

Design & Technology Curriculum

Curriculum Intent



The curriculum intent for Wardley CE Primary school aims to:

- **Be ever-evolving**, providing opportunities for children to develop as independent, confident, resilient, successful & motivated learners striving for the pursuit of excellence who know how to make a positive and transformational contribution to their community and wider global society.
- Be rooted in the school's Christian ethos, encouraging our pupils to grow in self-awareness and becoming advocates of social justice, adaptable to any social context.
- **Be ambitious** in our aim for pupils to develop the communication skills necessary for learning and life, promoting enjoyment, high expectations and standards across all subject areas.
- **Be memorable**: providing diverse, social, moral, spiritual and cultural (SMSC) rich opportunities from which children learn and develop a range of transferable skills.
- **Be aspirational**, cultivating a sense of personal pride in achievement, provide a purpose and relevance for learning and ultimately to help every student to find strengths and interests.
- **Be inspiring**, to empower pupils to respect each other and themselves, show respect and understanding for people of all faiths, race and gender, and for all living things, promoting stewardship and ensuring children are well prepared for life in a rapidly changing world.

Design & Technology Intent



The school believes that Design and Technology is a vital part of children's education and has a significant and valuable role in the taught curriculum, as well as the enrichment opportunities we offer our pupils.

At Wardley CE Primary School we are all designers and technologists.

We want our pupils to appreciate Design and Technology and have no limits to what their ambitions are and grow up wanting to be architects, graphic designers, chefs, engineers or carpenters.

Design and Technology embraces the spiritual, moral, social and cultural ethos we share in our school and encourages our children to show perseverance and courage and realise that they can do all things. Design and Technology is an inspiring, rigorous and practical subject. It encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team.

We encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, computing and art. The children are also given opportunities to reflect upon and evaluate their work and its effectiveness and are encouraged to become innovators and risk-takers.

"Design creates culture. Culture shapes values. Values determine the future." Robert L. Peters (Designer and Author)

Design and Technology Week Topic Overview

	Autumn	Spring	Summer	Links for Supported Home Learning
Year 1	Mechanisms Slides & Levers 'Humpty Dumpty Story Book'	Structures Freestanding structures 'A Windmill with Mice in'	Food Technology Fruit Smoothies	Paul Klee- Artwork about Shapes https://www.youtube.com/watch?v=bXxTIUSjHDA 8 Smoothie Recipes for Kids https://www.youtube.com/watch?v=QVaWM9fsLlk I want to be a Fashion Designer! https://www.youtube.com/watch?v=MLmPsvlw4no
Year 2	Textiles Templates & Joining techniques 'Hand Puppets'	Mechanisms Wheels & Axles <i>'Big Buses'</i>	Food Technology Pizza	Claude Monet inspired Water Lilies https://www.youtube.com/watch?v=jaPQrwBEEqA How are pizzas made? https://www.youtube.com/watch?v=NN_xjwniMLM I want to be an Architect! https://www.youtube.com/watch?v=zvewCudtFZs
Year 3	Structures Shell structures 'Gift Boxes'	Textiles 2D shape to 3D product <i>'Brilliant Bags'</i>	Food Technology Rocky Roads	How to Demonstrate Engineering with marshmallows https://www.youtube.com/watch?v=y6FmrOS72EA Rocky Road Recipe https://www.youtube.com/watch?v=lmiO2z-sZpg I want to be a Baker! https://www.youtube.com/watch?v=jsBq_GaVE
Year 4	Mechanical Systems Levers & linkages 'Christmas Cards'	Electrical Systems Simple circuits & switches 'Radical Robots'	Food Technology Flapjacks	How to make a Christmas Card https://www.youtube.com/watch?v=QZMI-PXgykA Jamie Oliver's East Flapjack Recipe https://www.youtube.com/watch?v=nfLtYKgS3IY What is an Engineer? https://www.youtube.com/watch?v=D9I35Rqo04E
Year 5	Mechanical Systems Pulleys or Gears 'Supercars'	Structures Frame structures 'Mayan Temples'	Food Technology Mayan Spiced Cookies	What Makes Bridges so Strong? https://www.youtube.com/watch?v=oVOnRPefcno Making Chocolate Chip Cookies https://www.youtube.com/watch?v=vU2uuVDADNE What is an Aircraft Mechanic? https://www.youtube.com/watch?v=ELUC5C74Mpc
Year 6	Textiles Combining different fabric shapes 'Christmas Stockings'	Electrical Systems More complex switches & circuits 'Great Games'	Food Technology Fantastic Focaccia	Embroidery stitches for beginners https://www.youtube.com/watch?v=EU5GR4EE4XY World's Easiest Homemade Bread https://www.youtube.com/watch?v=fhM0cGiH8R4 What is a chef? https://www.youtube.com/watch?v=ZNW1uV76m3U

