



Progression in DT



Intent

At Ralph Butterfield School we aim to engage, motivate and inspire all pupils to become resourceful, innovative and enterprising through our DT teaching, giving them the skills, knowledge and understanding so that they can participate successfully in an increasingly technological world.

Our DT curriculum will usually be taught as part of a theme or topic, and is based on the strands of designing, making, evaluating, technical skills, and cooking and nutrition.

We aim to give all learners the opportunity to:

- Plan, sketch and record ideas.
- Sketch, model and test prototypes.
- Choose and use tools appropriately and correctly.
- Select from and use a wide range of materials.
- Use appropriate finishing techniques.
- Safely use different making techniques.
- Evaluate their own and existing products.
- Consider purpose and users.
- Understand key events and people in the history of design and technology.
- Use the technical skills of sewing, measuring and strengthening.
- Use mechanical, electrical and IT systems.
- Choose, source and cook foods using a range of ingredients.

Children will also have opportunities to participate in workshops given by visiting experts and events in the wider community.

National Curriculum (EYFS below)

Key stage 1

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.

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

Key stage 1

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

Key stage 2

- 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.

	Subject Knowledge Early Learning Goals Children will:	Practical Knowledge Children will know how to:	Conceptual Knowledge Children will know that Design Technology is about:
EYFS	<p>Communication and Language Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</p> <p>Use new vocabulary in different contexts.</p> <p>PSED Know and talk about the different factors that support their overall health and wellbeing:</p> <ul style="list-style-type: none"> • healthy eating <p>Manage their own needs.</p> <ul style="list-style-type: none"> • Personal hygiene <p>Physical Development Develop their small motor skills so that they can use a range of tools competently, safely and confidently. Suggested tools: pencils for drawing and writing, paintbrushes, scissors, knives, forks and spoons.</p> <p>Expressive Arts and Design Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills.</p>	<p>Food Technology</p> <ul style="list-style-type: none"> • Easter topic – chocolate crispie buns, the changes in state of hard chocolate and soft when cooking is highlighted to the children. <p>Traditional tales topic – learnt about ingredients needed for gingerbread and then go buy them first hand and make the gingerbread.</p> <p>Do they mix their own playdough? Is there any healthy food work?</p> <p>Materials</p> <ul style="list-style-type: none"> • malleable play available in both classrooms, resources are changed and enhance frequently. <p>Cutting out/measuring/making things – masks, diva lamps etc?</p> <p>Textiles</p> <ul style="list-style-type: none"> • junk model and creative provision areas and many fine motor provision areas. <p>Threading or puppet making?</p> <p>Construction</p> <ul style="list-style-type: none"> • varied provision always available – small construction focused towards creativity and fine motor development. Large construction outdoors focussed towards creativity and cooperative play. Junk model and creative provisions giving children the opportunity to practise techniques such a cutting, joining, constructing using varied resources, frequently enhances and changed. <p>Mechanical, Electrical and Control Systems</p> <ul style="list-style-type: none"> • Provision opportunities such as; beebots, IWB, keyboards, CD players, Cameras, microphones. <p>Do you let them play with/make anything with levers etc?</p>	<ul style="list-style-type: none"> • Investigating how existing products work or fulfil a need. • Talking about something they want to make. • Exploring different ways to complete a task. • Expressing themselves in different ways by making a variety of different products. • Returning to an idea and making them even better.

