

## Aims

**At Totley All Saints, we aim 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.

# Our Curriculum for Design & Technology

## Design & Technology: Key Stage 1 Knowledge & Skills

**Early Learning Goal – Exploring and using media and materials:** Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

**Early Learning Goal – Being imaginative:** Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

**Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment]**

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

NC Programme of Study	Design	Make	Evaluate	Technical Knowledge	Cooking & Nutrition
<ul style="list-style-type: none"> <li>design purposeful, functional, appealing products for themselves and other users based on design criteria</li> <li>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]</li> <li>select from and use a wide range of materials and 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>	
Year 1	<ul style="list-style-type: none"> <li>Design a wheeled vehicle that can hold and move an alien passenger.</li> <li>Draw their design ideas and label the materials that they will need to make a vehicle.</li> <li>Draw their design ideas and label the materials that they will need to make a peg doll.</li> </ul>	<ul style="list-style-type: none"> <li>Use tools, including scissors, correctly.</li> <li>Select &amp; use fastening techniques and equipment to secure joins.</li> <li>Ty things out and follow simple instructions.</li> <li>Select construction materials according to their characteristics to make sturdy wheels.</li> <li>Make a moving Christmas card with sliding Father Christmas.</li> </ul>	<ul style="list-style-type: none"> <li>Discuss existing vehicles and talk about what they think is good/bad about them.</li> <li>Consider how this will inform their own vehicle design.</li> <li>Evaluate their own vehicle against the criteria. What went well and what did not.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and use wheels and axles in a range of vehicles and toys.</li> <li>Build a strong and stable axle and vehicle structure/cab.</li> <li>Use a slider to make Father Christmas move.</li> </ul>	<ul style="list-style-type: none"> <li>Use the basic principles of a healthy and varied diet to prepare special fried rice.</li> <li>Understand that the food we have looked at and made comes from China.</li> </ul>

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<b>Year 2</b>	<ul style="list-style-type: none"> <li>Design a functional and appealing Char's coat for a puppet</li> <li>Design a purposeful &amp; functional story board based on design criteria</li> <li>Generate and communicate ideas for a Joseph's coat by; talking, using technology and making a paper template.</li> <li>Model ideas by making prototype moving cards.</li> </ul>	<ul style="list-style-type: none"> <li>Choose appropriate tools for, cutting, shaping, joining and finishing (e.g. scissors, needles, thread, glue, applique, dye &amp; fabric pens).</li> <li>Select from and use a range of materials (paper / card/ cotton / dye / fabric pens / sequins /) and construction materials (tape, staples, glue, thread, buttons, velcro, zips &amp; clasps), according to their characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and evaluate a range of existing products (coats &amp; waist coats, last year's Charlie's coats, mechanical books and shop bought pizzas).</li> <li>Evaluate their ideas (for their Charlie's coats / pizzas/ storyboards) against design criteria – say what they think is good and what they would do differently next time.</li> </ul>	<ul style="list-style-type: none"> <li>Explore and use hems in their Charlie's coat design.</li> <li>Explore and use mechanisms in moving pictures [for example, levers, sliders&amp; wheels], by making a Christmas card and a Traditional tale story board.</li> </ul>	<ul style="list-style-type: none"> <li>Use the basic principles of a healthy and varied diet to plan and prepare a healthy pizza</li> <li>Understand which food groups foods belong to and where food comes from. To design, make and evaluate a pizza.</li> </ul>
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## Design & Technology: Key stage 2 Knowledge & Skills

**Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].**

*As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.*

	<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical Knowledge</b>	<b>Cooking &amp; Nutrition</b>
<b>NC Programme of Study</b>	<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], accurately</li> <li>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</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 &amp; 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>

