



## DESIGN AND TECHNOLOGY PROGRESSION PLAN



By the end of year 6 children at St Peter's School should demonstrate the following essential characteristics of design technologists:

- By the end of year 6 children at St Peter's should demonstrate the following essential characteristics of Design and Technology:
- The ability to describe, in some detail, the purpose of the products they are designing and making.
- To be able to indicate the design features of their products that will appeal to intended user and to explain how particular parts of their products work, becoming increasingly innovative.
- Will have carried out research, using surveys, interviews, questionnaires and web based resources which will have informed their design decisions.
- Will have develop a simple design specification to guide their thinking when designing and making and have evaluated their ideas and products against their design specification.
- Modelled their ideas by using prototypes and pattern pieces and use annotated sketches, cross-sectional drawings and exploded diagrams to help develop and communicate their design ideas.
- Used computer-aided design (CAD) to develop, communicate, model and evaluate their design ideas.
- Have the ability to select suitable tools, equipment, materials and components for the task and can explain their choice of materials and components according to functional properties and aesthetic qualities. ☑ Work accurately when they are measuring, marking out, cutting, shaping, assembling, joining, combining and applying finishing techniques.
- Will have learnt about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products. They know a range of inventors, what they are famous for designing and/or making and what characteristics enabled them to become successful.
- Will be able to think about the related components that make up mechanical and electrical system, and have thought about the input, output and the process.
- Will know how mechanical systems such as pulleys or gears create movement. Children will able to explain why the mechanical components are suitable for the product they are designing and making according to the type of movement they produce.
- Children will have developed and applied the correct technical vocabulary to describe the movement of mechanical systems.
- Know how to program a computer to monitor changes in the environment and control their products.
- Will have learnt how to use skills and techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.
- Children will apply the principles of nutrition and healthy eating, learn how to prepare and cook dishes using a wide range of ingredients, using a heat source where appropriate

# Building

DESIGNING	EYFS	KS1		LOWER KS2		UPPER KS2	
	Arts and design Creating with materials	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Communicate their ideas about their design, through talking.</p> <ul style="list-style-type: none"> <li>• Saying who and what their products are for.</li> <li>• Plan a design first and then make.</li> </ul>	<p>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</p> <ul style="list-style-type: none"> <li>• Develop, model and communicate their ideas through talking, drawings and mock-ups with card and paper.</li> </ul>	<p>Generate simple design criteria as appropriate through talking, using their own experiences.</p> <ul style="list-style-type: none"> <li>• Design a functional and appealing product for a chosen user and purpose based on simple design criteria communicating their ideas through drawing, templates, mock-ups and information and communication technology.</li> </ul>	<p>Generate their own design criteria collaboratively and through discussion, focusing on the needs of the user and the purpose of the product.</p> <ul style="list-style-type: none"> <li>• Develop realistic and appropriate ideas through the analysis of existing products using annotated sketches and prototypes to model and communicate ideas.</li> <li>•</li> </ul>	<p>Gather own design criteria collaboratively and through discussion, focusing on the needs of the user and the purpose of the product.</p> <ul style="list-style-type: none"> <li>• Develop realistic and appropriate ideas through the analysis of existing products using annotated sketches and prototypes to model and communicate ideas.</li> <li>•</li> </ul>	<p>Generate innovative ideas by carrying out research including surveys, interviews and questionnaires and web based resources.</p> <ul style="list-style-type: none"> <li>• Develop, model and communicate ideas through talking, annotated drawings, exploded drawings, drawings from different views, templates, mockups, prototypes and, where appropriate, computer aided design (iron on logo).</li> <li>• Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification, that they have developed to guide their thinking.</li> </ul>	<p>Research into users needs and existing products, using surveys, interviews, questionnaires and web-based resources.</p> <ul style="list-style-type: none"> <li>• Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.</li> <li>• Generate, develop and communicate ideas through discussion, prototypes, annotated sketches and pictorial representations of electrical circuits or circuit diagrams</li> </ul>

