

# Design & Technology

at Norton CP School

The aim of our Design & Technology curriculum is to provide our pupils with the following:

At Norton CP School our focus in Design and Technology is to embed an enthusiasm and passion for the subject in pupils of all ages and abilities. Through our D&T curriculum, children are inspired to create a range of structures and products with a real life purpose, giving children motivation and meaning for their learning. Pupils are provided with a range of opportunities and experiences to increase their capability and confidence in their own ideas.

Concepts are taught progressively in order to build on prior knowledge and develop a secure and transferrable set of skills. This ensures that all children are able to learn, practise and refine their key skills in order to develop as they progress through the school. The process of design, make, evaluate is embedded throughout all D&T lessons. We encourage children to use their creativity and imagination whilst taking inspiration from existing products, in order to design and make products that are purposeful and appealing.

Evaluation is an integral part of the design process and allows them to adapt and improve their product. This encourages them to be self-critical and improves their ability to problem-solve. In our on-site community kitchen, pupils gain an understanding of the importance of a healthy and varied diet. Through practical cookery lessons, we instil a love of cooking in pupils which is a crucial life skill for life. We want the children at Norton CP School to develop their imagination, their critical thinking and their understanding of the world around them through their love of D&T.

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## To design, make, evaluate and improve

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
<p>Explore different materials freely, in order to develop their ideas about how to use them and what to make.</p> <p>Develop their own ideas and then decide which materials to use to express them.</p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p> <p>Share their creations, explaining the process they have used.</p>	<p>Design products for themselves that have a clear purpose.</p> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates and mock-ups.</p> <p>Identify features that could be improved.</p>	<p>Design functional, appealing products for themselves and others that have a clear purpose and an intended user.</p> <p>Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.</p> <p>Identify features that need refining.</p> <p>Use software to design (<i>where appropriate</i>).</p>	<p>Make products by working efficiently (such as by carefully selecting materials).</p> <p>Refine work and techniques.</p> <p>Evaluate the product design at the end of production and make necessary changes/adaptions.</p> <p>Use software to design and represent product designs.</p>	<p>Design and create products for a purpose by working efficiently (such as by carefully selecting materials) knowing which order would be more successful.</p> <p>Refine work and techniques as work progresses, continually evaluating the product design showing an ability to suggest other ideas to solve product faults.</p> <p>Use software to design and represent product designs with more than one angle or dimension.</p>	<p>Design a suitable product with the user in mind.</p> <p>Make products through stages of prototypes adapting where necessary to improve the final product.</p> <p>Ensure products have a high-quality finish, using art skills where appropriate.</p> <p>Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</p>	<p>Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).</p> <p>Use prototypes, cross-sectional diagrams and computer aided designs to represent designs accurately with more precise measurements.</p>

## To master practical skills

### Food

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	<p>Use the basic principles of a healthy and varied diet to prepare dishes.</p> <p><i>(Cut, peel or grate ingredients safely and hygienically).</i></p> <p>E.g. sandwich making</p>	<p>Use the basic principles of a healthy and varied diet to prepare dishes.</p> <p>Select their own ingredients.</p> <p>Understand where food comes from.</p> <p><i>(Cut, peel or grate ingredients safely and hygienically).</i></p> <p>E.g. rainbow cous-cous salad</p>	<p>Begin to understand seasonality.</p> <p>Prepare and cook dishes using a range of cooking techniques.</p> <p><i>(Measure ingredients and follow a recipe with adult support).</i></p> <p>E.g. apple crumble</p>	<p>Prepare and cook dishes using a range of cooking techniques, selecting the correct utensils.</p> <p><i>(Measure ingredients and follow a recipe with some adult support).</i></p> <p>E.g. healthy bacon bread loaf</p>	<p>To show an understanding of seasonality and develop their knowledge of how a variety of ingredients are grown.</p> <p><i>(Demonstrate a range of baking and cooking techniques. Consider cooking times and temperatures).</i></p> <p>E.g. vegetable pizza</p>	<p>To understand how a variety of ingredients are grown, reared, caught and processed.</p> <p><i>(Understand the importance of correct storage and handling of ingredients).</i></p> <p>E.g. whole day burger making (fresh bread buns and burgers).</p>

