Raynham Primary - Progression in Design and Technology for EYFS, KS1 and KS2

<table>
<tr><th></th><th>EYFS</th><th>Yr1</th><th>Yr2</th><th>Yr3</th><th>Yr4</th><th>Yr5</th><th>Yr6</th></tr>
<tr><td colspan="8">Designing</td></tr>
<tr><td rowspan="2">Understanding contexts, users and purpose</td><td rowspan="2">EYs pupils should:
• experiment to create different textures
• use what they have learnt about media and materials in original ways, thinking about uses and purposes</td><td colspan="2" rowspan="2">Across KS1 pupils should:
• work confidently within a range of contexts, such as imaginary, story-based, home, school, 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</td><td colspan="4">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 product work</td></tr>
<tr><td colspan="2">• gather information about the needs and wants of particular individuals and groups
• develop their own design criteria and use these to inform their ideas</td><td colspan="2">• 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</td></tr>
<tr><td rowspan="2">Generating, developing, modelling and communicating ideas</td><td rowspan="2">EYs pupils should:
• create simple representations of events, people and objects.
• represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.</td><td colspan="2" rowspan="2">Across KS1 pupils should:
• 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
• use information and communication technology (where appropriate) to develop and communicate their ideas</td><td colspan="4">Across KS2 pupils should:
• 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</td></tr>
<tr><td colspan="2">• generate realistic ideas, focusing on the needs of the user
• make design decisions that take into account the availability of resources.</td><td colspan="2">• generate innovative ideas, drawing on research
• make design decisions, taking account of constraints such as time, resources and cost</td></tr>
<tr><td colspan="8">Making</td></tr>
<tr><td>Planning</td><td>EYs pupils should:
• understand that</td><td colspan="2">Across KS1 pupils should:
• plan by suggesting what to do next</td><td colspan="4">Across KS2 pupils should:
• select tools and equipment suitable for the task</td></tr>
</table>

	different media can be combined to create new effects • construct with a purpose in mind, using a variety of resources.	• select from a range of tools and equipment, explaining their choices • select from a range of materials and components according to their characteristics	• 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 qua;ities	
			• order the main stages of making	• produce appropriate lists of tools, equipment and materials that they need • formulate step-by-step plans as a guide to making
Practical skills and techniques	EYs pupils should: • understand that equipment and tools have to be used safely • use one-handed tools and equipment, e.g. makes snips in paper with child scissors. • use simple tools to effect changes to materials • handle tools, objects, construction and malleable materials safely and with increasing control. • show understanding of the need for safety when tackling new challenges and consider and manage some risks.	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	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	
			• 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	• 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
Evaluating				
Own ideas and	EYs pupils should:	Across KS1 pupils should:	Across KS2 pupils should:	

products	• capture experiences and responses with a range of media, such as music, dance and paint and other materials or words. • manipulate materials to achieve a planned effect.	• 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 view of others, including users, to improve their work	
			• refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	• 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
Existing products	• show an interest in technological toys with knobs or pulleys, or real objects. • show skill in making toys work by pressing parts or lifting flaps to achieve effects, such as sound, movements or new images	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	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	
			• 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	• 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
Key events and individuals	N/A	Not a requirement in KS1	Across KS2 pupils should know: • about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products	
Technical knowledge				
Making products	EYs pupils should: • use simple tools and techniques competently and appropriately. • select appropriate resources and adapt	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	Across KS2 pupils should know: • how to use learning from science to help design and make products that work • 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 projects they are undertaking	

	work where necessary • select tools and techniques needed to shape, assemble and join materials they are using. • safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function	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 mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product •that food ingredients can be fresh, pre-cooked and processed	• how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or subtracting one or more ingredients
Cooking and Nutrition				
Where food come from	EYs pupils should know: • that food has to be farmed, grown elsewhere (e.g. home) or caught	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	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	
				• that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking
Food preparation, cooking and nutrition	EYs pupils should: • eat a healthy range of foodstuffs and understand the need for variety in food. • know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe.	Across KS1 pupils should know: • how to name and sort foods into the five groups • 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	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	
			• that a healthy diet is made up from a variety and balance of different food and drink • that to be active and healthy, food and drink are needed to provide energy for the body	• that recipes can be adapted to change the appearance, taste, texture and aroma • that different foods and drinks contain different substances – nutrients, water and fibre – that are needed for health

