Malmesbury Park Primary School
Design and Technology (DT) Long Term Plan

Subject					
EYFS	**PSED** Self-Regulation • Show an understanding of their own feelings and those of others. • Set and work towards simple goals, being able to wait for what they want and control their immediate impulses when appropriate. • Give focused attention and show an ability to follow instructions involving several ideas or actions. Managing Self • Explain the reasons for rules Building Relationships • Work and play cooperatively and take turns with others • Show sensitivity to their own and to others' needs	**Maths** • Have a deep understanding of number to 10	**CLL** Listening, attention and understanding • Listen attentively and respond to what they hear with relevant questions, comments and actions during whole class discussions and small group interactions. • Make comments about what they have heard and ask questions to clarify their understanding. • Hold conversation when engaged in back-and-forth exchanges with their teacher and peers. Speaking • Participate in small group, class and one-to-one discussions, offering their own ideas, using recently introduced vocabulary. • Offering explanations for why things might happen • Express their ideas and feelings about their experiences.	**Physical Development** • Use a range of small tools, including scissors • Begin to show accuracy and care when drawing	**Expressive Arts and Design** Creating Materials • Safely use and explore a variety of materials, tools and techniques, experimenting with design and function • Share their creations, explaining thee process they have used

YEAR 1					
	Rationale	Key content from NC	Skills/Processes	Essential Knowledge	Vocabulary
Autumn 1 – 2 weeks **Stable Structures** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a stable structure such as a toy car garage. This unit builds upon their previous knowledge, skills and concepts developed in EYFS. **Key learning:** A stable structure is one that is not likely to fall over. Layering cardboard makes it stronger. Plastic is lightweight. Plastic can be stiff, strong and flexible. Wood can be heavy. It is normally stiff and strong. Some types of wood are weaker than others.	Design • Design purposeful, functional and appealing products for themselves and others based on design criteria • Generate, develop, model and communicate their ideas through talking. Make • Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wide range of materials and components, including construction materials Evaluate • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria	Investigate and evaluate: Look at and handle toy car garages to explore the features of a stable structure. Draw or photograph the structures they have been exploring and label with the correct technical vocabulary in relation to the structure, materials used and shapes e.g. wall, tower, framework, base, joint, metal, wood, plastic, brick, triangle, square, rectangle, cuboid, cube. Focused Tasks Measuring, marking out, cutting, shaping, joining and finishing techniques with a range of tools and new and reclaimed materials that children are likely to use to make their structures. Build and explore a variety of freestanding structures using construction kits, such as wooden blocks, interconnecting plastic bricks and those that make frameworks Fold paper or card in different ways to make	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. 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. Making Plan by suggesting what to do next. Select and use tools, skills and techniques, explaining their choices. Select new and reclaimed materials and construction	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

			freestanding structures, using masking tape where necessary to make joins. Learn how folding materials can make them stronger, stiffer, stand up and be more stable <u>Design, make and evaluate</u> Simple design criteria Talking, drawing and making mock-ups of their ideas with construction kits and other materials. Plan the order in which the structures will be made. Evaluate their developing ideas and final products against original design criteria.	kits to build their structures. Use simple finishing techniques suitable for the structure they are creating. <u>Evaluating</u> 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. <u>Technical knowledge and understanding</u> Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project.	
Autumn 2					
Spring 1					
Spring 2 – 2 weeks **<u>Eat More Fruit and Veg</u>**	Design, make and evaluate a fruit or vegetable kebab for children to promote healthy eating.	<u>Design</u> • Design purposeful, functional and appealing products for themselves	<u>Food processing skills:</u> Peeling, cutting, slicing, grating & squeezing.	<u>Prior learning</u> Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.	sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing,