## Materials

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
<p>Join different materials and explore different textures. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	<p>Cut materials safely using tools provided.</p> <p>Demonstrate a range of cutting and shaping techniques (<i>e.g. tearing, cutting, folding and curling</i>).</p>	<p>Select from and use a range of tools and equipment to perform practical tasks (<i>e.g. shaping, joining and finishing</i>).</p> <p>Select from and use a wide range of materials and components according to their characteristics.</p>	<p>Cut materials safely by selecting appropriate tools. (<i>Measure and mark out to the nearest centimetre with some accuracy</i>).</p> <p>Apply cutting and shaping techniques.</p> <p>Select appropriate simple joining techniques.</p>	<p>Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre.</p> <p>Apply cutting and shaping techniques that include cuts within the perimeter of the material (<i>e.g. slots or cut outs</i>).</p> <p>Select appropriate joining techniques.</p>	<p>Consistently apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (<i>e.g. slots or cut outs</i>).</p> <p>Select from and use a wide range of materials and components.</p> <p>Refine with appropriate tools (<i>e.g. sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape</i>).</p> <p>To select and choose the most appropriate tools to cut and shape different materials (<i>e.g. sharper scissors for fabric</i>).</p>	<p>Select from and use a wider range of materials and components according to their functional properties and aesthetic qualities.</p> <p>Select from and use a wider range of tools and equipment to perform practical tasks accurately.</p>

## Textiles

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	<p>Shape textiles using templates.</p> <p>Colour and decorate textiles using a number of techniques (<i>E.g. printing or dyeing</i>).</p>			<p>Understand the need for a seam allowance.</p> <p>Join textiles with appropriate stitching.</p> <p>Select the most appropriate techniques to decorate textiles.</p>	<p>Create objects (<i>e.g. cushion</i>).</p> <p>Join textiles with simple stitching techniques (<i>e.g. running stitch to attach decoration</i>).</p> <p>Use materials to create different visual and tactile effects in the decoration of textiles (<i>e.g. a soft decoration for comfort on a cushion</i>).</p>	

## Electrical Circuits and Electronics

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
				<p>To create series circuits.</p>		<p>Create series and parallel circuits.</p> <p>Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</p>

## Computing

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
		Model designs using software.				Control and monitor models using software designed for this purpose. Write code to control and monitor models or products.

## Construction

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Use glue to join and strengthen products.	Use materials to make and strengthen products.	Use suggested techniques to construct products with support. Strengthen materials using suitable techniques.	Choose suitable techniques to construct products or to repair items.	Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).	Refine practical skills to create purposeful and appealing products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).

## Mechanics

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
		To explore and use mechanisms ( <i>e.g. levers, sliders, wheels and axles</i> ).	Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, linkages, winding mechanisms, pulleys and gears).		Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, linkages, winding mechanisms, pulleys and gears). Look at and explore movement using cams.	

## To take inspiration from design throughout history

### Research and Compare

EYFS	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
	Explore objects and designs to identify likes and dislikes of the designs.	Explore a range of objects and designs to identify likes and dislikes of the designs and suggest improvements to existing designs. Explore how products have been created.	Improve upon existing designs, giving more than one reason for your choices. Investigate products to understand how they work. Disassemble products to understand how they work.	Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving one explanation for your reasoning.	Identify elements of design from one particular designer throughout history. Create designs that improve upon existing products Evaluate the design of products so as to suggest improvements to the user experience.	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products with a specific area given to enhance. Evaluate the design of products so as to suggest improvements to be made for two specific contrasting users.

### Technical Knowledge

<p><b>By the end of KS1:</b></p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Explore and use mechanisms (e.g. levers, sliders, wheels and axles).</p>	<p><b>By the end of KS2:</b></p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>Understand and use mechanical systems in their products (e.g. gears, pulleys, cams, levers and linkages).</p> <p>Understand and use electrical systems in their products (e.g. series circuits, incorporating switches, bulbs, buzzers and motors).</p> <p>Apply their understanding of computing to program, monitor and control their products.</p>
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