



Design & Technology

Progression of Knowledge & Skills

Curriculum Intent

It is the intent at John Ruskin Primary School for Design Technology to be taught effectively in all year groups through at least one topic per term. Design Technology projects are often made cross curricular - linking to other subjects taught. Through the study of Design and Technology, it is our intention that the children learn to combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industry. This allows them to reflect on and evaluate past and present technology, its uses and impacts.

Design and Technology 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, engineering, computing and art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.

	Design	Make	Evaluate	Technical knowledge	Cooking and nutrition
	Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products		
Early Learning Goal					
EYFS	<ul style="list-style-type: none"> Begin to use the language of designing and making, e.g. join, build and shape. –Nur, EAD, Au1, Sp2, Su2 Rec L Au1 Rec EAD & PD Au2 Rec PD Sp2 Learning about planning and 	<ul style="list-style-type: none"> To learn to construct with a purpose in mind. Nur, EAD, Au2, Su2 Rec L Au1 Rec EAD & PD Au2 Rec PD Sp2 Selects tools and techniques needed to shape, assemble and 	<ul style="list-style-type: none"> Begin to talk about changes made during the making process, e.g. making a decision to use a different joining method. Nur EAD, Sp2, Rec EAD Au2 Rec PD Sp2 	<ul style="list-style-type: none"> To learn how to use a range of tools, e.g. scissors, hole punch, stapler, woodworking tools, rolling pins, pastry cutters. Nur, EAD, Au1, Sp1, Sp2 Su1 Nur, PD, Au1 Rec PD Au1 Au2 Sp 1 Sp2 Su 1 Su2 	<ul style="list-style-type: none"> To begin to understand some of the tools, techniques and processes involved in food preparation. . Nur UW Au2, PD Sp2 Rec L & PD Sp1 Rec PD Su2

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	<ul style="list-style-type: none"> adapting initial ideas to make them better. Rec PD Sp2 	<ul style="list-style-type: none"> join materials. Nur EAD, Sp1, Su1 Rec L Au1 Rec EAD & PD Au2 Rec PD Sp2 		<ul style="list-style-type: none"> Learn how everyday objects work by dismantling things. Rec PD Sp2 	<ul style="list-style-type: none"> Children have basic hygiene awareness Nur PD Su1 Rec PD Au1 Rec EAD & PD Sp1 Rec PSED Au1
KS1 N.C. Objectives <i>Pupils should be taught to:</i>	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> explore and evaluate a range of existing products evaluate their ideas and products against design criteria 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> use the basic principles of a healthy and varied diet to prepare dishes understand where food comes from
Year 1	<ul style="list-style-type: none"> Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do Model their ideas in card and paper Identify a target group for what they intend to design and make Develop their design ideas applying findings from their earlier research 	<ul style="list-style-type: none"> Make their design using appropriate techniques With help, measure, mark out, cut and shape a range of materials Use tools - scissors and a hole punch (<i>single hole punches will need to be ordered</i>) – safely Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape Select and use appropriate fruit and 	<ul style="list-style-type: none"> Evaluate their product by discussing how well it works in relation to the purpose Evaluate their products as they are developed, identifying strengths and possible changes they might make Evaluate their product by asking questions about what they have made and how they have gone about it 	<ul style="list-style-type: none"> Know simple characteristics of materials and components. Know and investigate the simple movements and mechanisms of simple levers and sliders. Make simple levers and sliders. Know how freestanding structures can be made stronger, stiffer and more stable. Investigate stable structures. Investigate joining using a variety of materials such as 	<ul style="list-style-type: none"> Begin to understand that all food comes from plants or animals. Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught. Start to understand how to name and sort foods into the five groups in 'The Eat well plate' Begin to understand that everyone should eat at least five portions of fruit and vegetables every day. Know how to prepare simple dishes safely and hygienically, without using a heat source.

