> <li>-To learn to construct with a purpose in mind.</li> <li>-Selects tools and techniques needed to shape, assemble and join materials.</li> </ul>	<ul style="list-style-type: none"> <li>-Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method.</li> </ul>	<ul style="list-style-type: none"> <li>-To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters.</li> <li>-Learn how everyday objects work by dismantling things.</li> </ul>	<ul style="list-style-type: none"> <li>-To begin to understand some of the tools, techniques and processes involved in food preparation.</li> <li>-Children have basic hygiene awareness.</li> </ul>
<b>KS1</b>	<ul style="list-style-type: none"> <li>-Generate ideas by drawing on their own experiences.</li> <li>-Describe what their products are for.</li> <li>-Say how their products will work.</li> <li>-Use knowledge of existing products to come up with ideas.</li> <li>-Model ideas by exploring materials, components and construction kits.</li> </ul>	<ul style="list-style-type: none"> <li>-Start to choose their tools and equipment, explaining their choices.</li> <li>-Select from a range of materials according to characteristics.</li> <li>-Measure, mark-out, cut and shape materials.</li> <li>-Assemble, join and combine materials.</li> </ul>	<ul style="list-style-type: none"> <li>-Make simple judgements about their products and designs and suggest how their products could be improved.</li> <li>-Evaluate what they like and dislike about existing products.</li> <li>-Describe where (their) products might be used.</li> </ul>	<ul style="list-style-type: none"> <li>-Know about the movement of simple mechanisms, such as levers, sliders, wheels and axles.</li> <li>-How to make freestanding structures stronger, stiffer and more stable.</li> <li>-To know the correct technical vocabulary for the project they are working on.</li> </ul>	<ul style="list-style-type: none"> <li>-Know that all food comes from plants and animals.</li> <li>-Food has to be farmed, grown (elsewhere) or caught.</li> <li>-Know how to name and sort foods into 5 groups in The Eat Well plate.</li> <li>-How to prepare simple cold dishes safely and hygienically.</li> <li>-Use techniques such as, cutting, peeling and grating.</li> </ul>

National Curriculum Reference for KS2	<u>Design</u>	<u>Make</u>	<u>Evaluate</u>	<u>Technical Knowledge</u>	<u>Cooking and Nutrition</u>
<b>Lower KS2</b>	<ul style="list-style-type: none"> <li>-To describe the purpose of their products.</li> <li>-To indicate design features of their products and explain how particular part of their products work.</li> <li>-Develop own design criteria and use these to inform their ideas.</li> <li>-Model their ideas through: prototypes, sketches and CAD.</li> <li>-Develop realistic ideas with a clear purpose or person in mind.</li> </ul>	<ul style="list-style-type: none"> <li>-Select tools and equipment, explaining their choices for use.</li> <li>-Select materials and components suitable for task.</li> <li>-Explain their choice of materials and components according functional properties and aesthetic qualities.</li> <li>-Measure, mark-out, cut and shape materials with some accuracy.</li> <li>-Assemble, join and combine materials with some accuracy.</li> <li>-Start to apply finishing techniques.</li> </ul>	<ul style="list-style-type: none"> <li>-Refer to their design criteria as they design and make.</li> <li>-Use their design criteria to evaluate their completed products.</li> <li>-Evaluate existing designs looking at: how well it was made, why materials were chosen etc.</li> <li>-Whether products can be recycled and reused.</li> <li>-To know about key inventors and designers.</li> </ul>	<ul style="list-style-type: none"> <li>-How mechanical systems such as levers and linkages or pneumatic systems create movement.</li> <li>-How simple electrical circuits and components can be used to create functional products.</li> <li>-To learn how to program a computer to control their products.</li> <li>-How to make strong, stiff shell structures.</li> </ul>	<ul style="list-style-type: none"> <li>-That food is grown, reared and caught in the UK, Europe and the wider world.</li> <li>-How to prepare and cook a variety of savoury foods safely and hygienically including, where appropriate, the use of a heat source.</li> <li>-To use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</li> <li>-To know that a healthy diet is made up from a variety and balance of different food and drinks.</li> </ul>
<b>Upper KS2</b>	<ul style="list-style-type: none"> <li>-Carry out research, using surveys, interviews, questionnaires and web-based resources.</li> <li>-Identify the needs, wants, preferences and values of particular individuals and groups.</li> <li>-Develop a simple design specification to guide their thinking.</li> <li>-Generate innovative ideas, drawing on research.</li> <li>Make design decisions, taking account of constraints such as time, resources and cost.</li> </ul>	<ul style="list-style-type: none"> <li>-Produce appropriate lists of tools, equipment and materials that they need.</li> <li>-Formulate step-by-step plans as a guide to making.</li> <li>-Accurately measure, mark-out, cut and shape materials and components.</li> <li>-Accurately assemble, join and combine materials and components.</li> <li>-Accurately apply a range of finishing techniques.</li> <li>-Use techniques that involve a number of steps.</li> <li>-Demonstrate resourcefulness tackling practical problems.</li> </ul>	<ul style="list-style-type: none"> <li>-Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.</li> <li>-Evaluate their ideas and products against their original design specification.</li> <li>-Investigate and analyse how much products cost to make, how innovative products are, how sustainable the materials in products are and what impact the products have beyond their intended purpose.</li> <li>-To know more about key inventors, designers, engineers, chefs and manufacturers.</li> </ul>	<ul style="list-style-type: none"> <li>-How mechanical systems such as cams or pulleys or gears create movement.</li> <li>-How more complex electrical circuits and components can be used to create functional products.</li> <li>-How to program a computer to monitor changes in the environment and control their products.</li> <li>-How to reinforce and strengthen a 3D framework.</li> </ul>	<ul style="list-style-type: none"> <li>-That seasons may affect the food available.</li> <li>-How food is processed into ingredients that can be eaten or used in cooking.</li> <li>-To know that recipes can be adapted to change the appearance, taste, texture and aroma.</li> <li>To know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</li> </ul>

