

# Design Technology



Design and technology is a creative, rigorous and practical subject.

Using their creativity and imagination, and through discussion, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.

In Design Technology, pupils draw on disciplines including mathematics, science, engineering, computing and art. Pupils learn how to become resourceful, innovative and enterprising.

Our Intent, Implementation and Impact statement for Design & Technology, our Medium Term Planning, our Policy, plus some 'D&T in Action Case Studies', are here: [www.grangetown.sunderland.sch.uk/Design-Technology/](http://www.grangetown.sunderland.sch.uk/Design-Technology/)

## Design Technology Curriculum Map – Key Stages 1 & 2



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1		Exploring Mechanisms		Food Technology		Moving Mechanisms
Year 2		Mechanisms – Structures		Textiles		Food Technology
Year 3	Textiles			Mechanisms – Pneumatic Systems		Food Technology
Year 4		Food Technology		Mechanisms and Electrical Components		Textiles
Year 5		Mechanisms – Structures		Mechanisms – Pop Up Books		Food Technology
Year 6	Mechanisms and Electrical Systems		Market Research and Textiles		Food Technology	

## DT: Key Stage 1

		Designing	Making	Evaluating	Technical Knowledge	Food Technology
		<ul style="list-style-type: none"> <li>Design - purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</li> </ul>	<ul style="list-style-type: none"> <li>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</li> <li>components, including construction materials, textiles and ingredients, according to their characteristics</li> </ul>	<ul style="list-style-type: none"> <li>explore and evaluate a range of existing products</li> <li>evaluate their ideas and products against design criteria</li> </ul>	<ul style="list-style-type: none"> <li>build structures, exploring how they can be made stronger, stiffer and more stable</li> <li>explore and use mechanisms - for example, levers, sliders, wheels and axles], in their products.</li> </ul>	<ul style="list-style-type: none"> <li>use the basic principles of a healthy and varied diet to prepare dishes</li> <li>understand where food comes from</li> </ul>
<b>Year 1</b>	<ul style="list-style-type: none"> <li>use own ideas to design something and describe how their own idea works</li> <li>design a product which moves</li> <li>explain to someone else how they want to make their product and make a simple plan before making</li> </ul>	<ul style="list-style-type: none"> <li>use own ideas to make something</li> <li>make a product which moves</li> <li>choose appropriate resources and tools for a specific task and use them appropriately and safely</li> </ul>	<ul style="list-style-type: none"> <li>describe how something works</li> <li>explain what went well with their work</li> </ul>	<ul style="list-style-type: none"> <li>experiment with how to make own model stronger</li> </ul>	<ul style="list-style-type: none"> <li>Cut food safely</li> <li>Describe the texture of food</li> <li>Know how to wash own hands and make sure surfaces are clean</li> </ul>	
<b>Year 2</b>	<ul style="list-style-type: none"> <li>think of an idea and plan what to do next</li> <li>explain why they have chosen specific textiles</li> </ul>	<ul style="list-style-type: none"> <li>choose tools and materials and explain why they have chosen them</li> <li>join materials and components in different ways</li> <li>measure materials to use in a model or structure</li> </ul>	<ul style="list-style-type: none"> <li>explain what works well and not so well in the model they have made</li> <li>Suggest improvements to their own work and that of others</li> </ul>	<ul style="list-style-type: none"> <li>Use joining, folding or rolling to make it stronger and more stable</li> <li>Incorporate some type of movement into models</li> </ul>	<ul style="list-style-type: none"> <li>Weigh ingredients to use in a recipe</li> <li>Describe the ingredients used when making a dish or cake</li> <li>Can they explain what it means to be hygienic? Are they hygienic in the kitchen?</li> </ul>	