(See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	This unit builds upon their previous knowledge, skills and concepts developed in EYFS. Use the Eatwell Guide model talk about the importance of fruit and vegetables in our balanced diet e.g. Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day? Why is it important to wash fruit/vegetables before we eat them? **Key learning:** Wash hands before working with food. Keep work surfaces clean. How to use a knife safely. Fruit and vegetables are an important part of healthy diet.	and others based on design criteria • Generate, develop, model and communicate their ideas through talking. Make • Select from and use a range of tools and equipment to perform practical tasks e.g. cutting • Select from and use a wide range of materials and components, including ingredients Evaluate • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria Cooking and Nutrition • Use the basic principles of a healthy and varied diet to prepare dishes • Understand where food comes from	Examine a range of fruit/vegetables. Handle, smell and taste fruit and vegetables in order to describe them through talking and drawing Evaluate existing products to determine what the children like best Food hygiene practices when handling food including the importance of following instructions to control risk. Use simple utensils and provide opportunities for the children to practise food processing skills such as washing, grating, peeling, slicing, squeezing Healthy eating advice, including eating more fruit and vegetables	Experience of cutting soft fruit and vegetables using appropriate utensils. 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. 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. Evaluating Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. Evaluate ideas and finished products against design	peeling, cutting, squeezing, healthy diet, choosing, ingredients, planning, investigating tasting, arranging, popular, design, evaluate, criteria

				criteria, including intended user and purpose. 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 healthy and varied diet to prepare dishes, including how fruit and vegetables are part of The Eatwell Guide. Know and use technical and sensory vocabulary relevant to the project.	
Summer 1					
Summer 2					
YEAR 2					
	Rationale	Key content from NC	Skills/Processes	Essential Knowledge	Vocabulary
Autumn 1 – 2 weeks **Vehicles** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a 'Fire Truck' for the Lead fireman to get to the scene of a fire quickly. This will link to and build upon knowledge gained in the Fire of London History project. It will further develop the skills and knowledge taught in 'Stable Structures' when in Y1. **Key learning:**	Design • Design purposeful, functional and appealing products for themselves and others based on design criteria • Generate, develop, model and communicate their ideas through talking. Make • Select from and use a range of tools and equipment to perform practical tasks e.g.	Investigate and evaluate: Explore and evaluate a range of wheeled products such as toys and everyday objects. Draw an example of a wheeled product, stating the user and purpose, and labelling the main parts Focused Tasks Make a product that moves using construction kits	Prior learning Assembled vehicles with moving wheels using construction kits. Explored moving vehicles through play. Gained some experience of designing, making and evaluating products for a specified user and purpose.	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used design, make, evaluate, purpose, user, criteria, functional

	A vehicle is something with wheels that transports people or objects. Vehicles have wheels to make them move. Wheels are attached by axles. Axles work in two ways: they are either attached firmly to the wheel so the axle rotates and the wheels turn with it, or the wheels are placed loosely on the axle so that the wheels turn around the axle. If the wheels are not attached to the axle they need something to stop them falling off e.g. a nut or washer.	cutting, joining and finishing • Select from and use a wide range of materials and components, including construction materials <u>Evaluate</u> • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria <u>Technical Knowledge</u> • Explore and use mechanisms – wheels and axles.	Wheels and axles may be assembled as either fixed axles or free axles. Mark out, hold, cut and join materials and components correctly Assemble some examples of wheel, axle, axle holder combinations <u>Design, make and evaluate</u> Generate simple criteria. Generate, develop and communicate their ideas as appropriate Make their wheel and axle product using their design ideas and criteria as an ongoing guide. Add finishing techniques to their product with reference to their design ideas and criteria Evaluate their finished product, communicating how it works and how it matches their design criteria, including any changes they made.	Developed some cutting, joining and finishing skills with card. <u>Designing</u> Generate initial ideas and simple design criteria through talking and using own experiences. Develop and communicate ideas through drawings and mock-ups. <u>Making</u> 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. <u>Evaluating</u> Explore and evaluate a range of products with wheels and axles. Evaluate their ideas throughout and their products against original criteria. Technical	

