Curriculum statement for Design & Technology

Intent	At St John's Catholic Primary School, through design and technology we aim to inspire pupils to use their imagination and problem solving to design, make and evaluate a range of projects. Design technology allows the children to think creatively and become innovators, whilst working in a team or individually. Pupils will build and apply their knowledge, understanding and skills in order to design and make prototypes and products for a variety of users. Pupils will have a good understanding of the design, make and evaluate process. Pupils will become curious about how things work and develop when designing, making and evaluating their own product.

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Implementation	Our curriculum is planned to allow the children to build on skills and knowledge as they progress through the school. The children in Early Years are provided with an environment which is carefully set up to allow children to work toward their early learning goals. In Key Stage one and two we follow the DT Association's 'projects on a page' which have been adapted to suit our setting whilst embedding their key principle of designing something, for some one, for some purpose (the 3 s's). In Key stage one, DT is taught through Food and nutrition, mechanisms, structures and textiles. In Key stage electrical systems are introduced so the units are; food and nutrition, electrical systems, mechanical systems, structures and textiles. In key stage two the children will be taught about a key inventor/craftsman. In our school progression document, key vocabulary, skills and knowledge are clearly outlined for each year group. Skills and knowledge are taught and built upon as the children progress through the school. DT is alternated with Art through the year. Each child will complete three, six week units, of DT through the year. For each unit of work, the children have a project booklet, each booklet outlines the vocabulary, skills and knowledge the children will be studying. Each child in KS1 and KS2 has their own DT folder for their booklets which will progress with them through the school. These contain the children's product research, design criteria, prototype, plan, a photo of their final design and an evaluation. Lessons are carefully planned, using our DT progression document, and key learning objectives are outlined on the whiteboards. We assess at the end of each unit in key stage one and two. A key knowledge grid is at the end of the children's booklets and the children reflect and assess themselves against this key knowledge. The teachers will then assess their learning too. We adapt learning through vocabulary used, allowing the children to select which media they would like to use. Scaffolding learning by looking back at the previous key stages knowledge and skills. We deepen children's knowledge using vocabulary to stretch their skills. Plus, encourage the children to challenge themselves by exploring and practicing more challenging/different techniques.

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	Long term plan					
	Autumn		Spring		Summer	
Reception	Physical development – Early Learning Goal (ELG): Fine Motor Skills Use a range of small tools, including scissors, paint brushes and cutlery Begin to show accuracy and care when drawing. Expressive Arts and Design – ELG: Creating with Materials Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used.					
Year 1	**Food and nutrition**– Fruit salad			**Mechanisms** – Wheels and axles		**Textiles** – Templates and joining techniques
Year 2	**Food and nutrition** – Sandwiches	**Mechanisms** – Sliders and levers		**Structures** – Free standing structures		
Year 3	**Food and nutrition**– Greek salad and tzatziki		**Structures** – Shell structures using CAD			**Mechanical systems** – Levers and linkages
Year 4		**Textiles** – 2D shape to 3D product			**Electrical systems** – Simple circuits and switches	**Food and nutrition** – Italian pizza

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Year 5		**Mechanical systems** – Pulleys or gears	**Food and nutrition** – Mexican tacos/burrito, guacamole		**Structures**- Frame structures	
Year 6		**Food and nutrition** – Cous cous	**Electrical systems** – More complex switches and circuits			**Textiles**- Using CAD in textiles

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	EYFS foundations in Design & Technology curriculum
	<u>Physical development – Early Learning Goal (ELG): Fine Motor Skills</u> Use a range of small tools, including scissors, paint brushes and cutlery Begin to show accuracy and care when drawing. <u>Expressive Arts and Design – ELG: Creating with Materials</u> Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Share their creations, explaining the process they have used

	Progression of Design & Technology Knowledge and Skills		
<u>Designing</u>	KS1	LKS2	UKS2
Understanding contexts, users and purposes	Across KS1 pupils should: • work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas	Across KS2 pupils should: • work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work In Lower KS2 pupils should also: • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas	In Upper KS2 pupils should also: • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking
Generating, developing,	Across KS1 pupils should: • generate ideas by drawing on their own experiences	Across KS2 pupils should: • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces	