Raynham Primary - Progression of skills in Design and Technology for EYFS, KS1 and KS2 - Topics Strands

KS1 Mechanisms / KS2 Mechanical Systems						
	Yr1 **Sliders and levers**	**Yr2** **Wheels and axles**	**Yr3** **Levers and linkages**	**Yr4**	**Yr5** **Pulleys or gears**	**Yr6**
Prior Learning	• Early experiences of working with paper and card to make simple flaps and hinges. • Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.	• Assembled vehicles with moving wheels using construction kits. • Explore moving vehicles through play. • Gained some experience of designing, making and evaluating products for a specified user and purpose. • Developed some cutting, joining and finishing skills with card.	• Explored and used mechanisms such as flaps, sliders and levers. • Gained experience of basic cutting, joining and finishing techniques with paper and card.		• Experience of axles, axle holders and wheels that are fixed or free moving. • Basic understanding of electrical circuits, simple switches and components. • Experience of cutting and joining techniques with a range of materials including card, plastic and wood. • An understanding of how to strengthen and stiffen structures.	
Designing	• Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through drawings and mock-ups with card and paper.	• Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups.	• Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas.		• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded	

					drawings and drawings from different views.	
Making	• Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating.	• Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. • Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.	• Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating.		• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.	
Evaluating	• Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.	• Explore and evaluate a range of products with wheels and axles. • Evaluate their ideas throughout and their products against original criteria.	• Investigate and analyse books and, where available, other products with lever and linkage mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make.		• Compare the final product to the original design specification. • 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. • Investigate famous manufacturing and engineering companies relevant to the project.	

Technical Knowledge and Understanding	• Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project.	• Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project.	• Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.		• Understand that mechanical and electrical systems have an input, process and an output. • Understand 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.	
Key vocabulary	slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards, design, make, evaluate, user, purpose, ideas, design criteria, product, function	vehicle, wheel, axle, axle holder, chassis, body, cab, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, design, make, evaluate, purpose, user, criteria, functional	mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, Innovative, appealing, design brief		pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output design, decisions, functionality, innovation, authentic, user, purpose, design specification, design brief	
Structures						
	Yr1	**Yr2** **Freestanding structures**	**Yr3** **Shell structures (including computer-aided design)**	**Yr4**	**Yr5**	**Yr6** **Frame structures**

Prior Learning		• Experience of using construction kits to build walls, towers and frameworks. • Experience of using of basic tools e.g. scissors or hole punches with construction materials e.g. plastic, card. • Experience of different methods of joining card and paper.	• Experience of using different joining, cutting and finishing techniques with paper and card. • A basic understanding of 2-D and 3-D shapes in mathematics and the physical properties and everyday uses of materials in science.			• Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials. • Basic understanding of what structures are and how they can be made stronger, stiffer and more stable.
Designing		• 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 and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product. • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.			• Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.
Making		• Plan by suggesting what to do next.	• Order the main stages of making.		•	Formulate a clear plan, including a

		• Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. • Use simple finishing techniques suitable for the structure they are creating.	• Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use finishing techniques suitable for the product they are creating.			step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Use finishing and decorative techniques suitable for the product they are designing and making.
Evaluating		• Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings. • 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 and evaluate a range of existing shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose.			• Investigate and evaluate a range of existing frame structures. • Critically evaluate their products against their Design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Research key events and individuals relevant to frame structures.
Technical Knowledge and	.	• Know how to make freestanding structures	• Develop and use knowledge of how to		.	• Understand how to strengthen, stiffen and