				knowledge and understanding Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project.	
Autumn 2					
Spring 1					
Spring 2 – 2 weeks **<u>Textiles Animal Hand Puppets</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate an animal puppet. This is the first experience for the children in sewing. This will be used to build upon as they go through KS2. **<u>Key learning:</u>** A puppet is a model version of a person or animal that is controlled by someone. Puppets can be controlled by strings, sticks or people's hands. There are marionette, sock, hand, finger and rod puppets.	<u>Design</u> • Design purposeful, functional and appealing products for themselves and others based on design criteria • Generate, develop, model and communicate their ideas through talking. <u>Make</u> • Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wide range of materials and components, including textiles <u>Evaluate</u>	<u>Investigate and evaluate:</u> Explore and compare fabrics Make drawings of existing products, stating the user and purpose. Identify and label, the fabrics, fastenings and techniques used. <u>Focused Tasks</u> Investigate fabrics to determine which is best for the purpose of the product they are creating. Demonstrate the correct use of appropriate tools to mark out, tape or pin the fabric to the templates or paper patterns and cut out	<u>Prior learning</u> Explored and used different fabrics. Cut and joined fabrics with simple techniques. Thought about the user and purpose of products. <u>Designing</u> Design a functional and appealing product for a chosen user and purpose based on simple design criteria. Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and	template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function, needle, thread, cotton, fabric, glue, sewing,

	Fabric can be joined together by sewing. Fabrics can be joined together using running and over stitch. Over stitch is good for sewing edges together. Sewing is more secure when joining fabrics than gluing.	• Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria	the relevant fabric pieces for the product. Joining techniques for children to practise in guided groups e.g. running stitch including threading own needle, stapling, lacing and gluing. Talk about the advantages and disadvantages of each technique. Demonstrate examples of finishing techniques for children to practise in guided groups e.g. sewing buttons, 3-D fabric paint, gluing sequins, printing. <u>Design, make and evaluate</u> Develop design criteria. Generate a range of ideas. Through talk, drawings and mock-ups, ask the children to develop and communicate their ideas. Information and communication technology could be used for symmetry and pattern ideas. Choose one idea to follow through. Evaluate ongoing work and the final products against the intended purpose and with the intended user,	information and communication technology. <u>Making</u> 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. <u>Evaluating</u> Explore and evaluate a range of existing textile products relevant to the project being undertaken. Evaluate their ideas throughout and their final products against original design criteria. <u>Technical knowledge and understanding</u> 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.	

			drawing on the design criteria previously agreed.	Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.	
Summer 1					
Summer 2					
YEAR 3					
	Rationale	Key content from NC	Skills/Processes	Essential Knowledge	Vocabulary
Autumn 1 –					
Autumn 2 – 2 weeks **<u>Seasonal Stockings</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a Christmas stocking. This project builds upon the skills and knowledge of sewing developed as part of the Puppet making project in Spring 2 Y2. **<u>Key learning:</u>** Function – relates to how suited it is to its purpose. Size, joins and fabric can affect this. Visual appeal – how attractive and eye-catching it is. Colour, decoration and fabric can affect this. How to do back stitch and zig-zag stitch.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g.	<u>Investigate and evaluate:</u> Investigate a collection of Christmas stockings Evaluate existing products to determine which designs are the most effective. Judge the suitability of the stockings for their intended users and purposes. Investigate fabrics to determine which is best for the purpose of the product they are creating. Demonstrate the correct use of appropriate tools to mark out, tape or pin the fabric to the templates or paper patterns and cut out	<u>Prior learning</u> Experience of basic stitching, joining textiles and finishing techniques. Experience of making and using simple pattern pieces. <u>Designing</u> Design a functional and appealing product for a chosen user and purpose based on simple design criteria. Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.	template, pattern pieces, mark out, join, decorate, finish features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function, needle, thread, cotton, fabric, glue, sewing,

	Use panel pattern to cut out material.	cutting, joining and finishing • Select from and use a wider range of materials and components, including textiles. <u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Technical Knowledge</u> Apply their understanding of how to strengthen, stiffen and reinforce more complex structure	the relevant fabric pieces for the product. Develop skills of threading needles and joining textiles using a range of stitches. This activity must build upon children's earlier experiences of stitches e.g. improving appearance and consistency of stitches and introducing new stitches. Develop skills of sewing textiles by joining right side together and making seams Demonstrate examples of finishing techniques for children to practise in guided groups e.g. sewing buttons, 3-D fabric paint, gluing sequins, printing. <u>Design, make and evaluate</u> Develop a design brief Use annotated sketches and prototypes to develop, model and communicate their ideas for the product. Identify the main stages of making and the appropriate tools and skills learnt through focused tasks	<u>Making</u> 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. <u>Evaluating</u> Explore and evaluate a range of existing textile products relevant to the project being undertaken. Evaluate their ideas throughout and their final products against original design criteria. <u>Technical knowledge and understanding</u> 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,	

