



St John's Design Technology Progression of Skills

Designing				
	FS	Year 1/2	Year 3/4	Year 5/6
Understanding contexts, users and purposes	- Describe simple models or drawings of ideas and intentions. - Say what they are making and what it will do	- 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	- 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 <i>Gather information about the needs and wants of particular individuals and groups</i> <i>Develop their own design criteria and use these to inform their ideas</i>	- 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 <i>Carry out research, using surveys, interviews, questionnaires and web-based resources</i> <i>Identify the needs, wants, preferences and values of particular individuals and groups</i> <i>Develop a simple design specification to guide their thinking</i>
Generating, developing, modelling and communicating ideas	- Explain what they are making and which materials they are using. - Select materials from a limited range that will meet a simple design criteria e.g. shiny. - Select and name the tools needed to work the materials e.g. scissors for paper. - Discuss their plan as it progresses.	- Generate ideas by drawing on their own experiences - 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	- Share and clarify ideas through discussion - Model their ideas using prototypes and pattern pieces - 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 <i>Generate realistic ideas, focusing on the needs of the user</i> <i>Make design decisions that take account of the availability of resources</i>	- Share and clarify ideas through discussion - Model their ideas using prototypes and pattern pieces - 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 <i>Generate innovative ideas, drawing on research</i> <i>Make design decisions, taking account of constraints such as time, resources and cost.</i>

		• Use information and communication technology, where appropriate, to develop and communicate their idea		
Making				
	FS	Year 1/2	Year 3/4	Year 5/6
Planning	• Describe simple models or drawings of ideas and intentions.	• 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	• 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 • <i>Order the main stages of making</i>	• 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 • <i>Produce appropriate lists of tools, equipment and materials that they need</i> • <i>Formulate step-by-step plans as a guide to making</i>
Practical skills and techniques	• Follow procedures for safety and hygiene • Begin to create their design using basic techniques. • Use technical vocabulary when appropriate.	• 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	• 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 • <i>Measure, mark out, cut and shape materials and components with some accuracy</i> • <i>Assemble, join and combine materials and components with some accuracy</i> • <i>Apply a range of finishing techniques, including those from art and design, with some accuracy</i>	• 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 • <i>Accurately measure, mark out, cut and shape materials and components</i> • <i>Accurately assemble, join and combine materials and components</i> • <i>Accurately apply a range of finishing techniques, including those from art and design</i> • <i>Use techniques that involve a number of steps</i> • <i>Demonstrate resourcefulness when tackling practical problems</i>

Evaluating				
	FS	Year 1/2	Year 3/4	Year 5/6
Own ideas and products	• Begin to talk about their designs as they develop and identify good and bad points. • Start to talk about changes made during the making process. • Discuss how closely their finished products meet their design criteria	• 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	• Identify the strengths and areas for development in their ideas and products • Consider the views of others, including intended users, to improve their work • <i>Refer to their design criteria as they design and make</i> • <i>Use their design criteria to evaluate their completed products</i>	• Identify the strengths and areas for development in their ideas and products • Consider the views of others, including intended users, to improve their work • <i>Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</i> • <i>Evaluate their ideas and products against their original design specification</i>
Existing products	• Say what they like and do not like about items they have made and attempt to say why.	• 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	• 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 - <i>who designed and made the products</i> - <i>where products were designed and made</i> - <i>when products were designed and made</i> - <i>whether products can be recycled or reused</i>	• 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 - <i>how much products cost to make</i> - <i>how innovative products are</i> - <i>how sustainable the materials in products are</i> - <i>what impact products have beyond their intended purpose</i>
Key events and individuals		• Know about designers	• Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	• Know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products
Technical knowledge				
	FS	Year 1/2	Year 3/4	Year 5/6
Making products work	• Explore how a range of products work	• Know about the simple working characteristics of materials and components	• Know how to use learning from science to help design and make products that work	• Know how to use learning from science to help design and make products that work

		• 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	• How to use learning from mathematics to help design and make products that work • That materials have both functional properties and aesthetic qualities • That materials can be combined and mixed to create more useful characteristics • That mechanical and electrical systems have an input, process and output • The correct technical vocabulary for the projects they are undertaking: • <i>How mechanical systems such as levers and linkages or pneumatic systems create movement</i> • <i>How simple electrical circuits and components can be used to create functional products</i> • <i>How to program a computer to control their products</i> • <i>How to make strong, stiff shell structures</i> • <i>That a single fabric shape can be used to make a 3D textiles product</i> • That food ingredients can be fresh, pre-cooked and processed	• How to use learning from mathematics to help design and make products that work • That materials have both functional properties and aesthetic qualities • That materials can be combined and mixed to create more useful characteristics • That mechanical and electrical systems have an input, process and output • The correct technical vocabulary for the projects they are undertaking • <i>Know how mechanical systems such as cams or pulleys or gears create movement</i> • <i>How more complex electrical circuits and components can be used to create functional products</i> • <i>How to program a computer to monitor changes in the environment and control their products</i> • <i>How to reinforce and strengthen a 3D framework</i> • <i>That a 3D textiles product can be made from a combination of fabric shapes</i> • <i>That a recipe can be adapted by adding or substituting one or more ingredient</i>			
	FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food	• Work hygienically. • Handle equipment safely (e.g. grater with a handle) • Select some healthy food to ‘build’ a meal.	• Cut ingredients safely and hygienically. • Use a mixing bowl to prepare a mixture. • Assemble ingredients ready for cooking.	• Cut, peel or grate ingredients safely and hygienically. • Measure or weigh using measuring cups or electronic scales. • Recognise how to best store the	• Prepare ingredients safely and hygienically using appropriate utensils. (Cutting, peeling or grating) • Measure accurately. • Follow a recipe.	• Prepare ingredients safely and hygienically using appropriate utensils. • Measure ingredients to the nearest gram. • Food is well presented and	• Work safely and hygienically. • Demonstrate a range of cooking and baking techniques. • The product uses a selection of ingredients to meet an identified need.	• Work safely and hygienically. • Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).