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		vegetables, processes and tools <ul style="list-style-type: none"> Use basic food handling, hygienic practices and personal hygiene Use simple finishing techniques to improve the appearance of their product e.g. paint, PVA glue 		tape, PVA glue, split pins, pipe cleaners and glue sticks. <ul style="list-style-type: none"> Know the correct technical vocabulary for the projects they are undertaking 	Know how to use techniques such as cutting, peeling and grating.
Year 2	<ul style="list-style-type: none"> Generate ideas by drawing on their own and other people's experiences Develop their design ideas through discussion, observation, drawing and modelling Identify a purpose for what they intend to design and make Identify simple design criteria Make simple drawings and label parts Identify a target group for what they intend to design and make 	<ul style="list-style-type: none"> Begin to select tools and materials; use vocab to name and describe them Measure, cut and score with some accuracy Use tools - a hole punch and stapler - safely and appropriately (<i>staplers and hole punch to be ordered for children to use</i>) <i>Need to add a project/activity to medium term plan to achieve this aim</i> Assemble, join (edge to edge using glue) and combine materials in order to make a product Tie a simple knot to join or decorate. Cut, shape and join fabric to make a simple garment. Use basic sewing techniques 	<ul style="list-style-type: none"> Evaluate against a their design criteria Evaluate their products as they are developed, identifying strengths and possible changes they might make Talk about their ideas, saying what they like and dislike about them 	<ul style="list-style-type: none"> Know and investigate the movements of simple mechanism: wheels and axles. Use wheels and axles. Know that a 3D textiles product can be assembled from two identical fabric shapes. Investigate simple stitching using needles and felt (running stitch) Investigate joining using <i>treasury tags -to be ordered</i> and split pins <i>and string/ribbon and blue tack.</i> Know the correct technical vocabulary for the projects they are undertaking: 	<ul style="list-style-type: none"> Understand that all food comes from plants or animals. Know that food has to be farmed, grown elsewhere (e.g. home) or caught. Understand how to name and sort foods into the five groups in 'The Eat well plate' Know that everyone should eat at least five portions of fruit and vegetables every day. Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source. Demonstrate how to use techniques such as cutting, peeling and grating.

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		<ul style="list-style-type: none"> Follow safe procedures for food safety and hygiene Choose and use appropriate finishing techniques 			
KS2 N.C. Objectives Pupils should be taught to:	<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 generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<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.
Year 3	<ul style="list-style-type: none"> Generate ideas for an item, considering its purpose and the user/s Identify a purpose and establish criteria for a successful product. Plan the order of their work before starting Explore, develop and communicate design proposals by 	<ul style="list-style-type: none"> Select tools and techniques for making their product Measure, mark out, cut, score and assemble components with developing accuracy – make and use gluing tabs Work safely and accurately with a range of simple tools 	<ul style="list-style-type: none"> Evaluate their product against original design criteria e.g. how well it meets its intended purpose Disassemble and evaluate familiar products Investigate and analyse how well products have been designed/made and 	<ul style="list-style-type: none"> Know how to use mathematics to help design and make products work. Know that materials have aesthetic qualities. Know that a single fabric shape can be used to make a 3D textiles product. Know that food ingredients can be 	<ul style="list-style-type: none"> Start to know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand how to prepare and cook a variety of predominantly savoury dishes safely

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	<p>modelling ideas (and using prototypes)</p> <ul style="list-style-type: none"> • Make drawings with labels when designing (use cross-sectional drawings) 	<ul style="list-style-type: none"> • Developing their ideas as they make progress and be willing change things if this helps them improve their work • Measure, tape or pin, cut and join fabric with some accuracy • Demonstrate hygienic food preparation and storage • Use finishing techniques strengthen and improve the appearance of their product using a range of equipment 	<p>why materials were used.</p> <ul style="list-style-type: none"> • understand how key individuals in design and technology have helped shape the world 	<p>fresh, pre-cooked and processed.</p> <ul style="list-style-type: none"> • Investigate packaging and finding ways to strengthen it. • Know the correct technical vocabulary for the projects they are undertaking 	<p>and hygienically including, where appropriate, the use of a heat source.</p> <ul style="list-style-type: none"> • Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Start to understand that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' • Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.
Year 4	<ul style="list-style-type: none"> • Generate ideas, considering the purposes and user/s for which they are designing • Make labelled drawings from different views showing specific features (use cross-sectional drawings and exploded diagrams) • Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and 	<ul style="list-style-type: none"> • Select appropriate tools and techniques for making their product • Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques according to their functional properties • Join and combine materials and components accurately in temporary and permanent ways – use 	<ul style="list-style-type: none"> • Evaluate their work both during and at the end of the assignment • Evaluate their products carrying out appropriate tests • Investigate and analyse how well products have been designed and made, why materials were used and how well they achieve user needs. • understand how key individuals in design and technology have helped shape the world 	<ul style="list-style-type: none"> • Know how to use science to help design and make products. • Know that materials have functional qualities. • Know how mechanical systems such as levers and linkages create movement. • Know how simple electrical circuits and components can be used to create functional products. • Know that mechanical and electrical systems 	<ul style="list-style-type: none"> • Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. • Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. • Know how to use a range of techniques