## DT: Lower Key Stage 2

		Designing	Making	Evaluating	Technical Knowledge	Food Technology
		<ul style="list-style-type: none"> <li>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.</li> <li>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul>	<ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks - for example, cutting, shaping, joining and finishing.</li> <li>accurately select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li> </ul>	<ul style="list-style-type: none"> <li>investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>understand how key events and individuals in design and technology have helped shape the world</li> </ul>	<ul style="list-style-type: none"> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use mechanical systems in their products - for example, gears, pulleys, cams, levers and linkages</li> <li>understand and use electrical systems in their products - for example series circuits incorporating switches, bulbs, buzzers and motors</li> <li>apply their understanding of computing to program, monitor and control their products.</li> </ul>	<ul style="list-style-type: none"> <li>understand and apply the principles of a healthy and varied diet</li> <li>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed</li> </ul>
<b>Year 3</b>	<ul style="list-style-type: none"> <li>Prove that a design meets a set criteria.</li> <li>design a product and make sure that it looks attractive</li> <li>choose a material for both its suitability and its appearance</li> </ul>	<ul style="list-style-type: none"> <li>follow a step-by-step plan, choosing the right equipment and materials</li> <li>select the most appropriate tools and techniques for a given task</li> <li>work accurately to measure, make cuts and make holes</li> <li>Use a number of components</li> <li>Join textiles of different types in different ways</li> <li>Choose textiles both for their appearance and also qualities</li> </ul>	<ul style="list-style-type: none"> <li>explain how to improve a finished model</li> <li>know why a model has, or has not, been successful</li> </ul>	<ul style="list-style-type: none"> <li>know how to strengthen a product by stiffening a given part or reinforce a part of the structure</li> <li>use a simple IT program within the design</li> </ul>	<ul style="list-style-type: none"> <li>describe how food ingredients come together</li> <li>weigh out ingredients and follow a given recipe to create a dish</li> <li>talk about which food is healthy and which food is not</li> <li>know when food is ready for harvesting</li> </ul>	
<b>Year 4</b>	<ul style="list-style-type: none"> <li>use ideas from other people when designing</li> <li>produce a plan and explain it</li> <li>persevere and adapt work when original ideas do not work</li> <li>communicate ideas in a range of ways, including by sketches and drawings which are annotated</li> </ul>	<ul style="list-style-type: none"> <li>know which tools to use for a particular task and show knowledge of handling the tool</li> <li>know which material is likely to give the best outcome</li> <li>measure accurately</li> <li>make a product which uses both electrical (simple circuit) and mechanical components</li> <li>Think what the user would want when choosing textiles</li> </ul>	<ul style="list-style-type: none"> <li>evaluate and suggest improvements for design</li> <li>evaluate products for both their purpose and appearance</li> <li>explain how the original design has been improved</li> <li>present a product in an interesting way</li> </ul>	<ul style="list-style-type: none"> <li>links scientific knowledge by using lights, switches or buzzers</li> <li>use electrical systems to enhance the quality of the product</li> <li>use IT, where appropriate, to add to the quality of the product</li> </ul>	<ul style="list-style-type: none"> <li>know how to be both hygienic and safe when using food</li> <li>bring a creative element to the food product being designed</li> </ul>	

## DT: Upper Key Stage 2

		Designing	Making	Evaluating	Technical Knowledge	Food Technology
		<ul style="list-style-type: none"> <li>• 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.</li> <li>• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul>	<ul style="list-style-type: none"> <li>• select from and use a wider range of tools and equipment to perform practical tasks - for example, cutting, shaping, joining and finishing.</li> <li>• accurately select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li> </ul>	<ul style="list-style-type: none"> <li>• investigate and analyse a range of existing products</li> <li>• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>• understand how key events and individuals in design and technology have helped shape the world</li> </ul>	<ul style="list-style-type: none"> <li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>• understand and use mechanical systems in their products - for example, gears, pulleys, cams, levers and linkages</li> <li>• understand and use electrical systems in their products - for example series circuits incorporating switches, bulbs, buzzers and motors</li> <li>• apply their understanding of computing to program, monitor and control their products.</li> </ul>	<ul style="list-style-type: none"> <li>• understand and apply the principles of a healthy and varied diet</li> <li>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• come up with a range of ideas after collecting information from different sources</li> <li>• produce a detailed, step-by-step plan</li> <li>• explain how a product will appeal to a specific audience</li> <li>• design a product that requires pulleys or gears</li> </ul>	<ul style="list-style-type: none"> <li>• use a range of tools and equipment competently</li> <li>• make a prototype before</li> <li>• making a final version</li> <li>• make a product that relies on pulleys or gears</li> </ul>	<ul style="list-style-type: none"> <li>• suggest alternative plans; outlining the positive features and draw backs</li> <li>• evaluate appearance and function against original criteria</li> </ul>	<ul style="list-style-type: none"> <li>• links scientific knowledge to design by using pulleys or gears</li> <li>• uses more complex IT program to help enhance the quality of the product produced</li> </ul>	<ul style="list-style-type: none"> <li>• be both hygienic and safe in the kitchen</li> <li>• know how to prepare a meal by collecting the ingredients in the first place</li> <li>• know which season various foods are available for harvesting</li> </ul>	
Year 6	<ul style="list-style-type: none"> <li>• use market research to inform plans and ideas.</li> <li>• follow and refine original plans</li> <li>• justify planning in a convincing way</li> <li>• show that culture and society is considered in plans and designs</li> </ul>	<ul style="list-style-type: none"> <li>• know which tool to use for a specific practical task</li> <li>• know how to use any tool correctly and safely</li> <li>• know what each tool is used for</li> <li>• explain why a specific tool is best for a specific action</li> <li>• hide joints so as to improve the look of their product</li> </ul>	<ul style="list-style-type: none"> <li>• know how to test and evaluate designed products</li> <li>• explain how products should be stored and give reasons</li> <li>• evaluate product against clear criteria</li> </ul>	<ul style="list-style-type: none"> <li>• use electrical systems correctly and accurately to enhance a given product</li> <li>• Use different kinds of circuit in their product</li> <li>• know which IT product would further enhance a specific product</li> <li>• use knowledge to improve a made product by strengthening, stiffening or reinforcing</li> </ul>	<ul style="list-style-type: none"> <li>• explain how food ingredients should be stored and give reasons</li> <li>• work within a budget to create a meal</li> <li>• understand the difference between a savoury and sweet dish</li> </ul>	