Design & Technology Curriculum



Progression of Knowledge

	Designing	Making	Evaluating	Technical Knowledge	Food Technology		
produ based Design comm drawin appro	n - purposeful, functional, appealing cts for themselves and other users on design criteria n - generate, develop, model and nunicate their ideas through talking, ng, templates, mock-ups and, where priate, information and nunication technology	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	Explore and evaluate a range of existing products evaluate their ideas and products against design criteria	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.	Use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from		
By the en d of EY	Begin to use the language of designing and making, e.g. join, build and shape.	To learn to construct with a purpose in mind.	Begin to talk about their work.	Learn how everyday objects work	Children to know basic hygiene awareness. To know some healthy foods		
FS	Learning about planning and adapting initial ideas to make them better	Selects tools and techniques needed to shape, assemble and join materials.	Return to and build on their previous learning of refining ideas and developing their ability to represent them. Can talk about existing products and why they have certain features.	To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters.	To know some of the tools, techniques and processes involved in food preparation. To know about a healthy balanced diet.		

	Designing	Making	Evaluating	Technical Knowledge	Food Technology
	Design - purposeful, functional, appealing products for themselves and other users based on design criteria Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	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	explore and evaluate a range of existing products evaluate their ideas and products against design criteria	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.	use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from
	d of Key Sta ge sometning and describe now their own idea works design a product which moves explain to someone else how they want to make their product and make a simple plan before making	and tools	describe how something works explain what works well and not so well in the model they have made	make their own model stronger	cut food safely
	think of an idea and plan what to do next explain why they have chosen specific textiles	 choose tools and materials and explain why they have chosen them join materials and components in different ways measure materials to use in a model or structure 	explain what went well with their work	 make a model stronger and more stable use wheels and axles, when appropriate to do so 	 weigh ingredients to use in a recipe describe the ingredients used when making a dish or cake

	Designing	Making	Evaluating	Technical Knowledge	Food Technology	
	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	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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	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	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.	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	
	 by prove that a design meets a set criteria. chesign a product and make sure that it looks attractive choose a material for both its suitability and its appearance LKS 2 	 follow a step-by-step plan, choosing the right equipment and materials select the most appropriate tools and techniques for a given task make a product which uses both electrical and mechanical components work accurately to measure, make cuts and make holes 	explain how to improve a finished model know why a model has, or has not, been successful	know how to strengthen a product by stiffening a given part or reinforce a part of the structure use a simple IT program within the design	 describe how food ingredients come together weigh out ingredients and follow a given recipe to create a dish talk about which food is healthy and which food is not know when food is ready for harvesting 	
	 use ideas from other people when designing produce a plan and explain it persevere and adapt work when original ideas do not work communicate ideas in a range of ways, including by sketches and drawings which are annotated 	know which tools to use for a particular task and show knowledge of handling the tool know which material is likely to give the best outcome measure accurately	evaluate and suggest improvements for design evaluate products for both their purpose and appearance explain how the original design has been improved present a product in an interesting way	 links scientific knowledge by using lights, switches or buzzers use electrical systems to enhance the quality of the product use IT, where appropriate, to add to the quality of the product 	know how to be both hygienic and safe when using food bring a creative element to the food product being designed	