MAKING	EYFS	KS1		LOWER KS2		UPPER KS2	
	Arts and design Creating with materials	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Opportunities to make their own choices and to discuss the reasons for these.</p> <ul style="list-style-type: none"> <li>Developing practical skills and techniques using a range of materials including food, textiles and construction materials.</li> <li>Early experiences of working with paper and card to make simple flaps and hinges.</li> <li>Experience of simple cutting, shaping, joining and finishing skills using scissors, glue, split pins, hole punches and masking tape with construction materials e.g. paper, card, plastic, fabric and wood.</li> <li></li> </ul>	<p>Plan by suggesting what to do next.</p> <ul style="list-style-type: none"> <li>Select and use tools, skills and techniques, explaining their choices.</li> <li>Select new and reclaimed materials and construction kits to build their structures.</li> <li>Use simple finishing techniques suitable for the product they are creating</li> </ul>	<p>Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting and joining to allow movement and finishing.</p> <ul style="list-style-type: none"> <li>Select from and use a range of materials and components such as paper, card, plastic and textiles according to their characteristics.</li> </ul>	<p>Order the main stages of making.</p> <ul style="list-style-type: none"> <li>Select from and use appropriate tools with some accuracy to cut and join materials and components.</li> <li>Select from and use finishing techniques suitable for the product they are creating.</li> </ul>	<p>Plan the stages of making.</p> <ul style="list-style-type: none"> <li>Select and use a range of appropriate tools and equipment with some accuracy e.g. cutting, shaping, joining and finishing.</li> <li>Select from and use fabrics, materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities</li> </ul>	<p>Produce detailed lists of tools, equipment, fabrics and materials relevant to their tasks.</p> <ul style="list-style-type: none"> <li>Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</li> </ul>	<p>Formulate a step by step plan to guide making, listing tools, equipment, materials and components and resources to be used.</p> <ul style="list-style-type: none"> <li>Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</li> <li>Create and modify a computer control program to enable their electrical product to respond to changes in the environment.</li> <li>Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</li> <li>Use finishing and decorative techniques suitable for the product they are designing and making.</li> </ul>

EVALUATING	EYFS	KS1		LOWER KS2		UPPER KS2	
	Arts and design Creating with materials	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Look at objects to see how they are made and how they work, eg how a door opens, how a lift the flap book works.</p> <p>Evaluate by assessing their own work and saying what they like/ do not like about the finished product. Talk about how they might change it next time based on what they have found out. Continuous trial and error in independent art area.</p>	<p>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings and books and everyday products that use simple sliders and levers.</p> <ul style="list-style-type: none"> <li>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</li> </ul>	<p>Explore and evaluate a range of products with wheels and axles and existing textile products relevant to the project being undertaken</p> <ul style="list-style-type: none"> <li>Evaluate their ideas throughout and their final products against original design criteria</li> </ul>	<p>Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</p> <ul style="list-style-type: none"> <li>Investigate and analyse books, video clips and products with pneumatic mechanisms.</li> <li>Test and evaluate their own products against design criteria and the intended user needs and purpose as they design and make.</li> <li></li> </ul>	<p>Understand how a key event/individual has influenced the development of the chosen product and/or fabric.</p> <ul style="list-style-type: none"> <li>Investigate a range of products relevant to the project e.g. 3-D textiles and battery-powered products.</li> <li>Evaluate and test their ideas and products against their own design criteria and with the intended user and identify the strengths and areas for improvement in their work.</li> <li>Take into account others' views when evaluating their work.</li> </ul>	<p>Investigate famous manufacturing and engineering companies relevant to the project.</p> <ul style="list-style-type: none"> <li>Investigate and analyse textile products linked to their final product.</li> <li>Compare the final product to the original design specification.</li> <li>Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>Consider the views of others to improve their work.</li> </ul>	<p>Research key events and individuals relevant to frame structures.</p> <ul style="list-style-type: none"> <li>Investigate and evaluate a range of existing frame structures.</li> <li>Continually evaluate and modify the working features of the product to match the initial design specification.</li> <li>Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests to demonstrate its effectiveness</li> </ul>

