

DT Curriculum Map

Progression of Knowledge and skills

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, 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. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

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.

Key Stage 1

Pupils should be taught:

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].

When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria □ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- 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 components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable □ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking and nutrition

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.

Pupils should be taught to:

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

	Autumn Term	Spring Term	Summer Term
Year 1	Cooking & Nutrition: Healthy Eating – Sweet & Savoury Salads	Design: design and create a space helmet from paper mache	Mechanisms: Wheels and Axels
NC strand	<p>Use the basic principles of a healthy and varied diet to prepare dishes</p> <p>Understand where food comes from.</p>	<p>Design: design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Make: select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Evaluate: explore and evaluate a range of existing products</p> <p>Technical Knowledge: build structures build structures, exploring how they can be made stronger, stiffer and more stable</p>	<p>Design: generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Make: select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Evaluate: explore and evaluate a range of existing products</p> <p>Technical Knowledge: Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p>
Enquiry (Key Qs)	<p><i>What makes a diet healthy and varied?</i></p> <p><i>How do we use the basic principles of a healthy diet?</i></p> <p><i>Where do our fruit and vegetables come from?</i></p> <p><i>What do salad fruit and vegetables taste like?</i></p> <p><i>How do we follow a simple recipe?</i></p>	<p><i>Can I design and create a structure and evaluate my end design</i></p>	<p><i>? Can I select and use a range of tools and materials appropriately?</i></p>

	<i>How do we use simple kitchen equipment?</i>			
Knowledge and understanding	<p>Understanding of what makes a healthy and varied diet.</p> <p>How to use the basic principles of a healthy diet to prepare dishes</p> <p>To follow a simple recipe</p> <p>Give names to some fruit and vegetables</p> <p>To evaluate their own product and discuss alternatives that might have been included within their salad</p>		<p>Design</p> <p>Make</p> <p>Evaluate</p> <p>Technical Knowledge</p>	<p>Design</p> <p>Make</p> <p>Evaluate</p> <p>Technical Knowledge</p>
Impact Pupils can	<p>Can I pick the correct ingredients?</p> <p>Can I understand the difference between a sweet and savoury salad?</p> <p>Do I understand the importance of hygiene when handling food?</p> <p>Do I understand the importance of healthy eating?</p> <p>Do I understand where food comes from?</p>		<p>Can I describe texture</p> <p>Can I think of ideas and explain them through words and pictures?</p> <p>Can I follow a template accurately?</p> <p>Can they cut using scissors?</p>	<p>Can they make a model using a range of materials?</p> <p>Can they make sensible choices of materials?</p> <p>Mastery</p> <p>Can children use a range of tools and equipment to perform practical tasks?</p> <p>Can children explore and evaluate a range of existing products?</p>
Key Vocabulary	<p>Salad</p> <p>Slice</p> <p>Sift</p> <p>Weigh</p> <p>Peel</p> <p>Sweet</p> <p>Savoury</p>		<p>Wallpaper</p> <p>Patterns</p> <p>Cutting</p> <p>Sponge</p> <p>Make</p>	<p>Mechanism</p> <p>Join</p> <p>Build</p> <p>Equipment</p> <p>Materials</p>

Year 2	Mechanisms: Sliders & Levers	Cooking & Nutrition: Healthy Eating – Exploring Smell, Taste and Texture Making smoothies	Design: Design and make hats
NC strand	<p>Design: generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</p> <p>Make: select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</p> <p>Evaluate : evaluate their ideas and products against design criteria</p> <p>Technical Knowledge: Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p>	<p>Use the basic principles of a healthy and varied diet to prepare dishes</p> <p>Understand where food comes from.</p>	<p>Design: design purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Make: select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p> <p>Evaluate: evaluate their ideas and products against design criteria</p> <p>Technical Knowledge: build structures, exploring how they can be made stronger, stiffer and more stable</p>
Enquiry (Key Qs)	<p>What questions could we generate to allow us effectively evaluate an existing product? How can we produce a design which clearly demonstrates how different components move? How can we produce a product which has at least two moving mechanisms? (Slider and level)</p>	Can I design and create a healthy smoothie?	Can I describe for a specific purpose and evaluate its effectiveness?

	How are we going to make our product and what materials do we need? How successful was our product when judged against the design criteria? What would we do differently and why?		
Knowledge and understanding	How to create and operate levers, wheels and sliders and why these are useful. How to	Exploring Making	Design Make Evaluate Technical Knowledge
Impact Pupils can	Can they join materials together as part of a moving product? Can they measure materials to use? Can they explain their choices of material?	Do I understand the 5 different food groups? Which food groups would be included to make a smoothie? Do I understand how different fruits work together?	What makes a good hat? Why are hats worn in other cultures?
Key Vocabulary	Pivot Backwards Evaluate Moving Handle	Zest Blend Grate Diet Ingredients	Structure Material Design Decorate Cutting

Key Stage 2

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].

When designing and making, pupils should be taught to:

Design

- 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
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition

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.

Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

	Autumn Term	Spring Term	Summer Term
Year 3	Textiles – Exploring weaving using a variety of resources	Design: Design and make Pin and Paper fashion to wear!	Cooking & Nutrition: Healthy Eating – Learning about different foods, including herbs and spices
NC strand	<ul style="list-style-type: none"> • select from and use a wider range of materials and components, including, textiles, according to their functional properties and aesthetic qualities 	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques • understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

	<ul style="list-style-type: none"> select from and use a wider range of materials and components, including textiles 	<ul style="list-style-type: none"> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	
Enquiry (Key Qs)	Can I weave using a variety of resources?	Can I design and make pin and paper fashion to wear?	Can I identify different herbs and spices?
Knowledge and understanding	Exploring Making	Design Make Evaluate Technical Knowledge	Exploring Making
Impact Pupils can	I can plan a realistic design to meet requirements by using a step by step plan. I can use tools accurately I can describe how my design could be made better	I can plan a realistic design to meet requirements by using a step by step plan. I can accurately describe my design using a labelled sketch and words. I can describe how my design could be made better	Can I grow my own herbs? Do I different spices originate from? Do I different spices change the flavours?
Key Vocabulary	Thread Yarn Loom Fabric Weaving	Fold Neckline Stitch Embroidery Garment	Herb Spice Taste bud Measure Sprinkle
	Autumn Term	Spring Term	Summer Term
Year 4	Mechanisms – Vehicles (Chariots)	Design: Be an architect! (Habitat, Iron Age huts)	Cooking & Nutrition: Healthy Eating – Sugar & Fat facts and healthy alternatives

NC strand	<ul style="list-style-type: none"> • 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 • select from and use a wider range of materials and components, including construction materials, • understand and use mechanical systems in their products 	<ul style="list-style-type: none"> • generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design • 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 • understand how key events and individuals in design and technology have helped shape the world 	<ul style="list-style-type: none"> • understand and apply the principles of a healthy and varied diet
Enquiry (Key Qs)	Can I create a moving vehicle from planning to product?	Can you sketch/ design and source materials to create a strong, sound structure?	Can I share sugar and fat facts? Can I show healthy alternatives?
Knowledge and understanding	Design Make Evaluate Technical Knowledge	Design Make Evaluate Technical Knowledge	Exploring
Impact Pupils can	Can I design and make a moving object? Can I evaluate and reflect on my project? Can I use a range of tools effectively? Can I show resilience when working on my project?	Can I show resilience when working on a project? Can I explain how to join things together? Can I measure without making mistakes? Can I evaluate and suggest improvements?	Do I know what to do to be hygienic and safe? Can I select the right ingredients? Can I think about how I present my work?
Key Vocabulary	Annotate Cross - sectional Reinforce Assemble	Stability Freestanding Cuboid Base	Food pyramid Nutrition Saturated Fats Sugar

	Evaluate		Reinforce		Unsaturated Fats Carbohydrates	
	Autumn Term		Spring Term		Summer Term	
Year 5	Design: design and make a 3D globe with different textures		Cooking & Nutrition: Healthy Eating – Exploring our own and others’ cultures		Textiles – Exploring felt making	
NC strand	<ul style="list-style-type: none"> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 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 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 		<ul style="list-style-type: none"> understand and apply the principles of a healthy and varied diet prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed 		<ul style="list-style-type: none"> select from and use a wider range of materials and components, including construction materials, textiles 	
Enquiry (Key Qs)	Can I design and make a 3D globe with accurate placements of continents and oceans?		Can I explore my own and other cultures in the world?		Can I explore with felt making and sewing?	

Knowledge and understanding	Design Make Evaluate Technical Knowledge	Exploring	Exploring Making
Impact Pupils can	Have they considered what the end user would want? Have they thought about how to make their product strong? Can they explain how to join things together?	Can I name where my favourite food comes from? Can I deconstruct a dish and know all of its ingredients? Do I know why it is important to understand where food comes from?	I can use textiles and sewing skills as part of a project I can learn about the work of others by looking at their work (books, Internet, visit to galleries). I can follow basic sewing patterns e.g. cross stitch/ running stitch
Key Vocabulary	Measure Accuracy Product Annotated Innovative	Food culture Aromatic Slow-cook Tenderise Bake	Cross Stitch Running Stitch Pattern template Patchwork Customisation
	Autumn Term	Spring Term	Summer Term
Year 6	Mechanisms: Pop-Up books	Design: Design and make a marble run game!	ICT: Film Production
NC strand	<ul style="list-style-type: none"> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design select from and use a wider range of tools and equipment to perform practical tasks [for example, 	<ul style="list-style-type: none"> 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 select from and use a wider range of tools and equipment to perform practical tasks [for example, 	<ul style="list-style-type: none"> apply their understanding of computing to program, monitor and control their products.

	<p>cutting, shaping, joining and finishing], accurately</p> <ul style="list-style-type: none"> • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work 	<p>cutting, shaping, joining and finishing], accurately</p> <ul style="list-style-type: none"> • investigate and analyse a range of existing products • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • apply their understanding of computing to program, monitor and control their products. 	
Enquiry (Key Qs)	Can I make a pop up books using the correct tools and materials?	I can plan and create a working marble run using a wide range of sustainable materials.	I can create a film production for the end of my year.
Knowledge and understanding	Design Make Evaluate	Design Make Evaluate Technical Knowledge	Exploring Design Make
Impact Pupils can	<p>Can I make a prototype? Can I use a range of joining techniques? Can I use tools and materials precisely? Can I test that my product is fit for purpose? Can I reflect on my original design?</p>	<ul style="list-style-type: none"> • Can I measure accurately enough to ensure to ensure that everything is precise? • How can I have insured that my product is strong and safe for use? • Can I hide joints so as to improve the look of their product? 	<p>Can I plan and write a script for a documentary/ interview? Can I import small video files? Can I use a digital camera? Can I independently develop a range of ideas which show curiosity imagination and originality?</p>
Key Vocabulary	Technique Proto-type Design Criteria	Friction Aesthetics Dismantle	Script Locations Import

	Perspective Technical		Two-dimensional Modify		Frame Digital Media	
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