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	Designing	Making	Evaluating	Technical Knowledge	Food Technology	
	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	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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities	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	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.	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	
	the end of UKS come up with a range of ideas after collecting information from different sources produce a detailed, step-by-step plan explain how a product will appeal to a specific audience design a product that requires pulleys or gears	 use a range of tools and equipment competently make a prototype before making a final version make a product that relies on pulleys or gears 	suggest alternative plans; outlining the positive features and draw backs evaluate appearance and function against original criteria	links scientific knowledge to design by using pulleys or gears uses more complex IT program to help enhance the quality of the product produced	 be both hygienic and safe in the kitchen know how to prepare a meal by collecting the ingredients in the first place know which season various foods are available for harvesting 	
	 use market research to inform plans and ideas. follow and refine original plans justify planning in a convincing way show that culture and society is considered in plans and designs 	 know which tool to use for a specific practical task know how to use any tool correctly and safely know what each tool is used for explain why a specific tool is best for a specific action 	 know how to test and evaluate designed products explain how products should be stored and give reasons evaluate product against clear criteria 	 use electrical systems correctly and accurately to enhance a given product know which IT product would further enhance a specific product use knowledge to improve a made product by strengthening, stiffening or reinforcing 	 explain how food ingredients should be stored and give reasons work within a budget to create a meal understand the difference between a savoury and sweet dish 	

Design & Technology Curriculum



Progression of skills

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	Design Process	Master techniques	Take inspiration from throughout history			
This concept involves understanding how ideas are designed, made, evaluated and improved.		This concept involves developing a skill set so that ideas may be communicated.	This concept involves appreciating the design process that has influenced the products we use in everyday life.			
	the en dother resources to construction materials and other resources to construct with a purpose in mind. Use simple tools and techniques competently and appropriately, to shape, assemble and join materials.	•Know how to wash their hands. •Know how to use a range of equipment safely, a knife, spoon, fork, whisk. •Make healthy choices about food. Materials • Use all their senses in hands-on exploration of natural materials. • explore collections of materials with similar or different properties • talk about what they see, using a wide vocabulary • talk about the differences between materials and changes they notice Construction • Use materials to practise gluing materials to make and strengthen products. • combine objects like stacking blocks and cups - put objects inside others and take them out again • select shapes appropriately such as flat surfaces for building or a triangular prism for a roof • combine shapes to make new ones, for example, an arch or a bigger triangle	exploring how things work and are built.			

Design & Technology: Progression of skills

	Design Process	Master techniques	Take inspiration from throughout history
This concept involves understanding how ideas are designed, made, evaluated and improved.		This concept involves developing a skill set so that ideas may be communicated.	This concept involves appreciating the design process that has influenced the products we use in everyday life.
By the en d of KS 1	an intended user. • Make products, refining the design as work progresses.	 Food Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups or electronic scales. Assemble or cook ingredients. Materials Cut 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). Textiles 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). Construction Use materials to practise gluing and nailing materials to make and strengthen products. Mechanics Create products using levers, wheels and winding mechanisms 	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs. Explore how products have been created.

		Design & Technology: Progression of skills	
	Design Process	Master techniques	Take inspiration from throughout history
This concept involves developing the process of design thinking and seeing design as a process.		This concept involves developing a skill set so that ideas may be communicated.	This concept involves appreciating the design process that has influenced the products we use in everyday life.
	the en d design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design.	 Food Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram accurately. Follow a recipe. Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). Materials Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre. Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). Select appropriate joining techniques. Textiles Understand the need for a seam allowance. Join textiles with appropriate stitching. Select the most appropriate techniques to decorate textiles. Construction Choose suitable techniques to construct products or to repair items. Strengthen materials using suitable techniques. Mechanics Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). 	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 reasons for choices. Disassemble products to understand how they work.