# Food Technology

DESIGNING	EYFS	KS1		LOWER KS2		UPPER KS2	
		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	Design a healthy eating plate. Talk about healthy/unhealthy foods and the importance of a balanced diet (including oral health)	<p>FRUIT Design appealing products for a particular user based on simple design criteria.</p> <ul style="list-style-type: none"> <li>• Generate initial ideas and design criteria through investigating a variety of fruit.</li> <li>• Communicate these ideas through talk and drawings</li> </ul>	<p>VEGETABLES Design appealing products for a particular user based on simple design criteria.</p> <ul style="list-style-type: none"> <li>• Generate initial ideas and design criteria through investigating a variety of vegetables.</li> <li>• Communicate these ideas through talk and drawings</li> </ul>	<p>SALAD 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.</p> <ul style="list-style-type: none"> <li>• Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</li> </ul>	<p>PASTY 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.</p> <ul style="list-style-type: none"> <li>• Use annotated sketches and appropriate information and communication technology, such as web based recipes, to develop and communicate ideas</li> </ul>	<p>OMELETTE Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</p> <ul style="list-style-type: none"> <li>• Explore named chefs/manufacturers to link to topic research.</li> <li>• Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>• Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</li> </ul>	<p>SEASONAL RECIPE Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</p> <ul style="list-style-type: none"> <li>• Explore named chefs/manufacturers to link to topic research.</li> <li>• Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>• Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</li> </ul>

MAKING	EYFS	KS1		LOWER KS2		UPPER KS2	
		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</p> <ul style="list-style-type: none"> <li>• Experience of cutting soft fruit and vegetables using appropriate utensils.</li> <li>• Introduced to a variety of basic cooking techniques, kneading, mixing, measuring, cutting/shaping.</li> </ul>	<p>Use simple utensils and equipment to e.g. cut and slice safely.</p> <ul style="list-style-type: none"> <li>• Select from a range of fruit according to their characteristics e.g. colour, texture and taste to create a chosen produce</li> </ul>	<p>Use simple utensils and equipment to e.g. peel, cut, slice and chop safely.</p> <ul style="list-style-type: none"> <li>• Select from a range of vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product</li> </ul>	<p>Plan the main stages of a recipe, listing ingredients, utensils and equipment.</p> <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>• Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</li> </ul>	<p>Plan the main stages of a recipe, listing ingredients, utensils and equipment.</p> <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>• Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</li> </ul>	<p>Write a step-by-step recipe, including a list of ingredients, equipment and utensils</p> <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> <li>• Make, decorate and present the food product appropriately for the intended user and purpose</li> </ul>	<p>Write a step by step recipe including a list of ingredients, equipment and utensils</p> <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> <li>• Make, decorate and present the food product appropriately for the intended user and purpose</li> </ul>
EVALUATING	EYFS	KS1		LOWER KS2		UPPER KS2	
		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Understand the importance of healthy food choices. Discuss childrens' food choices.</p>	<ul style="list-style-type: none"> <li>• Taste and evaluate a range of fruit to determine the intended user's preferences.</li> <li>• Evaluate ideas and finished products against design criteria, including intended user and purpose. Vocabulary to fruit used e.g. sour, sweet, soft etc.</li> </ul>	<p>Taste and evaluate a range of vegetables to determine the intended user's preferences.</p> <ul style="list-style-type: none"> <li>• Evaluate ideas and finished products against design criteria, including intended user and purpose. Extend vocabulary to vegetables used e.g. crunchy, sweet, soft, hard etc.</li> </ul>	<p>Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs</p> <p>Evaluate work and the final product with reference to the design criteria and the views of other</p>	<p>Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</p> <ul style="list-style-type: none"> <li>• Evaluate the ongoing work and the final product with reference to the design criteria and the views of others</li> </ul>	<p>Understand how key chefs have influenced eating habits to promote varied and healthy diets.</p> <p>-Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables, graphs and charts</p> <p>-Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p>	<p>Understand how key chefs are influenced eating habits to promote varied and healthy diets.</p> <p>- Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.</p> <p>-Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p>

