

# Design and Technology Curriculum

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Project 1</b>	Bug Hotel	Nativity Puppets	Veg soup	Moving Pictures	Savoury Muffins	Automatic Traffic Light- <b>Garrett Morgan</b> (TTS crumble kit)
<b>Project 2</b>	Shoe Box Train (Primary Engineer Rail Project)	Moving Pictures	Pencil Cases	Light Electrical systems- <b>Edwin Holmes</b> (TTS crumble kit)	Battery Powered Train- <b>George Hudson</b> (Primary Engineer Rail Project)	Fish Pie- Fowlers Fish
<b>Project 3</b>	Fruit Smoothie	Cheese Scones	Bridges- <b>Brunel</b>	Bread		Slippers

## Knowledge

<b>Developing, Planning and Communicating ideas</b>	<p>Children should design purposeful, functional, appealing products for themselves and other users based on design criteria.</p> <p>They should also generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p>	<p>Children should 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> <p>They should also generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p>
<b>Working with tools, equipment, materials and components</b>	<p>Children should select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>They should also select from and use a wide range of materials and components, including</p>	<p>Children should 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> <p>They should also generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p>

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	construction materials, textiles and ingredients, according to their characteristics.					
<b>Evaluating processes and products</b>	Children should explore and evaluate a range of existing products. They should also evaluate their ideas and products against design criteria.		Children should 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.  They should also generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.			
<b>Technical Knowledge</b>	Children should build structures by exploring how they can be made stronger, stiffer and more stable.	Children should explore and use mechanisms [for example, levers, sliders, wheels and axles] in their products.	Children should apply their understanding of how to strengthen, stiffen and reinforce more complex structures.	Children should understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].	Children should understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].	Children should apply their understanding of computing to program, monitor and control their products.

## Cooking and Nutrition

	KS1	LKS2	UKS2
<b>Where food comes from</b>	Children should know that all food comes from plants or animals. They should know that food has to be farmed, grown elsewhere (e.g. home) or caught.	Children should know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.	Children should know that seasons may affect the food available. They should also know how food is processed into ingredients that can be eaten or used in cooking.
<b>Food Preparation, Cooking and Nutrition</b>	Children should know how to name and sort foods into the five groups in 'the eat well' plate. They should also know that everyone should eat at least five portions of fruit and vegetables every day.	Children should know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'the eat well' plate.	Children should know that that recipes can be adapted to change the appearance, taste, texture and aroma. They should know that different food and drink contain different substances –

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	<p>Children should know how to prepare simple dishes safely and hygienically, without using a heat source.</p> <p>They should know how to use techniques such as cutting, peeling and grating.</p>	<p>They should also know that to be active and healthy, food and drink are needed to provide energy for the body.</p> <p>Children should know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>They should also know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>nutrients, water and fibre – that are needed for health.</p>
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Skills						
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Developing, Planning and Communicating ideas</b>	<p>Children should design products that have a clear purpose and an intended user.</p> <p>They should use software to design.</p>		<p>Children should design with purpose by identifying opportunities to design.</p> <p>They should use software to design and represent product designs.</p> <p>Children should improve upon existing designs, giving reasons for choices.</p>		<p>Children should design with the user in mind, motivated by the service a product will offer (rather than simply for profit).</p>	
<b>Working with tools, equipment, materials and components</b>	<p>Children should cut materials safely using tools provided.</p> <p>They should use a range of joining techniques (such as gluing, hinges or combining materials to strengthen).</p>	<p>Children should measure and mark out to the nearest centimetre.</p> <p>They should use a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</p>	<p>Children should measure and mark out to the nearest millimetre.</p> <p>They should apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</p>	<p>They should cut materials accurately and safely by selecting appropriate tools.</p> <p>Children should select appropriate joining techniques.</p>	<p>Children should cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).</p>	<p>Children should Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).</p>
<b>Evaluating processes and products</b>	<p>Children should talk about improvements to existing designs.</p>	<p>Children should explore how products have been created.</p>	<p>Children should refine work and techniques as work progresses, continually</p>	<p>Children should disassemble products to understand how they work.</p>	<p>Children should use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</p>	

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		They will explore objects and designs to identify likes and dislikes of the designs.	evaluating the product design.		They should evaluate the design of products so as to suggest improvements to the user experience.	
<b>Technical Knowledge</b>	Children should practise gluing materials to make and strengthen products.	Children should create products using levers, wheels and winding mechanisms.	Children should choose suitable techniques to construct products or to repair items.  They should strengthen materials using suitable techniques.	Children should create series and parallel circuits.  They should control and monitor models using software designed for this purpose.	Children should use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).  They should convert rotary motion to linear using cams.  Children should develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).	Children should create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).  Children should write code to control and monitor models or products.  They should use innovative combinations of electronics (or computing) and mechanics in product designs.
<b>Food and Nutrition</b>	Cut and peel ingredients safely and hygienically.  Assemble ingredients.	Grate ingredients safely and hygienically.  Measure or weigh using measuring	Prepare ingredients hygienically using appropriate utensils.  Follow a recipe.	Measure ingredients to the nearest gram accurately.	Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).	Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.

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		cups or electronic scales.  Cook ingredients.	Assemble ingredients.	Assemble and cook ingredients (controlling the temperature of the oven or hob, if cooking).	Create and refine recipes, including ingredients, methods, cooking times and temperatures.	Demonstrate a range of baking and cooking techniques.
<b>Textiles</b>		Shape textiles using templates.  Join textiles using running stitch.  Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).		Understand the need for a seam allowance.  Join textiles with appropriate stitching.  Select the most appropriate techniques to decorate textiles.		Create objects (such as a cushion) that employ a seam allowance.  Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).  Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).

In each class the food and nutrition project should be designed, made and evaluated. Then you can choose which other project includes the design, make and evaluate aspect. The final project can either be design and make or make and evaluate.

All classes across KS2 need to know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. At least one of your projects needs to include a key event or individual.

**Project title:**

Design, make and evaluate a \_\_\_\_\_ (product) for \_\_\_\_\_ (user) for \_\_\_\_\_ (purpose).

To be completed by the teacher. Use the project title to set the scene for children's learning prior to the activities.