Understanding		stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project	construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project			reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project
Key vocabulary		cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic, circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function	shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating font, lettering, text, graphics, decision, evaluating, design brief, design criteria, innovative, prototype			frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent, design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional
Food						
	Yr1 & Yr2 **Preparing fruit and vegetables**		**Yr3 & Yr4** **Healthy and varied diet**		**Yr5 & Yr6** **Celebrating culture and seasonality**	
Prior Learning	• Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance		• Know some ways to prepare ingredients safely and hygienically.		• Have knowledge and understanding about food hygiene, nutrition, healthy eating and a	

	taste and smell. • Experience of cutting soft fruit and vegetables using appropriate utensils.	• Have some basic knowledge and understanding about healthy eating and The eatwell plate. • Have used some equipment and utensils and prepared and combined ingredients to make a product.	varied diet. • Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients.
Designing	• Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings.	• 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. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	• Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.
Making	• Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.	• Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.	• Write a step-by-step recipe, including a list of ingredients, equipment and utensils • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. • Make, decorate and present the food product appropriately for the intended user and purpose.
Evaluating	• Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose.	• Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.	• 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. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets.
Technical Knowledge and Understanding	• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. • Understand and use basic principles of a	• 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	• 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

	healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The eatwell plate. • Know and use technical and sensory vocabulary relevant to the project.		whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.		products. • Know and use relevant technical and sensory vocabulary.	
Key vocabulary	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth,sharp, crisp, sour, hard, flesh, skin, seed, pip,core slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria		name of products, names of equipment, utensils, techniques and ingredients, texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested, healthy/varied diet planning, design criteria, purpose, user, annotated, sketch, sensory evaluations		ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrates, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble, design specification, innovative, research, evaluate, design brief	
Textiles						
	Yr1 **Templates and joining techniques**	**Yr2**	**Yr3**	**Yr4** **2D shape to 3D product**	**Yr5** **Combining different fabric shapes (including computer-aided design**	**Yr6**
Prior Learning	• Explored and used different fabrics. • Cut and joined fabrics with simple techniques. • Thought about the user and purpose of products.			• Have joined fabric in simple ways by gluing and stitching. • Have used simple patterns and templates for marking out. • Have evaluated a range of textile products.	• Experience of basic stitching, joining textiles and finishing techniques. • Experience of making and using simple pattern pieces.	
Designing	• Design a functional and appealing product for a chosen user and purpose based on			• Generate realistic ideas through discussion and design criteria for an	• Generate innovative ideas by carrying out research including surveys, interviews	

	simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.			appealing, functional product fit for purpose and specific user/s. • Produce annotated sketches, prototypes, final product sketches and pattern pieces.	and questionnaires. • Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer- aided design. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.	
Making	• Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics.			• Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.	• Produce detailed lists of equipment and fabrics relevant to their tasks. • Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • 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.	
Evaluating	• Explore and evaluate			• Investigate a range	• Investigate and	

	a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria.			of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Take into account others' views. • Understand how a key event / individual has influenced the development of the chosen product and/or fabric.	analyse textile products linked to their final product. • Compare the final product to the original design specification. • 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.	
Technical Knowledge and Understanding	• Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project.			• Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project.	• A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Fabrics can be strengthened, stiffened and reinforced where appropriate.	

Key vocabulary	names of existing products, joining and finishing techniques, tools, fabrics and components template, pattern pieces, mark out, join, decorate, Finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function			fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, Stiffening, templates, stitch, seam, seam allowance user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings, iron transfer paper design criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype	
Electrical Systems						
	Yr1	**Yr2**	**Yr3**	**Yr4** **Simple circuits and switches (including programming and control)**	**Yr5**	**Yr6** **More complex switches and circuits (including programming, monitoring and control)**

Prior Learning				• Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers. • Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.		• Understanding of the essential characteristics of a series circuit and experience of creating a battery-Powered, functional, electrical product. • Initial experience of using computer control software and an interface box or a standalone box, e.g. writing and modifying a program to make a light flash on and off.
Designing				• Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.		• Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take 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, pictorial representations of electrical circuits or circuit diagrams.

Making				• Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.		• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. • Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.
Evaluating				• Investigate and analyse a range of existing battery-powered products. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.		• Continually evaluate and modify the working features of the product to match the initial design specification. • Test the system to demonstrate its effectiveness for the intended user and purpose. • Investigate famous inventors who developed ground-breaking electrical systems and components.

Technical Knowledge and Understanding				• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project.		• Understand and use electrical systems in their products. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project.
Key vocabulary				series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device, user, purpose, function, prototype, design criteria, innovative, appealing, design brief		series circuit, parallel circuit, names of switches and components, input device, output device, system, monitor, control, program, flowchart Function, innovative, design specification, design brief, user, purpose