



# St Marys Catholic Primary School

## Design and Technology Progression Grid



**At St Marys, we have a consistent, whole school approach to DT, where the whole school focuses on one part of the curriculum each term and all outcomes have a purpose. In Autumn, we focus on mechanisms, where each class makes a toy that can be sold at our Christmas market. In Spring, we focus on textiles and encourage classes to become entrepreneurs and find a way to sell their products to make a profit that they can use within their classrooms. In Summer, our focus is on food and hygiene, where all classes make some type of food that the children can then enjoy at a whole school picnic (see our roadmaps for how this is set out in more detail)**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>R e s e a r c h/ D e s i g n</b>	<b>KS1 Design and Technology National Curriculum</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.  They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].  Children design purposeful, functional, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where		<b>KS2 Design and Technology National Curriculum</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing.  They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].  Children 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.  They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.			

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<p>appropriate, information and communication technology.</p>					
<p>Begin to draw on their own experience to help generate ideas and research conducted on criteria.</p>	<p>Start to generate ideas by drawing on their own and other people's experiences.</p>	<p>With growing confidence generate ideas for an item, considering its purpose and the user/s.</p>	<p>Start to generate ideas, considering the purposes for which they are designing - link with Mathematics and Science.</p>	<p>Start to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.</p>	<p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.</p>
<p>Begin to understand the development of existing products: What they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do.</p>	<p>Begin to develop their design ideas through discussion, observation, drawing and modelling.</p>	<p>Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product.</p>	<p>Confidently make labelled drawings from different views showing specific features.</p>	<p>Begin to use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</p>	<p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</p>
<p>Understand how to identify a target group for what they intend to design and make based on a design criteria.</p>	<p>Identify a purpose for what they intend to design and make.</p>	<p>Understand how well products have been designed, made, what materials have been used and the construction technique.</p>	<p>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. Identify the strengths and areas for development in their ideas and products.</p>	<p>With growing confidence apply a range of finishing techniques, including those from art and design.</p>	<p>Accurately apply a range of finishing techniques, including those from art and design.</p>
<p>Begin to develop their ideas through talk and drawings. Make templates and mock ups of their ideas in card and paper or using ICT</p>	<p>Develop their ideas through talk and drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT.</p>	<p>Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p>	<p>When planning consider the views of others, including intended users, to improve their work</p>	<p>Draw up a specification for their design- link with Mathematics and Science</p>	<p>Draw up a specification for their design- link with Mathematics and Science.</p>
		<p>Start to understand whether products can be recycled or reused.</p>	<p>Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p>	<p>Use results of investigations, information sources, including ICT when developing design ideas.</p>	<p>Plan the order of their work, choosing appropriate materials, tools and techniques.</p>
		<p>Know to make drawings with labels when designing.</p>	<p>When planning explain their choice of materials and components according to function and aesthetic.</p>	<p>With growing confidence select appropriate materials, tools and techniques.</p>	<p>Suggest alternative methods of making if the first attempts fail.</p>
		<p>When planning explain their choice of materials and components including function and aesthetics.</p>		<p>Start to understand how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.</p>	<p>Identify the strengths and areas for development in their ideas and products.</p>
					<p>Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.</p>

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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Make	<p><b>KS1 Design and Technology National Curriculum</b></p> <p>Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.</p> <p>Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p>		<p><b>KS2 Design and Technology National Curriculum</b></p> <p>Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of making.</p> <p>Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.</p> <p>They 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.</p>			