Electrical
• Create series and parallel circuits

Design & Technology: Progression of skills

	Design Process	Master techniques	Take inspiration from throughout history
This concept involves understanding how ideas are designed, made, evaluated and improved.		This concept involves developing a skill set so that ideas may be communicated.	This concept involves appreciating the design process that has influenced the products we use in everyday life.
By the en d of UK S2	product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate.	Food	Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products. Evaluate the design of products so as to suggest improvements to the user experience.

Design & Technology Curriculum



Progression of Vocabulary

				Design Technology			
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Strudures	Build, stack, tall, long, strong, weak, brick, wooden block, top side, bottom	Structure 2-D 3-D Cut Fold Join Fix surface thinner, curved, metal, plastic, cuboid, cube, circular round, net	Strength, Cut , join fix, sturdy, Framework, weak, strong, base, top, side, edge, corner, square, rounded,	Shell structure Scoring Tabs Adhesive Assemble Vice shape, net, joining assemble, accuracy, stiff, strong, ribbing, corrugating		Frame Stiffen Reinforce Triangulation Stability Temporary Permeant Specification	rame Stiffen Reinforce Triangulation Stability prototype, Apparatus adapt
Mechanisms	Wheels, turn, vehicle, moving, fixed, spin,	Mechanical Vehicle Wheel Axle holder Chassis Body Cab Assemble Fixed Moving Mechanism Fixing Slider lever Pivot Slot dowl wood,		System Input Output Linear Rotary Attaching Syringe Plunger Pneumatic systems Compression Inflate Deflate	Linear Rotary force, net, scoring, axels, chassis, ribbing, air resistance, aesthetic kinetic energy aerodynamics	Linkage motion slider, pivot structure aesthetic linkage prototype structure	
Electrical					Series circuit Connection Switch Device Battery, Bulb, Bulb Holder, Buzzer component, wire, connectors	Series circuit Connection Switch Device Battery, Bulb, Bulb Holder, Buzzer component, wire, connectors	Buzzer, Light emitting diode (LED), Insulator, assemble, user component, function, copper, circuit symbol, conductor, insulator

	Design Technology						
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	Fabric, felt, glue, pattern.		Fabric, Template, Pattern pieces, Centimetre/metre Needle, Pin, Ribbon, running Stitch, knot, measure, Thread, Velcro, Wool / silk / cotton / velvet / netting	Stiffening, Seam, allowance, Prototype, Running, stitch, Tacking, applique, Shears, stuffing, Centimetre/metre		Wadding Reinforce Pinking shears Mock-up Prototype blanket stitch accurate annotate	
Cookery	Tasting Ingredients Measuring jug Measuring spoons Fruit vegetable Hygiene Cooking Melting	Measure Amount Chopping Board Grater Peeler Recipe Scales Weigh Sensory Method Cutting Chopping Grating Squeezing	Balanced diet Fruit Vegetables chopping, healthy ingredients substitute knife, chopping,		Grams/Kilograms Millilitre/Litre unit of measurement temperature Hygiene Texture Appearance Preference Edible Processed Seasonal Varied diet Budget baking creaming flavour Prototype		Three course balanced diet, vitamins, mineral, nutrition, unit of measurements Seasonality Source Intolerance Allergy Varied Gluten Nutrition vegan budget
Design	Make create design	Planning researching design evaluate make user purpose ideas	Researching design make evaluate user purpose design criteria product	User purpose design criteria model evaluate annotated sketch functional	User purpose design criteria model evaluate annotated sketch functional target audience	User purpose design decisions, design brief, model evaluate annotated sketch functional prototype	User purpose model evaluate annotated sketch functional Prototype innovative function design specification