Ditton Primary School Design and Technology



Curriculum INTENT

CORE VALUES:

CHILDREN FIRST

RESILIENCE

PIONEERING

	laying & Exploring - Engageme	nt		Active Learning - Motiv	vation			Creating & Thinki	ng Criticall	y - Thinking	
Finding out & exploring Playing with what they know Ke			Keep on Enjoying	g involved & concentrating o on trying ying achieving what they set out to do		Creating & Thinking Critically - Thinking Having their own ideas (creative thinking) Making links (building theories) Working with ideas (critical thinking) 					
Share their cr Make use of	d explore a variety of materials eations, explaining the process props and materials when role-	they have used playing characters in narrat	ives and s	stories							
ocus	Designing	Making	Evalu	uating	Technica	l Skills	Food Techno	ology	Vocabula	ary- To be used daily.	
Reception Skills	 Develop own ideas through experimentation with diverse materials to express & communicate their discoveries & understanding Create collaboratively sharing ideas, resources & skills 	 Use increasing knowledge & understanding of tools & materials to explore thei interests & enquiries & develop their thinking Create representations both imaginary & real-lif ideas, events, people & objects 	com theor unde • Res to art • Ret previ refini devel repre • Dise	press & municates working ries, feelings & erstandings sponds imaginatively t works & objects turn to & build on ious learning, ing ideas & loping their ability to esent them cuss problems & they might be	materialsUse too independent	ues for joining differences, patterns & ch els • Know & talk about the		patterns & change Ik about the tors that support	gluing, te tools, str wheels, improve	Itting, measure, folding, joining, Jing, tearing, decorate, printing, ols, strong, shape, materials, textiles, neels, equipment, like, dislike, prove, better, cutting, plants, imals, farming, foods.	
Reception Knowledge	Autumn 1 Animals and Friendships	Autumn 2	~	Superheroe	20	Sprir Traditior	-	Summer 1 Growing	L	Summer 2 Seaside	
	 Can work together to mak structures eg building a house/home/school. Can use colour and materials to express how they are feeling through ow creations using a variety of textures. 	 Can use an increasing range of tools such as; building tools and gardening tools with accuracy. Can use an increasing range of tools such as; building tools and gardening tools with accuracy. Begins to talk about the effect of exercise and food on their health. Can use an increasing representations in relation to under the sea; explain how they work and what they have used and why. Can create own representations in relation to under the sea; explain how they work and what they have used and why. Can use an increasing range of small construction such as mobilo, Lego, stickle 		 'From food to Understand whe comes from and growing their ov vegetables, harv preparing, and e Can brush own talk about the ir good oral health 	o fork'. here food here food h		d and ate their nat is that	•To use a range of material and split pins to connect an join materials to make a moving puppet.			
	Food			Mechani	icmc	I			Structure		