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<p style="text-align: center;"><b>Year 3</b></p>	<ul style="list-style-type: none"> <li>• Research existing products and develop criteria for the design of puppets fit for shadow displays.</li> <li>• Show their ideas through discussions and annotated sketches &amp; pattern pieces.</li> <li>• Develop ideas for a catapult using cross-sectional diagrams and prototypes.</li> </ul>	<ul style="list-style-type: none"> <li>• Use scissors, craft knives, glue, card and a range of transparent and translucent materials according to the shadow they cast.</li> <li>• Use compressed straws, wooden lollipop sticks, elastic bands, various types of tape and reclaimed plastic lids.</li> <li>• Select from &amp; use a range of tools, materials and techniques to join the components for a catapult.</li> </ul>	<ul style="list-style-type: none"> <li>• Use &amp; analyse existing shadow puppets and develop design criteria to evaluate their puppet against.</li> <li>• Know that shadow play is an old tradition with a long history in places such as Southeast Asia.</li> <li>• Test &amp; evaluate their catapult against their design criteria and the views of others.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand how to strengthen a shadow puppet once a handle is attached.</li> <li>• Use a torch and lightbox or wall to project their shadow puppet onto.</li> <li>• Build a catapult with a strong frame and arm/sling.</li> <li>• Understand how to reinforce their catapult structure and use mechanical systems such as levers, slings &amp; springs.</li> <li>• Understand how gears, wheels, axles and pulleys can make machinery move (water wheels).</li> </ul>	<ul style="list-style-type: none"> <li>• Know when strawberries (&amp; other fruits) are in season in the UK and how and where they are grown.</li> <li>• Sow strawberry seedlings in the school garden and nurture them.</li> <li>• Use kitchen tools to prepare and make a tasty &amp; nutritious drink.</li> </ul>
<p style="text-align: center;"><b>Year 4</b></p>	<ul style="list-style-type: none"> <li>• Research existing products.</li> <li>• Develop design criteria for a functional and appealing spelling game.</li> <li>• Communicate their ideas through cross-sectional &amp; exploded diagrams.</li> <li>• Generate &amp; develop ideas by creating a prototype.</li> </ul>	<ul style="list-style-type: none"> <li>• Use scissors, craft knives, glue, cardboard and plastic to make a board game.</li> <li>• Make a box for their game using existing packaging nets</li> </ul>	<ul style="list-style-type: none"> <li>• Explore and play Modern and Medieval board games to investigate existing products.</li> <li>• Understand how many board games aimed at children are educational.</li> <li>• Evaluate and improve their prototype game against their own design.</li> </ul>	<ul style="list-style-type: none"> <li>• Create a working electrical circuit in a cardboard house including switches, bulbs, buzzers and motors.</li> <li>• Use tabs to strengthen their house.</li> </ul>	<ul style="list-style-type: none"> <li>• Make and bake Egyptian dishes and learn about environmental &amp; cultural influences behind the cuisine.</li> <li>• Know how to prepare food hygienically.</li> <li>• Use an open fire to cook pizza.</li> </ul>

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<p style="text-align: center;"><b>Year 5</b></p>	<ul style="list-style-type: none"> <li>Explore different types of bread through research and tasting, and plan ideas through discussion.</li> <li>Evaluate the functionality of coil pots for the Ancient Greeks &amp; people today.</li> <li>Show their ideas through annotated sketches, cross-sectional and exploded diagrams.</li> <li>Develop criteria to inform their design of innovative and appealing Viking shields.</li> <li>Communicate ideas through, pattern pieces and computer-aided design.</li> </ul>	<ul style="list-style-type: none"> <li>Make Viking shields, choosing appropriate materials including cardboard. A variety of methods will be used to emboss the surface.</li> <li>Select the materials, tools and equipment needed to make a pot using the coil method (clay, water, slip, sponges, clay cutting &amp; joining tools, boards, etc).</li> </ul>	<ul style="list-style-type: none"> <li>Investigate and analyse a range of existing bread-based products.</li> <li>Evaluate how their bread tasted and whether it matched their original design.</li> <li>Evaluate how closely their pot matched their design and take feedback from a partner.</li> <li>Understand how Vikings chose the designs for their shields and what they were influenced by.</li> </ul>	<ul style="list-style-type: none"> <li>Explore bread weaving &amp; other presentational techniques for baking bread</li> <li>Apply their understanding of affixing handles to attach and reinforce a handle to their pot.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how bread can form part of a healthy diet.</li> <li>Know how wheat is grown, ground &amp; processed.</li> <li>Make, prove and bake bread.</li> </ul>
<p style="text-align: center;"><b>Year 6</b></p>	<p>Air raid shelters / Weaving- Maya patterns</p> <ul style="list-style-type: none"> <li>use research and develop design criteria to inform the design of innovative structures,</li> <li>explore what makes a stable structure- what makes a structure stable/ unstable ? Why is stability important? What shapes are most stable?</li> <li>products that are fit for purpose, explore which materials would be best suited- what do they need to do? Waterproofing/ insulating? aimed at particular individuals or groups what would the individuals using them need?</li> <li>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces</li> </ul>	<ul style="list-style-type: none"> <li>plan the order of their work, choosing appropriate materials, tools &amp; techniques</li> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>investigate and analyse a range of existing products. Which are most effective? Why? Is there a trade-off between function &amp; appearance?</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>know some famous figures in design (Anderson Shelter)</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>Confidently select appropriate tools, materials, components and techniques and use them.</li> <li>Use tools safely and accurately.</li> </ul>	<ul style="list-style-type: none"> <li>understand and apply the principles of a healthy and varied diet</li> <li>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>Explore how rationing during WWII affected diet and health.</li> <li>Look at a range of War time recipes and choose one to follow and create.</li> <li>use a range of techniques such as peeling, chopping, slicing, grating, mixing and spreading.</li> </ul>