<table>
<tr><td rowspan="2">modelling and communicating ideas</td><td rowspan="2">• use knowledge of existing products to help come up with ideas
• develop and communicate ideas by talking and drawing
• model ideas by exploring materials, components and construction kits and by making templates and mock-ups
• use information and communication technology, where appropriate, to develop and communicate their ideas</td><td colspan="2">• use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas
• use computer-aided design to develop and communicate their ideas</td></tr>
<tr><td>In Lower KS2 pupils should also:
• generate realistic ideas, focusing on the needs of the user
• make design decisions that take account of the availability of resources</td><td>In Upper KS2 pupils should also:
• generate innovative ideas, drawing on research
• make design decisions, taking account of constraints such as time, resources and cost</td></tr>
</table>

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<table>
<tr><th><u>Making</u></th><th>KS1</th><th colspan="2">LKS2</th><th>UKS2</th></tr>
<tr><td>Planning</td><td rowspan="2">Across KS1 pupils should:
• plan by suggesting what to do next
• select from a range of tools and equipment, explaining their choices
• select from a range of materials and components according to their characteristics</td><td colspan="3">Across KS2 pupils should:
• select tools and equipment suitable for the task
• explain their choice of tools and equipment in relation to the skills and techniques they will be using
• select materials and components suitable for the task
• explain their choice of materials and components according to functional properties and aesthetic qualities</td></tr>
<tr><td colspan="2">In Lower KS2 pupils should also:
• order the main stages of making</td><td>In Upper KS2 pupils should also:
• produce appropriate lists of tools, equipment and materials that they need
• formulate step-by-step plans as a guide to making</td></tr>
<tr><td>Practical skills and techniques</td><td rowspan="2">Across KS1 pupils should:
• follow procedures for safety and hygiene
• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components
• measure, mark out, cut and shape materials and components
• assemble, join and combine materials and components
• use finishing techniques, including those from art and design</td><td colspan="3">Across KS2 pupils should:
• follow procedures for safety and hygiene
• use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</td></tr>
<tr><td colspan="2">In Lower KS2 pupils should also:
• measure, mark out, cut and shape materials and components with some accuracy
• assemble, join and combine materials and components with some accuracy
• apply a range of finishing techniques, including those from art and design, with some accuracy</td><td>In Upper KS2 pupils should also:
• accurately measure, mark out, cut and shape materials and components
• accurately assemble, join and combine materials and components
• accurately apply a range of finishing techniques, including those from art and design
• use techniques that involve a number of steps
• demonstrate resourcefulness when tackling practical problems</td></tr>
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<table>
<tr><th><u>Evaluating</u></th><th>KS1</th><th colspan="2">LKS2</th><th>UKS2</th></tr>
<tr><td>Own ideas and products</td><td rowspan="2">Across KS1 pupils should:
• talk about their design ideas and what they are making
• make simple judgements about their products and ideas against design criteria
• suggest how their products could be improved</td><td colspan="3">Across KS2 pupils should:
• identify the strengths and areas for development in their ideas and products
• consider the views of others, including intended users, to improve their work</td></tr>
<tr><td colspan="2">In Lower KS2 pupils should also:
• refer to their design criteria as they design and make
• use their design criteria to evaluate their completed products</td><td>In Upper KS2 pupils should also:
• critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make
• evaluate their ideas and products against their original design specification</td></tr>
<tr><td rowspan="2">Existing products</td><td rowspan="2">Across KS1 pupils should explore:
• what products are
• who products are for
• what products are for
• how products work
• how products are used
• where products might be used
• what materials products are made from
• what they like and dislike about products</td><td colspan="3">Across KS2 pupils should investigate and analyse:
• how well products have been designed
• how well products have been made
• why materials have been chosen
• what methods of construction have been used
• how well products work
• how well products achieve their purposes
• how well products meet user needs and wants</td></tr>
<tr><td colspan="2">In Lower KS2 pupils should also investigate and analyse:
• who designed and made the products
• where products were designed and made
• when products were designed and made
• whether products can be recycled or reused</td><td>In Upper KS2 pupils should also investigate and analyse:
• how much products cost to make
• how innovative products are
• how sustainable the materials in products are
• what impact products have beyond their intended purpose</td></tr>
<tr><td>Key events and individuals</td><td>Not a requirement in KS1</td><td colspan="3">Across KS2 pupils should know:
• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</td></tr>
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<table>
<tr><th>Technical Knowledge</th><th>KS1</th><th>LKS2</th><th>UKS2</th></tr>
<tr><td rowspan="2">Making products work</td><td rowspan="2">Across KS1 pupils should know:
• about the simple working characteristics of materials and components
• about the movement of simple mechanisms such as levers, sliders, wheels and axles
• how freestanding structures can be made stronger, stiffer and more stable
• that a 3-D textiles product can be assembled from two identical fabric shapes
• that food ingredients should be combined according to their sensory characteristics
• the correct technical vocabulary for the projects they are undertaking</td><td colspan="2">Across KS2 pupils should:
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<table>
<tr><th><u>Cooking and nutrition</u></th><th>KS1</th><th>LKS2</th><th>UKS2</th></tr>
<tr><td>Where food comes from</td><td rowspan="2">Across KS1 pupils should know:
• that all food comes from plants or animals
• that food has to be farmed, grown elsewhere (e.g. home) or caught</td><td colspan="2">Across KS2 pupils should 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</td></tr>
<tr><td></td><td>In Upper KS2 pupils should also know:
• that seasons may affect the food available
• how food is processed into ingredients that can be eaten or used in cooking</td></tr>
<tr><td>Food preparation, cooking and nutrition</td><td rowspan="2">Across KS1 pupils should know:
• how to name and sort foods into the five groups in The eatwell plate
• that everyone should eat at least five portions of fruit and vegetables every day
• how to prepare simple dishes safely and hygienically, without using a heat source
• how to use techniques such as cutting, peeling and grating</td><td colspan="2">Across KS2 pupils should know:
• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</td></tr>
<tr><td>In Lower KS2 pupils should also know:
• that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate
• that to be active and healthy, food and drink are needed to provide energy for the body</td><td>In Upper KS2 pupils should also know:
• that recipes can be adapted to change the appearance, taste, texture and aroma
• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</td></tr>
<tr><td>Food skills</td><td>Across KS1 pupils should know:
how to name and use a range of basic cooking skills with support.
E.g.
• Peel (with a peeler)
• Mix (with increasing thoroughness)
• Spread (soft ingredients)</td><td>Across Lower KS2 pupils should know:
how to name and use a range of cooking skills with increasing competence.
E.g.
• Peel (with a peeler)
• Mix (thoroughly)</td><td>Across Upper KS2 pupils should know:
how to name and use a range of cooking skills with confidence and accuracy to prepare increasingly challenging ingredients.
E.g.</td></tr>
</table>