	Subject Knowledge Children will know:	Practical Knowledge Children will know how to:	Conceptual Knowledge Children will know that Design Technology is about:
Year 1 & 2	Design <ul style="list-style-type: none"> • Explore how products that have been created. • How to design a product that has a clear purpose and an intended user. • How to use labelled pictures to communicate their design ideas. • How to use software to create 2D graphics when designing products. 	Food Technology <ul style="list-style-type: none"> • Cut, peel or grate ingredients safely and hygienically. • Measure or weigh using measuring cups or electronic scales. • Assemble or cook ingredients. 	<ul style="list-style-type: none"> • Understanding how existing products work or fulfil a need • Designing something new or improving an existing product. • Trying out ideas to see if they work. • Making something that people need or want. • Discussing ideas and listening and acting upon the advice of others when creating a new product.
	Make <ul style="list-style-type: none"> • How to make a product from a design. • Select and use a tool most appropriate for the practical task. • The characteristics of a range of materials and use this knowledge when selecting appropriate materials for the practical task. • The importance of refining a design of a product whilst making it. • The function of components and use this knowledge when selecting appropriate components for the practical task. 	Materials <ul style="list-style-type: none"> • Cut sheet materials safely using tools provided. • Measure and mark out to the nearest centimetre. • Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding, and curling). • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). 	
	Evaluate <ul style="list-style-type: none"> • How to identify their like and dislikes of the design of an object. • How to evaluate a finished product against simple design criteria. • How to suggest improvements to existing products or designs. 	Textiles <ul style="list-style-type: none"> • 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). 	
	Technical Knowledge <ul style="list-style-type: none"> • To understand what constitutes a healthy diet. • To know that eating fruit and vegetables forms part of a healthy diet. • To know where some common foods originate from. 	Construction <ul style="list-style-type: none"> • Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products. 	
	Children will know an increasing vocabulary: <ul style="list-style-type: none"> • To name some materials and ingredients that they use. • To name some tools and other equipment that they use 	Mechanical, Electrical and Control Systems <ul style="list-style-type: none"> • Create products using levers, wheels, and winding mechanisms. 	

	<p style="text-align: center;">Subject Knowledge Children will know:</p>	<p style="text-align: center;">Practical Knowledge Children will know how to:</p>	<p style="text-align: center;">Conceptual Knowledge Children will know that Design Technology is about:</p>
Year 3 & 4	<p>Design</p> <ul style="list-style-type: none"> • How to label drawings and add notes to explain how their product will be made. • How to generate ideas for a product, considering its purpose and who it is being made for. • How to describe the purpose of their product. • How to conduct research to find out needs and wants of intended users. • How to list the design features that will appeal to intended users. • To develop design criteria to inform ideas. 	<p>Food Technology</p> <ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils. • Measure ingredients accurately • Follow a recipe to assemble or cook ingredients. • Assemble or cook ingredients (controlling the temperature of the oven or hob if cooking). 	<ul style="list-style-type: none"> • How individuals and companies in design and technology have helped shape the world. • That innovation is the process of improving something or doing something in a new way and better way. • That investigating similar products provides opportunities to develop ideas and can be used as a starting point for an original design. • How research can be used to find out the needs and wants of the intended users of a product • That a design-criteria specifies the features that will appeal to intended users and is used to evaluate the finished product. • That developing more than one design or adapting an initial design is a process that produces the final design. • That design decisions consider the availability of resources and also consider other constraints such as time and cost/profit. • Evaluating finished products can lead to improvements in the product or the techniques used to create it.
	<p>Make</p> <ul style="list-style-type: none"> • Follow instructions to ensure that they work safely. • Select suitable tools, equipment, materials, and components. • List the order of the main stages of the making process. • How to measure, mark out, cut and shape materials with increasing accuracy. 	<p>Materials</p> <ul style="list-style-type: none"> • Measure, mark-out, cut and shape a wide range of materials • Cut internal shapes and joining slots in sheet materials. • Select and use appropriate tools and techniques to complete a task • Join and combine materials and components using a variety of methods 	
	<p>Evaluate</p> <ul style="list-style-type: none"> • To express their likes and dislikes of a finished product. • How to identify areas in which a product could be improved. • How to list the ways in which a finished product meets the design criteria. 	<p>Textiles</p> <ul style="list-style-type: none"> • Join fabrics together using a range of different sewing techniques, including allowing for a seam. • Apply a range of decorative techniques to different fabric materials. • Create 3D fabric products by combining pieces and using a seam allowance 	
	<p>Technical Knowledge</p> <ul style="list-style-type: none"> • How food is grown, reared, and caught in the UK, Europe and the wider world and that seasons may affect food availability. • That food is processed into ingredients for recipes. • The principles of a healthy and varied diet, particularly the importance of fruit and vegetables. • The importance of food preparation practices that are safe and hygienic. • Simple and some complex pop-up mechanisms for pages of books. • How to use simple circuits, including bulbs and switches, in their products. • Suitable techniques to strengthen materials. 	<p>Construction</p> <ul style="list-style-type: none"> • Choose suitable techniques to construct or repair products • Strengthen materials using a range of techniques 	
	<p>Children will know an increasing vocabulary:</p> <ul style="list-style-type: none"> • To describe the taste, smell, texture and feel of food. • To describe sewing techniques and materials • To describe different electrical and mechanical components <p>Children will know some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.</p>	<p>Mechanical, Electrical and Control Systems</p> <ul style="list-style-type: none"> • Create moving products that include levers, pulleys, and gears • Create products that include simple circuits in series. • Control and monitor models using software designed for this purpose. 	