Vear 1. Design	and Technology skills progression	
		Design
KS1: POS Use To u Desi Sele joini Sele ingro Expl Expl Use that Gen- prot Sele finis Inve	and Technology skills progression the basic principles of a healthy and varied diet to prepare dishes. understand where food comes from. ign purposeful, functional, appealing products for themselves and other users based on design criteria. ext from and use a range of tools and equipment to perform practical tasks [for example cutting, shaping, ing and finishing]. ext from and use a wide range of materials and components, including construction materials, textiles and redients, according to their characteristics. lore and evaluate a range of existing products. lore and use mechanisms [for example levers, sliders, wheels and axles], in their products. research and develop design criteria to inform the design of innovative, functional, appealing products t are fit for purpose, aimed at particular individuals or groups. Herete, develop, model and communicate their ideas through discussion, annotated sketches and totypes. ext from tools and equipment to perform practical tasks [for example, cutting, shaping, joining and shing] accurately. estigate and analyse a range of existing products.	 Design appealing products for a particular user based on simple design criteria. Communicate these ideas through talk and drawings. Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through drawings and mock-ups with card and paper.
	luate their ideas and products against their own design criteria.	
 Sele e.g. Plan Sele Use Sele Sele Sele Sele Sele Sele Mnd Und Und Knov Expl Und 	ext from a range of fruit and vegetables according to their characteristics . colour, texture and taste to create a chosen product. In by suggesting what to do next. ect and use tools, explaining their choices, to cut, shape and join paper and card. est and use tools, explaining their choices, to cut, shape and join paper and card. est and use tools, skills and techniques, explaining their choices. ect new and reclaimed materials and construction kits to build their structures. et and use tools, skills and techniques, explaining their choices. ect new and reclaimed materials and construction kits to build their structures. et read use tools of fruit and vegetables come from e.g. farmed or grown at home. Herstand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetation wand use technical and sensory vocabulary relevant to the project. lore and use sliders and levers. Herstand that different mechanisms produce different types of movement. we how to make freestanding structures stronger, stiffer and more stable.	 Evaluate Taste and evaluate a range of fruit and vegetables to determine the intended users' preference. Explore a range of existing books and everyday products that use simple sliders and levers. Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.
		End points
Food – Prepari fruit and veget		es, including how fruit and vegetables are part of 'The eatwell plate'.
Mechanisms –		
and Levers	Understand that different mechanisms produce different types of movement	
Structures – Freestanding structures	 Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical and sensory vocabulary relevant to the project. 	
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ear 2: Design and Technology skills progression				
 I: POS Use the basic principles of a healthy and varied diet to prepare dishes. To understand where food comes from. Design purposeful, functional, appealing products for themselves and other users based on design criteria. 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. Explore and use mechanisms [for example levers, sliders, wheels and axles], in their products. 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 and prototypes. Select from tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. Investigate and analyse a range of existing products. 	 Design Design appealing products for a particular user based on simple design criteria. Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. Design a functional and appealing product for a chosen user and purpose based on simple design criteria. Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through talk, drawings and mock-ups. 			
 Evaluate their ideas and products against their own design criteria. Take Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. Select from and use textiles according to their characteristics. Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. 	 Evaluate Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. Evaluate ideas and finished products against design criteria, including intended user and purpose. Explore and evaluate a range of existing textile products relevant to the project being undertaken. Evaluate their ideas throughout and their final products against original design criteria. Explore and evaluate a range of products with wheels and axles. 			
 Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of the Eatwell plate. Know and use technical and sensory vocabulary relevant to the project. Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. 	 Understand how simple 3-D textile products are made, using a template to create two identical shapes. Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. 			
	- End points			
Food – Preparing fruit and vegetables Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of 'The eatwell plate'. Know and use technical vocabulary relevant to the project. Textiles- Templates and Joining • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching sequins, buttons and ribbons.				
echanisms- Wheels • Explore and use wheels, axles and axle holders. ad Axels • Distinguish between fixed and freely moving axles.				
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Year 3: Design a	and Technology skills progression	
KS2- POS		Design
 To un Prepa To un proce To us that a To ge section Selection shapi Selection selection	Inderstand and apply the principles of a healthy and varied diet bare and cook a variety of predominantly savoury dishes using a range of cooking techniques inderstand seasonality, and know where and how a variety of ingredients are grown, reared, caught and sessed. Ise research and develop design criteria to inform the design of innovative, functional, appealing products are fit for purpose, aimed at particular individuals or groups. Inderstand exploded diagrams, prototypes, pattern pieces and computer-aided design. Ct from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, ping, joining and finishing], accurately. Ct from and use a wider range of materials and components, including construction materials, textiles and edients, according to their functional properties and aesthetic qualities. stigate and analyse a range of existing products. uate their ideas and products against their own design criteria and consider the views of others to improve r work. Inderstand how key events and individuals in design and technology have helped shape the world y their understanding of how to strengthen, stiffen and reinforce more complex structures inderstand and use mechanical systems in their products.	 Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. Use annotated sketches and prototypes to develop, model and communicate ideas. Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. Use annotated sketches and appropriate information and communication technology, such as webbased recipes, to develop and communicate ideas. Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.
	ly their understanding of computing to program, monitor and control their products.	
 Select Plan Select Select Select chara Select accur Expla Use f Technical Know Undet Distin Know Know Know 	er the main stages of making. ect from and use finishing techniques suitable for the product they are creating. In the main stages of a recipe, listing ingredients, utensils and equipment. ect and use appropriate utensils and equipment to prepare and combine ingredients. ect from a range of ingredients to make appropriate food products, thinking about sensory racteristics. ect and use appropriate tools to measure, mark out, cut, score, shape and assemble with some uracy. lain their choice of materials according to functional properties and aesthetic qualities. finishing techniques suitable for the product they are creating. Viedge lerstand and use lever and linkage mechanisms. inguish between fixed and loose pivots. w how to use appropriate equipment and utensils to prepare and combine food. w about a range of fresh and processed ingredients appropriate for their product, and whether they grown, reared or caught.	 Evaluate Investigate and analyse books and, where available, other products with lever and linkage mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make. Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used. Test and evaluate their own products against design criteria and the intended user and purpose. Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Know and use technical vocabulary relevant to the project. Know and use relevant technical and sensory vocabulary appropriately.
		End points
Levers and Link (Mechanical Sys	kages • Understand and use lever and linkage mechanisms. (stems) • Distinguish between fixed and loose pivots.	
Cooking and Nutrition (Healt and Varied Diet Shell Structures	t)	
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ar 4: Design and Technology skills progression Pos	Design
 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 To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. To 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. To 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 wider 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. To 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 To understand and use mechanical systems in their products. 	 Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. Produce annotated sketches, prototypes, final product sketches and pattern pieces
• Apply their understanding of computing to program, monitor and control their products.	
 Order the main stages of making. Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. Select from and use finishing techniques suitable for the product they are creating. Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. 	 Evaluate Investigate and analyse books, videos and products with pneumatic mechanisms. Evaluate their ideas and products against their own design criteria and identify the strengths and area for improvement in their work. Investigate a range of 3-D textile products relevant to the project. Take into account others' views. Understand how a key event/individual has influenced the development of the chosen product and/o fabric.
 nical Knowledge Understand and use pneumatic mechanisms. Know and use technical vocabulary relevant to the project. Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. Apply their understanding of computing to program and control their products. 	 Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together. Understand the need for patterns and seam allowances.