**Curriculum Map**

<b>KS 1</b>	<b>All about me Great Britain</b>	<b>Famous people</b>	<b>Toys in the past</b>	<b>The Great Fire of London</b>	<b>Polar Explorers</b>	<b>Dinosaurs</b>	<b>Transport and travel</b>	<b>People who help us/ Florence Nightingale</b>	<b>Farming/Victorians</b>
design purposeful, functional, appealing products for themselves and other users based on design criteria			X		X		X		
generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology			X		X		X		
select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]	X			X			X		X
select from and use a wide range of materials and components, including construction materials, according to their characteristics	X		X	X			X		X
select from and use a wide range of textiles according to their characteristics		X			X			X	
select from and use a wide range of ingredients, according to their characteristics	X					X			X
explore and evaluate a range of existing products	X	X	X	X	X	X	X	X	X
evaluate their ideas and products against design criteria	X	X	X	X	X	X	X	X	X
build structures, exploring how they can be made stronger, stiffer and more stable		X				X		X	
explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.			X	X			X		X

<b>KS 2</b>	<b><u>Egyptians/ Black History Month</u></b>	<b><u>Normans</u></b>	<b><u>Tudors</u></b>	<b><u>Stone age/Iron age</u></b>	<b><u>Romans</u></b>	<b><u>The Lake District/Wainwright Fairtrade</u></b>	<b><u>Greeks</u></b>	<b><u>Africa</u></b>	<b><u>Vikings</u></b>	<b><u>Mayans</u></b>	<b><u>Anglo Saxons/ Celts</u></b>	<b><u>Border Reivers</u></b>
• 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;	X			X	X		X					
• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	X	X	X	X	X	X	X	X	X	X	X	X
• select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately;	X			X	X		X		X	X		
• 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.		X				X		X				X
• investigate and analyse a range of existing products;	X	X	X	X	X	X	X	X	X	X	X	X
• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;	X	X	X	X	X	X	X	X	X	X	X	X
• understand how key events and individuals in design and technology have helped shape the world.		X		X	X		X		X	X	X	
• apply their understanding of how to strengthen, stiffen and reinforce more complex structures;			X	X					X		X	
• understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages];	X			X			X			X		
• understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors];			X	X				X			X	
• apply their understanding of computing to program, monitor and control their products.			X						X			
• understand and apply the principles of a healthy and varied diet;		X				X		X				X
• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;		X				X		X				X

• understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.		X				X		X				X

**Vocabulary Progression Map**

DESIGN TECHNOLOGY: VOCABULARY MAP								
	Design and Develop	Making		Product	Evaluation			
EYFS	<ul style="list-style-type: none"> <li>Plan</li> <li>Draw</li> <li>Ideas</li> <li>Design</li> </ul>	<ul style="list-style-type: none"> <li>Make</li> <li>Build</li> <li>Combine</li> </ul>	<ul style="list-style-type: none"> <li>Join</li> <li>Shape</li> <li>Tools</li> </ul>	<ul style="list-style-type: none"> <li>Complete</li> <li>Product</li> <li>Final</li> </ul>	<ul style="list-style-type: none"> <li>Change</li> <li>Like</li> <li>Dislike</li> <li>Next time</li> </ul>	<ul style="list-style-type: none"> <li>Better</li> <li>Worse</li> <li>Different</li> <li>Instead</li> </ul>		
DESIGN TECHNOLOGY: VOCABULARY MAP								
	Design	Technical Knowledge & Making			Cooking and Nutrition	Evaluate		
KS1	<ul style="list-style-type: none"> <li>Plan</li> <li>Prepare</li> <li>Design</li> <li>Materials</li> <li>Ideas</li> <li>Use</li> <li>Model</li> <li>Development</li> <li>Market Research</li> <li>Survey</li> <li>Template</li> </ul>	<ul style="list-style-type: none"> <li>Fast</li> <li>Slow</li> <li>Faster</li> <li>Slower</li> <li>Up</li> <li>Down</li> <li>Turn</li> <li>Wind up</li> <li>Design</li> <li>Draw</li> <li>Sketch</li> <li>Tools</li> </ul>	<ul style="list-style-type: none"> <li>Fix</li> <li>Glue</li> <li>Attach</li> <li>Features</li> <li>Brick</li> <li>Wood</li> <li>Stone</li> <li>Cloth</li> <li>Metal</li> <li>Foam</li> <li>Felt</li> <li>Paper</li> </ul>	<ul style="list-style-type: none"> <li>Tissue</li> <li>Newspaper</li> <li>Cardboard</li> <li>String</li> <li>Wool</li> <li>Clay</li> <li>Scissors</li> <li>Glue</li> <li>Tape</li> <li>Cut</li> <li>Stick</li> <li>Decorate</li> </ul>	<ul style="list-style-type: none"> <li>Healthy</li> <li>Unhealthy</li> <li>Source</li> <li>Fruit</li> <li>Vegetables</li> <li>Clean</li> <li>Safe</li> <li>Dirty</li> </ul>	<ul style="list-style-type: none"> <li>Unsafe</li> <li>Amount</li> <li>Ingredients</li> <li>Recipe</li> <li>Weight</li> <li>Nutrients</li> <li>Vegetarian</li> <li>Dietary requirements</li> </ul>	<ul style="list-style-type: none"> <li>Change</li> <li>Improve</li> <li>Prefer</li> <li>Useful</li> <li>Unsuccessful</li> <li>Future</li> <li>Progress</li> <li>modify</li> </ul>	<ul style="list-style-type: none"> <li>Alter</li> <li>Adapt</li> <li>Original</li> <li>Finished article</li> <li>Evaluate</li> <li>Graphics</li> </ul>
KS2	<ul style="list-style-type: none"> <li>Plan</li> <li>Organise</li> <li>Prototype</li> <li>Initial ideas</li> <li>Criteria</li> <li>Diagrams</li> <li>Labels</li> <li>Annotate</li> <li>Brief</li> </ul>	<ul style="list-style-type: none"> <li>Product</li> <li>Consumer</li> <li>Customer</li> <li>Target audience</li> <li>Purpose</li> <li>Application</li> <li>Constraints</li> <li>Client</li> </ul>	<ul style="list-style-type: none"> <li>Materials</li> <li>Mould</li> <li>Liquid</li> <li>Solid</li> <li>Form</li> <li>Shape</li> <li>Adhesive</li> <li>Lattice</li> </ul>	<ul style="list-style-type: none"> <li>Mass-produce</li> <li>Hand-made</li> <li>Packaging</li> <li>Presentation</li> <li>Machine made</li> <li>Dimensions</li> <li>Durable</li> </ul>	<ul style="list-style-type: none"> <li>Healthy</li> <li>Unhealthy</li> <li>Balanced</li> <li>Vitamins</li> <li>Disease</li> <li>Nutrition</li> <li>Healthy eating</li> <li>Hygiene</li> <li>Diet</li> </ul>	<ul style="list-style-type: none"> <li>Cross contamination</li> <li>Grams</li> <li>Storage</li> <li>Presentation</li> <li>Taste</li> <li>Texture</li> <li>Flavour</li> <li>Disinfect</li> <li>Bacteria</li> </ul>	<ul style="list-style-type: none"> <li>Assess</li> <li>Edit</li> <li>Improve</li> <li>Alter</li> <li>Outcome</li> <li>Develop</li> <li>Test</li> <li>Analyse</li> </ul>	<ul style="list-style-type: none"> <li>Effective</li> <li>Fit for purpose</li> <li>Design criteria</li> <li>Alternatives</li> <li>Models</li> <li>Quality</li> <li>Function</li> <li>Functionality</li> </ul>