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	<p>Begin to make their design using appropriate techniques.</p> <p>With support, follow a plan or basic recipe.</p> <p>Begin to build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>With help measure, mark out, cut and shape a range of materials.</p> <p>Explore using tools, including kitchen equipment e.g. scissors and a hole-punch safely.</p> <p>Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape.</p> <p>Begin to use simple finishing techniques to improve the appearance of their product</p>	<p>Begin to select tools, including kitchen tools, and materials; use correct vocabulary to name and describe them.</p> <p>Follow a plan or basic recipe.</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>With help measure, cut and score with some accuracy. Learn to use hand tools safely and appropriately.</p> <p>Start to assemble, join and combine materials in order to make a product.</p> <p>Demonstrate how to cut, shape and join fabric to make a simple product. Use basic sewing techniques.</p> <p>Start to choose and use appropriate finishing techniques based on own ideas.</p>	<p>Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.</p> <p>Begin to place main stages of a plan or recipe, in order.</p> <p>Explain their choice of tools and equipment in relation to the skills and techniques they will be using.</p> <p>Start to understand that mechanical and electrical systems have an input, process and output.</p> <p>Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement.</p> <p>Know how simple electrical circuits and components can be used to create functional products.</p> <p>Measure, mark out, cut, score and assemble components with more accuracy.</p> <p>Start to work safely and accurately with a range of simple tools.</p> <p>Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.</p> <p>Start to measure, tape or pin, cut and join fabric with some accuracy</p>	<p>Select a wider range of tools and techniques for making their product safely.</p> <p>Place main stages of a plan or recipe, in order.</p> <p>Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.</p> <p>Start to join and combine materials and components accurately in temporary and permanent ways.</p> <p>Know how mechanical systems such as cams or pulleys or gears create movement.</p> <p>Understand how more complex electrical circuits and components can be used to create functional products.</p> <p>Continue to learn how to program a computer to monitor changes in the environment and control their products.</p> <p>Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches, to weave and knit.</p> <p>Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy.</p> <p>Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</p>	<p>Select appropriate materials, tools and techniques e.g. cutting, shaping, joining and finishing, accurately.</p> <p>Begin to plan by suggesting what to do next.</p> <p>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.</p> <p>Understand how mechanical systems such as cams or pulleys or gears create movement.</p> <p>Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products.</p> <p>Understand that mechanical and electrical systems have an input, process and output.</p> <p>Begin to measure and mark out more accurately.</p> <p>Demonstrate how to use skills in using different tools and equipment safely and accurately with growing confidence cut and join with accuracy to ensure a good-quality finish to the product.</p> <p>Weigh and measure accurately (time, dry ingredients, and liquids).</p> <p>Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</p>	<p>Confidently select appropriate tools, materials, components and techniques and use them.</p> <p>Independently plan by suggesting what to do next.</p> <p>Use tools safely and accurately.</p> <p>Assemble components to make working models.</p> <p>Aim to make and to achieve a quality product.</p> <p>With confidence pin, sew and stitch materials together to create a product.</p> <p>Demonstrate when make modifications as they go along.</p> <p>Construct products using permanent joining techniques.</p> <p>Understand how mechanical systems such as cams or pulleys or gears create movement.</p> <p>Know how more complex electrical circuits and components can be used to create functional products and how to program a computer to monitor changes in the environment and control their products.</p> <p>Know how to reinforce and strengthen a 3D framework.</p> <p>Understand that mechanical and electrical systems have an input, process and output.</p> <p>Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT</p>
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Test / Evaluate	<b>KS1 Design and Technology National Curriculum</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.  Children explore and evaluate a range of existing products. They evaluate their ideas and products against design criteria.		<b>KS2 Design and Technology National Curriculum</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.  Children investigate and analyse a range of existing products.  They evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.  They understand how key events and individuals in design and technology have helped shape the world.			

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	<p>Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria).</p> <p>When looking at existing products explain what they like and dislike about products and why.</p> <p>Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.</p>	<p>Evaluate their work against their design criteria.</p> <p>Look at a range of existing products explain what they like and dislike about products and why.</p> <p>Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.</p> <p>With confidence talk about their ideas, saying what they like and dislike about them.</p>	<p>Start to evaluate their product against original design criteria <i>e.g. how well it meets its intended purpose</i></p> <p>Begin to disassemble and evaluate familiar products and consider the views of others to improve them.</p> <p>Evaluate the key designs of individuals in design and technology has helped shape the world.</p>	<p>Evaluate their products carrying out appropriate tests.</p> <p>Start to evaluate their work both during and at the end of the assignment.</p> <p>Be able to disassemble and evaluate familiar products and consider the views of others to improve them.</p> <p>Evaluate the key designs of individuals in design and technology has helped shape the world.</p>	<p>Start to evaluate a product against the original design specification and by carrying out tests.</p> <p>Evaluate their work both during and at the end of the assignment.</p> <p>Begin to evaluate it personally and seek evaluation from others.</p> <p>Evaluate the key designs of individuals in design and technology has helped shape the world.</p>	<p>Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Evaluate their work both during and at the end of the assignment.</p> <p>Record their evaluations using drawings with labels.</p> <p>Evaluate against their original criteria and suggest ways that their product could be improved.</p> <p>Evaluate the key designs of individuals in design and technology has helped shape the world.</p>
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technical Knowledge	<p><b>KS1 Design and Technology National Curriculum</b> Children build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>They explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p>		<p><b>KS2 Design and Technology National Curriculum</b></p> <p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>They understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <p>They understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <p>They apply their understanding of computing to program, monitor and control their products.</p>			