# Textiles

DESIGNING	EYFS	KS1		LOWER KS2		UPPER KS2	
		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Communicate their ideas about their design, through talking.</p> <ul style="list-style-type: none"> <li>Plan a design first and then make.</li> </ul>	<p>Explore a range of existing products. - Discuss ideas. - Design purposeful, functional appealing products for themselves. - Draw and label simple designs. - Follow and refine plans as necessary.</p> <p>Key vocabulary User Textile Product Stitch</p>	<p>Design a functional, appealing product for a chosen user and purpose.</p> <ul style="list-style-type: none"> <li>Generate, develop, and communicate ideas.</li> <li>Use a range of textiles, tools and equipment to perform practical tasks.</li> <li>Explore . and evaluate existing textile products and their own ideas and products.</li> <li>Understand how 3-D textile products are made, using joining, templates and finishing to create two identical shapes</li> </ul>	<p>Consider function, aesthetics, user needs.</p> <ul style="list-style-type: none"> <li>Create multiple designs.</li> <li>Use research to develop design criteria.</li> <li>Use market research to inform plans.</li> <li>Follow a brief for a target audience. - Follow and refine plans as necessary.</li> <li>Describe their design using an accurately-labelled sketch.</li> <li>Consider culture and society in designs.</li> <li>choose textiles both for their appearance and also qualities</li> </ul>	<p>Generate design criteria for an appealing, functional product for specific users.</p> <ul style="list-style-type: none"> <li>Produce annotated sketches, prototypes, final product sketches and pattern pieces.</li> <li>Select fabrics and fastenings according to their functional characteristics.</li> <li>Investigate a range of 3-D textile products.</li> <li>Test their product against the original criteria and with the intended user.</li> </ul> <p>To think what the user would want when choosing textiles To have thought about how to make their product strong To devise a template To can explain how to join things in a different way</p>	<p>Generate and communicate innovative ideas through research.</p> <ul style="list-style-type: none"> <li>Produce lists of equipment and fabrics and generate plans for making.</li> <li>Investigate and analyse textile products linked to their final product</li> <li>Know that a 3-D textile product can be made from a combination of pattern pieces, fabric shapes and different fabrics</li> <li>experiment with ways to make their product strong and explain their findings.</li> </ul>	<ul style="list-style-type: none"> <li>generate and communicate innovative ideas, drawing on research</li> <li>make design decisions, taking account of constraints such as time, resources and cost</li> <li>Produce detailed lists of equipment and fabrics and formulate step-by-step plans for making.</li> <li>Investigate and analyse textile products linked to their final product and compare the final product to the original design specification.</li> <li>Know that a 3-D textile product can be made from a combination of pattern pieces, fabric shapes and different fabrics and that fabrics can be strengthened, stiffened and reinforced and the correct techniques used to do this</li> </ul>

MAKING	EYFS	KS1		LOWER KS2		UPPER KS2	
		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Thread beads and objects to produce patterns</p> <p>Weaving through cardboard template</p>	<p>We use running stitch with larger plastic needles and binka fabric.</p> <p>- Use a needle and thread safely and effectively.</p>	<p>In year two using a running stitch to sew and join different fabrics. We use binka with smaller holes and begin to use metal needles.</p>	<p>In year three we learn how to cut shapes out of fabric using paper templates and pins. We stitch a variety of fabrics, such as felt, trying to make our stitches as small and neat as possible.</p>	<p>In year four we begin to use pattern pieces pinned to the fabric to cut out simple shapes and designs. We further develop our running stitch and begin to use other stitches in our work such as cross stitch and blanket stitch.</p>	<p>In year five we become more confident at selecting our own fabrics and stitches to achieve a desired effect. We make products using pattern pieces and begin to allow for a seam in our designs.</p>	<p>In year Six we are able to sew and join different fabrics using a variety of stitches which have become smaller, neater and more consistent. We consider seam allowance in our products</p>
EVALUATING	EYFS	KS1		LOWER KS2		UPPER KS2	
		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	<p>Evaluate by assessing their own work and saying what they like/ do not like about the finished product.</p> <p>Talk about how they might change it next time and why.</p>	<ul style="list-style-type: none"> <li>Evaluate and compare against existing textile products.</li> <li>- Test and evaluate final product - is it fit for purpose? –</li> <li>Reflect back on design criteria.</li> <li>- Suggest improvements.</li> <li>-Use peer assessment to improve their work.</li> </ul>	<p>Explore and evaluate a range of products with existing textile products relevant to the project being undertaken</p> <ul style="list-style-type: none"> <li>Evaluate their ideas throughout and their final products against original design criteria by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</li> </ul>	<p>Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work</p>	<ul style="list-style-type: none"> <li>identify the strengths and areas for development in their ideas and textile products after testing</li> <li>refer to their design criteria as they design and make</li> <li>use their design criteria to evaluate their completed textiles products</li> </ul>	<ul style="list-style-type: none"> <li>consider the views of others, including intended users, to improve their work</li> <li>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>evaluate their ideas and products against their original design specification</li> </ul>	<ul style="list-style-type: none"> <li>Carry out evaluations of a finished textiles products</li> <li>Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</li> <li>be able to comment on how innovative their products are, how sustainable the materials in their products are and what impact their products have beyond their intended purpose</li> </ul>