



St Cuthbert's Junior School



Knowledge and Skills Progression in Design Technology

	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Technical Knowledge	• State what products they are 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 • Make simple judgements about their products and ideas against design criteria • 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.	• Deconstruct and reconstruct a range of sliders and levers. • Construct a pneumatic with two moving parts. • Deconstruct and assemble the net of a range of basic 3D shapes. • Join 2D frames to create 3D structures. • Use a range of materials to make joints • Give reasons for the selection of fabrics and techniques based on knowledge of characteristics. • Join fabrics in a range of different ways using zips, tie clasp, toggles, press-studs and buttons. • Use a wide range of simple finishing techniques. • Explore and describe how an electric motor can be used in a circuit. (Science) • Construct cuboids of different sizes from a net. • Reinforce and strengthen 3D framework using the concept of 'triangulation'.	• Explore and describe how electrical circuits can be created and controlled. (science) • Understand that mechanical and electrical systems have an input, process and an output.. • Generate questions to investigate • Describe the way in which a cam changes rotary motion into linear motion. • Create nets of increasingly complex 3D shapes which include the addition of gluing tabs. Create nets and templates accurately in a range of sizes. • Explain in detail why some structures fail. • Use a range of materials to make joints e.g., card strips, elastic bands, thread and ties, and plastic tubing. • Discuss the relationship between a cam and follower, an offcentre cam, a peg cam, a pear-shaped cam and a snail cam. • Use a range of increasing methods to strengthen 3D structures and frames. • Investigate measure and record the load tolerance of different structures and find ways of improving a structures load-bearing capacity. • Build a range of structures using a wide range of effective materials. • Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles.



Knowledge and Skills Progression in Design Technology

Skill Focus	Year 2	Year 3	Year 4	Year 5	Year 6
Design	Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Develop, model and communicate their ideas through talking, mock-ups and drawings.	• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas.	• Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches and cross-sectional diagrams.	• Generate innovative ideas through research and discussion with peers to develop a design brief and criteria for a design specification. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. • Develop and communicate ideas through discussion, annotated drawings and drawings from different views and, where appropriate, computer-aided design.	• Use research using surveys, interviews, questionnaires and web-based resources to develop a design specification for a range of functional products. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas through annotated sketches and pictorial representations.
Make	Plan by suggesting what to do next. Select and use tools, equipment, skills and techniques to perform practical tasks, explaining their choices. Select new and materials, components, reclaimed materials and construction kits to build and create their	• Plan the main stages of making. • Select from and use a range of appropriate utensils, tools and equipment with some accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating.	• Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties and aesthetic qualities.	• Produce detailed lists of equipment and fabrics relevant to their tasks. • Write a step-by-step plan, including a list of resources required. • Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products.



Knowledge and Skills Progression in Design Technology

	products. Use simple finishing techniques suitable for the products they are creating.		• Select from and use materials and components, including ingredients and construction according to their function and properties.		• Use finishing and decorative techniques suitable for the product they are designing and making.
Evaluate	Explore a range of existing products related to their design criteria. Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.	• Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	• Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.	• Investigate and analyse products linked to their final product. • Compare the final product to the original design specification and record the evaluations. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work.	• Continually evaluate and modify the working features of the product to match the initial design specification. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Test the system to demonstrate its effectiveness for the intended user and purpose.
Cooking and nutrition	Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The eat well plate.	• Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.	• Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.	• Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products.	• Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products.



St Cuthbert's Junior School



Knowledge and Skills Progression in Design Technology

	Know and use technical and sensory vocabulary relevant to the project.	• Know and use relevant technical and sensory vocabulary appropriately.	• Know and use relevant technical and sensory vocabulary appropriately.	• Know and use relevant technical and sensory vocabulary.	• Know and use relevant technical and sensory vocabulary
--	--	---	---	---	--

Design and Technology Curriculum Key Vocabulary

	Year 2	Year 3	Year 4	Year 5	Year 6
Textiles	Template, quality, suitable, features, dye, overstretch, design, fray, mock-up, seam	Fastening, compartment, zip, finishing technique, function, prototype, back stitch, felted, woven, knitted, bonded	Aesthetics, seam allowance, pinning, embroidery, back stitch, blanket stitch, cross stitch	Specification, tacking, working drawing, clasp, pinking shears, design criteria, hem, reinforce, stem stitch, satin stitch, tie dye	Applique, annotate, evaluate, innovation, functionality, renewable, authentic, chain stitch
Electrical Systems		User, fault, toggle switch, insulator, conductor, battery holder, crocodile clip	Series circuit, connection, push-to-make switch, push-to-break switch, innovative, appealing, control box, input device, output device, system	Parallel circuit, light emitting diode, monitor, flowchart, design specification, reed switch, tilt switch	Light dependent resistor, interface control, micro switch, latching switch

**Design and Technology Curriculum
Key Vocabulary**

	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms	<u>Slider & Leavers:</u> Mechanism, lever, slider, slot, pivot, guide/bridge, masking tape, fastener, pull, push, down, straight, work, design, evaluate, purpose,	<u>Leavers & linkages:</u> Loose pivot, fixed pivot, system, input, process	<u>Leavers & Linkages:</u> Loose pivot, fixed pivot, system, input, process, output, linear, rotary, reciprocating, innovative, appealing, linkage, oscillating	<u>Pulleys or Gears:</u> Pulley, gear, driver, follower, rotation, motor, belt, spindle, motor, circuit, switch, ratio, transmit, annotated drawings, exploded diagrams, functionality	<u>Pulleys or Gears:</u> Transmit, annotated drawings, exploded diagrams, functionality
Structures	<u>Freestanding Structures:</u> Structure, base, underneath, thicker, thinner, corner, point, straight, curved, rectangle, cube, cuboid, cylinder	<u>Shell Structures:</u> Shell, structure, net, marking out, material, joining, three dimensional, stiff	<u>Shell Structures:</u> Assemble, prism, vertex, breadth, capacity, scoring, adhesives, reduce, reuse, recycle, corrugating, ribbing, laminating	<u>Frame Structures:</u> Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief	<u>Frame Structures:</u> Reinforce, triangulation, stability, temporary, permanent, prototype, innovation, functional, design brief
Food	<u>Preparing Fruit & Vegetables:</u> Fruit, vegetables, soft, juicy, crunchy, sticky, smooth, sharp, crisp, sour hard, flesh, skin, seed pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, tasting, arranging	<u>Healthy & Varied Diet:</u> Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested	<u>Healthy & Varied Diet:</u> Texture, taste, appearance, preference, greasy, moist, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested	<u>Celebrating Culture & Seasonality:</u> Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, kneed, whisk, beat, combine, fold, rubbing in	<u>Celebrating Culture & Seasonality:</u> Ingredients, yeast, dough, wholemeal, unleavened, baking soda, spice, herbs, carbohydrate, sugar, fat, protein, vitamins, nutrients, gluten, allergy, intolerance, savoury, seasonality, pour, mix, kneed, whisk, beat, combine, fold, rubbing in