	• Measure (with measuring spoons) • Snip with kitchen scissors • Grate (soft foods like cheese) • Shape • Crush (soft fruit with a potato masher) • Juice (juicer) • Cut out with cutters • Spoon ingredients (in to different containers) • Arrange • Thread (soft foods onto a cocktail stick, e.g. strawberries, satsuma segments) • Sift (flour into a bowl)	• Spread (evenly over food) • Measure (with measuring jug, scales) • Snip with kitchen scissors (with greater control) • Grate (firmer foods like carrots) • Shape (with greater precision) • Press (garlic press) • Cut out with cutters (positioning carefully to avoiding wasting ingredients) • Spoon ingredients (using two spoons) • Arrange (in an attractive way) Thread (medium resistance foods onto a kebab stick, e.g. mushrooms, courgettes) • Crack an egg • Cut (soft foods with table knife progressing to firmer foods** with a vegetable knife) using: -Fork secure -Claw grip	• Peel (to create ribbons, e.g. carrots, courgettes) • Mix (fold ingredients together e.g. flour into a mixture) • Measure accurately (using digital scales, analogue scales, measuring jug) • Grate (with greater control and skill, e.g. zest from a lemon, nutmeg) • Thread (firmer foods onto kebab sticks, e.g. onions) • Cut (firm*** and other foods with a vegetable knife) using: -Fork secure -Claw grip -Bridge hold *** potatoes, carrots