	• Assemble ingredients. • Measure and weigh food items, non-statutory measures e.g. spoons, cups.		product for long-life and hygiene.	• Assemble and cook ingredients • Recognise how to best store the product for long-life and hygiene. • Present food product to impress the intended user.	packaged using other DT skills. • Use a range of techniques such as chopping, slicing, mixing, spreading, kneading and baking	(e.g.. lunchtime snack, healthy sandwich, low gluten). • Food is well presented and packaged using other DT skills. • Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking • That recipes can be adapted to change the appearance, taste, texture and aroma	• Measure accurately and calculate ratios of ingredients to scale up or down from recipe. • Create and refine recipes, including ingredients, methods, cooking times and temperatures. • Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
	FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Materials and Construction	• Constructs with a purpose in mind, using a variety of resources (e.g. junk modelling, straws and pipe cleaners, mobile, lego) • Safely use tools and equipment (scissors, hammer and hacksaw)	• Measure and mark out the materials they need for their structure in cms. • Cut materials safely using scissors/hacksaw. • Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).	• Measure and mark out to nearest cm. • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). • Use safe ways of cutting materials, including using a junior hacksaw. • Use materials to practise drilling, screwing, gluing	• Use scoring, and folding to shape materials accurately. • Cut materials accurately and safely by selecting appropriate tools. (e.g. scissors/saw) • Select appropriate joining techniques. • Make holes accurately (punch, drill) • Join materials to make products	• Measure and mark out to the nearest mm. • Use scoring, and folding to shape materials accurately with a focus on precision. • Apply a high quality finish • Create joins that are strong and stable, giving extra strength to the product.	• Develop a range of practical skills to create products: - Cutting - Drilling - Screwing - Nailing - Gluing - Filling - Sanding). • Cut materials with precision, (within the perimeter) and refine the finish with appropriate tools (such as sanding wood after	• Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (e.g. the nature of fabric may require sharper scissors than would be used to cut paper). • Make very careful and precise measurements so that joins, holes and openings are in exactly the right place.

		• Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products. • Make a structure. • Make materials for their structure stronger by folding, joining or rolling	and nailing materials to make and strengthen products. • Make structures stronger by folding joining or by shape (columns, triangles).	using both permanent and temporary fastenings.		cutting or a more precise scissor cut after roughly cutting out a shape). • Create some joins that are flexible to allow for dismantling or folding. • Apply a high quality finish (e.g. using paint, glaze, varnish or other finishes).	• Ensure that edges are finished by sometimes adding other materials. (e.g. edging strips) • Hide some joints for aesthetic effect.
	FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	• Experiment to create different textures • Use glue to join fabrics	• Shape textiles using templates provided. • Measure, mark out and cut fabric. • Join fabrics using glue. • Colour and decorate textiles • Alter a textile to make it stronger.	• Select the appropriate textile for the job. • Join textiles using running stitch. • Colour and decorate textiles. • Use accurate measurements in cm. • Use scissors precisely when cutting out.	• Understand the need for a seam allowance. • Understand that the texture and other properties of materials affect their choice. • Join textiles with appropriate stitching; running stitch, whip stitch, • Combine materials to add strength or visual appeal.	• Select the most appropriate techniques to decorate textiles • Join textiles with appropriate stitching; running stitch, whip stitch, blanket stitch.	• Create objects (such as a cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques; running stitch, whip stitch, blanket stitch, back stitch.	• Join textiles with a combination of stitching techniques; running stitch, whip stitch, blanket stitch, back stitch. • Mark out using my own patterns and templates • Decorate textiles
Electricals and Electronics				• Select the most appropriate techniques and	• Create parallel circuits. • Select the most appropriate	• Create circuits using electronics kits that employ a number of	• Create circuits using electronics kits that employ a number

				tools to make a product. • Create simple circuits to either illuminate or create motion. • Create series circuits.	techniques and tools to make a product.	components (such as LEDs, resistors, transistors and chips). • Select components that can be controlled by switches or by ICT equipment.	of components with increasing confidence. Use science skills (resistance, batteries in series or parallel, variable resistance to dim lights or control speed) to alter the way electrical products behave.
	FS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanics	• Shows in interest in technological toys with knobs or pulleys • Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movement or new images.	• Create a product that moves using a turning mechanism (e.g. wheels, winding) or a lever or a hinge (to make a movement)	• Make a product that uses movement. • Create products using winding mechanisms. • Use a number of materials and join them so they are strong. • Add detail to their product.	• Make a product using winding mechanism or lever.	• Select the most appropriate techniques and tools to make a product. • Make a product using winding mechanism or levers.	• Convert rotary motion to linear using cams. • Make a product using pulleys or gears.	• Use innovative combinations of electronics (or computing) and mechanics in product designs • Explore mechanical movement using hydraulics and pneumatics. • Make a product using pulleys or gears.