	Year 4 – End points						
Pneumatics	•	Understand and use pneumatic mechanisms.					
Electrical Systems-	•	Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.					
Circuits and Switches		Apply their understanding of computing to program and control their products.					
Textiles- 2D shapes	•	Know how to strengthen, stiffen and reinforce existing fabrics.					
to a 3D product	•	Understand how to securely join two pieces of fabric together.					
	Understand the need for patterns and seam allowances.						
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Year 5: Design and Technology skills progression					
 KS22 POS 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 To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. To 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. To 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 wider 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. To 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 To understand and use electrical systems in their products. 	 Design Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and webbased resources. Develop a simple design specification to guide their thinking. Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computeraided design. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. 				
Make • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost. • Write a step-by-step recipe, including a list of ingredients, equipment and utensils. • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose. • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project	 Evaluate Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Investigate famous manufacturing and engineering companies relevant to the project. Investigate and analyse textile products linked to their final product. Compare the final product to the original design specification. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Fabrics can be strengthened, stiffened and reinforced where appropriate. Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. 				
Year 5 – End points					
 Mechanical Systems Understand that mechanical and electrical systems have an input, process and a Understand how gears and pulleys can be used to speed up, slow down or change 	ge the direction of movement.				
different fabrics)Fabrics can be strengthened, stiffened and reinforced where appropriate.Food and Nutrition (Celebrating Culture•Know how to use utensils and equipment to prepare and cook food.	t fabrics) Fabrics can be strengthened, stiffened and reinforced where appropriate. d Nutrition • Know how to use utensils and equipment to prepare and cook food. sting Culture •				

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	S: Design and Technology skills progression	
<u>2- POS</u> - - - - - - - - - - - - - - - - - - -	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 To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. To 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. To 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 wider 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. To 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 To understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products.	 Design Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Generate and develop innovative ideas and share and clarify these through discussion. Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams. Carry out research into user needs and existing products, using surveys, interviews, questionnaires and webbased resources. Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.
ake • • • • • • • • •	Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment. Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. Use finishing and decorative techniques suitable for the product they are designing and making. Knowledge Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products.	 Evaluate Continually evaluate and modify the working features of the product to match the initial design specification. Test the system to demonstrate its effectiveness for the intended user and purpose. Investigate famous inventors who developed ground-breaking electrical systems and components. Investigate and evaluate a range of existing frame structures. Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. Research key events and individuals relevant to frame structures.
•	Know and use technical vocabulary relevant to the project. Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.	

	Year 6 – End points				
Electrical Systems	Understand and use electrical systems in their products.				
(More Complex	Apply their understanding of computers to program, monitor and control their products.				
Switches and Circuits)	 Understand about seasonality in relation to food products and the source of different food products. 				
	698				
Textiles (Framed	Understand how to strengthen, stiffen and reinforce 3-D frameworks.				
Structures)					

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