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Year 5 & 6	<p>Design</p> <ul style="list-style-type: none"> • Methods to research information about the needs and wants of users using surveys, interviews, questionnaires, and web-based resources. • How to develop a design specification as a guide to the making process. • The role of a prototype in the design and making process • How to combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • How to create designs using models, prototypes, cross-sectional diagrams and computer software 	<p>Food Technology</p> <ul style="list-style-type: none"> • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking and cooking techniques. • Create and refine recipes, including ingredients, methods, cooking times and temperatures. 	<ul style="list-style-type: none"> • How individuals and companies in design and technology have helped shape the world. • That innovation is the process of improving something or doing something in a new way and better way. • That investigating similar products provides opportunities to develop ideas and can be used as a starting point for an original design. • How research can be used to find out the needs and wants of the intended users of a product • That a design-criteria specifies the features that will appeal to intended users and is used to evaluate the finished product. • That developing more than one design or adapting an initial design is a process that produces the final design. • That design decisions consider the availability of resources and also consider other constraints such as time and cost/profit. • Evaluating finished products can lead to improvements in the product or the techniques used to create it.
	<p>Make</p> <ul style="list-style-type: none"> • How to work responsibly using guidelines to ensure they keep themselves and others safe. • To explain choices of tools and equipment depending upon the skills and techniques to be used. • How to write an action plan for the making process including lists of tools, equipment and materials needed. • How to assemble, join and combine materials and components with increasing accuracy. • Use making techniques that involve several steps. 	<p>Materials</p> <ul style="list-style-type: none"> • Cut materials with precision and refine the finish with appropriate tools. • Consider the different properties of materials, when choosing appropriate tools. 	
	<p>Evaluate</p> <ul style="list-style-type: none"> • How to identify strengths and areas for development in their own ideas and products. • How to list ways of improving a product considering the views of others and intended users. • How to evaluate a product against specific design criteria. • How to evaluate whether products can be recycled, reused or repurposed and how sustainable the materials are. 	<p>Textiles</p> <ul style="list-style-type: none"> • Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Create objects (such as a cushion) that employ a seam allowance. • 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). 	
	<p>Technical Knowledge</p> <ul style="list-style-type: none"> • The importance of correct storage and handling of ingredients using knowledge of micro-organisms. • How to make bread, and the role of yeast in bread-making. • How to write procedures and/or computer code to control and monitor models or products. • Different shapes of cams and how they affect linear and rotary movement. 	<p>Construction</p> <ul style="list-style-type: none"> • Apply a range of practical skills to create products 	
	<p>Children will know an increasing and correct technical vocabulary:</p> <ul style="list-style-type: none"> • To describe taste, smell, texture and feel of food. • To describe a range of textiles and textile techniques. • To name components <p>Children will know some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.</p>	<p>Mechanical, Electrical and Control Systems</p> <ul style="list-style-type: none"> • Use a range of cams to create different changes in motion • Create circuits in both series and parallel when making a product • Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors, and chips). • Write computer code to control and monitor models or products 	