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	Key Knowledge for Key Stages 1 & 2					
	Autumn		Spring		Summer	
Year 1	Food and nutrition- Fruit salad			Mechanisms – Wheels and axles		Textiles – Templates and joining techniques
Key knowledge	(see above cooking and nutrition progression statement)			To know the difference between a wheel, axle and axle holder. To distinguish between fixed and freely moving parts. Know and use technical vocabulary relevant to the project		To know that a simple 3D textile product is made using a template with identical shapes. To know you can join fabrics in different ways. To know how to finish a product using sequins, stitching, fabric crayons, buttons and ribbons. Know and use technical vocabulary relevant to the project
Year 2	Food and nutrition – Sandwiches	Mechanisms – Sliders and levers		Structures – Free standing structures		

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Key knowledge	(see above cooking and nutrition progression statement)	To understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the project		To know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project		
Year 3	Food and nutrition- Greek salad and tzatziki		Structures – Shell structures using CAD			Mechanical systems – Levers and linkages
Key knowledge	(see above cooking and nutrition progression statement)		To know about nets for cubes, cuboids and where appropriate more complex 3D shapes. To know how to construct strong, stiff shell structures. Know and use technical vocabulary relevant to the project. Sir Nicholas Grimshaw (The Eden project)			To understand and use lever and linkage mechanisms. To distinguish between fixed and loose pivots To know and use technical vocabulary relevant to the project

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Year 4		Textiles – 2D shape to 3D product			Electrical systems – Simple circuits and switches	Food and nutrition – Italian pizza
Key knowledge		To know how to strengthen, stiffen and reinforce existing fabrics. To understand how to securely join two pieces of fabric together. To understand the need for patterns and seam allowances. Know and use technical vocabulary relevant to the project. Kath kidson			To understand and use an electrical system in their product, such as a series circuit incorporating switches, bulbs and buzzers. Know and use technical vocabulary relevant to the project Schuyler Wheeler (electric fan)	(see above cooking and nutrition progression statement)
Year 5		Mechanical systems – Pulleys or gears	Food and nutrition – Mexican tacos/burrito, guacamole		Structures- Frame structures	
Key knowledge		To know that mechanical and electrical systems have an	(see above cooking and nutrition		To know how to strengthen, stiffen and	

		input and, process and an output. To know 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	progression statement)		reinforce 3D frameworks. Know and use technical vocabulary relevant to the project Charle Leon Stephen Sauvestre (Eiffel Tower)	
Year 6		Food and nutrition – Cous cous	Electrical systems – More complex switches and circuits			Textiles- Using CAD in textiles
Key knowledge		(see above cooking and nutrition progression statement)	To use electrical systems in their products. To apply their understanding of computing to programme, monitor and control their products. Know and use technical vocabulary			To know a 3D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. To know fabrics can be strengthened, stiffened and

			relevant to the project. Joel Spira (dimmer switch)			reinforced where appropriate. Know and use technical vocabulary relevant to the project. Orla Kiely
Impact	Children will have clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum. Children will ultimately know more, remember more and understand more about Design Technology, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school. The large majority of children will achieve age related expectations in Design Technology. As designer's children will develop skills and attributes they can use beyond school and into adulthood.					

Key learning outcomes by the end of KS2	Knowledge	Skills	Vocabulary
	As a year 6 Designer and Technologist, transitioning to secondary school, we aspire that pupils will have gained knowledge and understanding of different skills and techniques required to problem-solve by designing and creating a variety of products using a safe approach.	They will have an understanding of the skills used in the research, design, make and evaluate process, as well as techniques learnt will aid them in future life and learning.	The children will be using and understanding richer technical vocabulary associated with DT.