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	<p>Begin to build simple structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Talk about and begin to understand the working characteristics of materials and components.</p> <p>Explore and create products using mechanisms such as levers, sliders and wheels.</p>	<p>Independently, build simple structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Talk about and understand the working characteristics of materials and components.</p> <p>Explore and create products using mechanisms such as levers, sliders and wheels.</p>	<p>Understand that materials have both functional properties and aesthetic qualities.</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products.</p> <p>Begin to understand how mechanical and electrical systems have an input and output process.</p> <p>With support, make and represent simple electrical circuits, such as a series and parallel, and components to create functional products.</p> <p>With help, explain how mechanical systems such as levers and linkages create movement.</p> <p>Use mechanical systems in their products.</p>	<p>Understand that materials have both functional properties and aesthetic qualities.</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products.</p> <p>Understand and demonstrate how mechanical and electrical systems have an input and output process.</p> <p>Make and represent simple electrical circuits, such as a series and parallel, and components to create functional products.</p> <p>Explain how mechanical systems such as levers and linkages create movement.</p> <p>Use mechanical systems in their products.</p>	<p>Begin to apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products; With growing confidence, understand and demonstrate that mechanical and electrical systems have an input, process and output; Explore how mechanical systems, such as cams, create movement and use mechanical systems in their products.</p> <p>Apply their understanding of computing to program, monitor and control a product.</p>	<p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products.</p> <p>Understand and demonstrate that mechanical and electrical systems have an input, process and output; Explain how mechanical systems, such as cams, create movement and use mechanical systems in their products.</p> <p>Apply their understanding of computing to program, monitor and control a product.</p>
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	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cooking & Nutrition	<p><b>KS1 Design and Technology National Curriculum</b></p> <p>Children use the basic principles of a healthy and varied diet to prepare dishes.</p> <p>They understand where food comes from.</p>		<p><b>KS2 Design and Technology National Curriculum</b></p> <p>Children understand and apply the principles of a healthy and varied diet.</p> <p>They prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. They understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>			

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	<p>Begin to understand that all food comes from plants or animals.</p> <p>Explore the understanding that food has to be farmed, grown elsewhere (e.g. home) or caught.</p> <p>Start to understand how to name and sort foods into the five groups in 'The Eat well plate'</p> <p>Begin to understand that everyone should eat at least ve portions of fruit and vegetables every day.</p> <p>Know how to prepare simple dishes safely and hygienically, without using a heat source. Know how to use techniques such as cutting, peeling and grating.</p>	<p>Understand that all food comes from plants or animals.</p> <p>Know that food has to be farmed, grown elsewhere (e.g. home) or caught.</p> <p>Understand how to name and sort foods into the five groups in 'The Eat well plate'</p> <p>Know that everyone should eat at least five portions of fruit and vegetables every day.</p> <p>Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source.</p> <p>Demonstrate how to use techniques such as cutting, peeling and grating.</p>	<p>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.</p> <p>Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>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'</p> <p>Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.</p>	<p>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.</p> <p>Understand how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>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'</p> <p>Know that to be active and healthy, food and drink are needed to provide energy for the body.</p>	<p>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.</p> <p>Begin to understand that seasons may affect the food available.</p> <p>Understand how food is processed into ingredients that can be eaten or used in cooking.</p> <p>Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>Start to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Begin to understand that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</p>	<p>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.</p> <p>Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking.</p> <p>Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>Understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>Know different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</p>
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