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	<p>suggesting alternative methods of making, if the first attempts fail</p> <ul style="list-style-type: none"> Evaluate products and identify criteria that can be used for their own designs Use prototypes and pattern pieces to model ideas. 	<p>paper fasteners for card linkages</p> <ul style="list-style-type: none"> Sew using a range of different stitches Measure, tape or pin, cut and join fabric with increasing accuracy 		<p>have an input, process and output.</p> <ul style="list-style-type: none"> Know how to program a computer to control their product. Know the correct technical vocabulary for the projects they are undertaking 	<p>such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <ul style="list-style-type: none"> Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' Know that to be active and healthy, food and drink are needed to provide energy for the body.
Year 5	<ul style="list-style-type: none"> Generate ideas through brainstorming and identify a purpose for their product (Use computer-aided design) Draw up a specification for their design Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail Use results of investigations, information sources, including ICT when developing design ideas Produce detailed designs and plans 	<ul style="list-style-type: none"> Select appropriate materials, tools and techniques Measure and mark out accurately Use skills in using different tools and equipment safely and accurately Weigh and measure accurately (time, dry ingredients, liquids) Cut and join with accuracy to ensure a good-quality finish to the product, including using finishing techniques from art and design sessions to improve the aesthetic qualities Apply the rules for basic food hygiene and other safe practices e.g. hazards 	<ul style="list-style-type: none"> Evaluate a product against the original design specification Evaluate it personally and seek evaluation from others Consider cost, sustainability and the impact of a product understand how key events and individuals in design and technology have helped shape the world 	<ul style="list-style-type: none"> Know that materials can be combined and mixed to create more useful characteristics. Know how to reinforce and strengthen a 3D framework. Know how more complex electrical circuits and components can be used to create functional products. Know that a recipe can be adapted by adding or substituting one or more ingredients. Know the correct technical vocabulary for the projects they are undertaking 	<ul style="list-style-type: none"> Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. Begin to understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Start to understand how to use a range of

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	<p>using prototypes, commentary and diagrams that include accurate measurements</p> <ul style="list-style-type: none"> • Use pattern pieces to model ideas 	<p>relating to the use of ovens</p> <ul style="list-style-type: none"> • 			<p>techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <ul style="list-style-type: none"> • Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.
Year 6	<ul style="list-style-type: none"> • Communicate their ideas through detailed labelled drawings (Use computer-aided design) • Develop a detailed design specification based on research carried out • Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways • Plan the order of their work, choosing appropriate materials, tools and techniques • Make informed decisions based on time, cost and resource constraints 	<ul style="list-style-type: none"> • Select appropriate tools, materials, components and techniques • Assemble components make working models • Use tools safely and accurately • Construct products using the most effective temporary or permanent joining techniques according to their functional properties and aesthetic qualities • Pin, sew, stitch and crochet materials together create a product • Achieve a quality product, making modifications as they go 	<ul style="list-style-type: none"> • Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests • Record their evaluations using drawings with labels • Evaluate against their original criteria and suggest ways that their product could be improved • Investigate and analyse product costs, how innovative they are, sustainability and the impact beyond their intended purpose • understand how key events and individuals in design and technology have helped shape the world 	<ul style="list-style-type: none"> • Know how mechanical systems such as pulleys and gears create movement. • Know how to program a computer to monitor changes in the environment and control their products. • Know that 3D textiles products can be made through a combination of fabric shapes. • Know the correct technical vocabulary for the projects they are undertaking 	<ul style="list-style-type: none"> • Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. • Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking. • Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. • Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Know different food and drink contain different

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					substances – nutrients, water and fibre – that are needed for health.