			Produce step-by-step plans, lists of tools equipment, fabrics and components needed. Evaluate throughout and the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed.	stitching, sequins, buttons and ribbons. Know and use technical vocabulary relevant to the project.	
Spring 1 – 1 week **<u>Seasonal Food</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a seasonal food meal. There are opportunities to make at least one of the following: fairy cakes, fruit tart, stuffed peppers, meatballs, jacket potato with tune mayo, prawn mayo or egg mayo filling. Different groups could make and share. This project builds upon the skills and knowledge of food technology developed as part of the Eat More Fruit and Veg project in Spring 1 Y1. **<u>Key learning:</u>** Seasonal food is food that is readily available at certain times of the year in your area. Food can be grown out of season in greenhouses.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, • Select from and use a wider range of materials and components, including ingredients	<u>Investigate and evaluate:</u> Investigate a range of food products e.g. the content of their lunchboxes over a week, a selection of foods provided for them, food from a visit to a local shop Carry out sensory evaluations on the contents of the food from e.g. a variety of bought food products such as a range of wraps or sandwiches. Record results, for example using a table Find out how a variety of ingredients used in products are grown and harvested, reared, caught and processed <u>Focused Tasks</u> Select and use a range of utensils and use a range of techniques as appropriate	<u>Prior learning</u> Know some ways to prepare ingredients safely and hygienically. Have some basic knowledge and understanding about healthy eating and The Eatwell Guide. Have used some equipment and utensils and prepared and combined ingredients to make a product. <u>Designing</u> 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	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

	Food that is not in season in Britain can be grown in other countries. Most fruits are harvested during summer or the start of autumn. Vegetables don't grow on trees. They usually grow on or in the ground. Meat forms an important part of some people's diets. Lots of the fish we eat are caught at sea around Britain. Fresh water fish come from the lakes, rivers and streams around Britain.	<u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Cooking and Nutrition</u> • Understand and apply the principles of a healthy and varied diet • Prepare and cook a variety of savoury dishes using a range of cooking techniques • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	to prepare ingredients hygienically including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking. Make a sandwich Basic food hygiene practices when handling food including the importance of following instructions to control risk <u>Design, make and evaluate</u> Develop and agree on design criteria Generate a range of ideas encouraging realistic responses. Discussion, annotated sketches to develop and communicate ideas Evaluate as the assignment proceeds and the final product against the intended purpose and user, reflecting on the design criteria previously agreed. Consider what others think of the product when considering how the work might be improved.	technology, such as web-based recipes, to develop and communicate ideas. <u>Making</u> 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. <u>Evaluating</u> 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. <u>Technical knowledge and understanding</u> 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. Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. Know and use relevant technical and sensory vocabulary appropriately	
Spring 2					
Summer 1					
Summer 2					
YEAR 4					
	Rationale	Key content from NC	Skills/Processes	Essential Knowledge	Vocabulary
Autumn 1 – 2 weeks **<u>Light Up Signs</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a light up sign which can be coded to work at specific times. This project builds upon the skills and knowledge of making a box construction in Y1 (Shelters toy car garage) and introduces them to understanding and knowledge of electrical systems in their products. **<u>Key learning:</u>**	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	<u>Investigate and evaluate:</u> Discuss, investigate and, where practical, disassemble different examples of relevant battery-powered products, including those which are commercially available Investigate examples of switches, including those which are commercially available, which work in different ways e.g. push-to-make, push-to-break, toggle switch.	<u>Prior learning</u> 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. <u>Designing</u> Gather information about needs and wants, and develop design criteria to	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

	Signs give information, attract attention, give directions and advertise. Many electrical signs have one bulb in an electrical circuit. Electrical circuits need a complete closed loop to work. Some circuits have resistors to keep them safe as they reduce the flow of electricity. Incandescent bulbs have a small metal filament that glows brightly when electricity flows through it. Most modern bulbs are LEDS as they are cheap and use very little electricity. Electricity flows in one direction. Twisting and joining wires together as crocodile clips are for temporary joins. Microcontrollers are small electronic components that are programmed on a computer.	<u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including construction materials <u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Technical Knowledge</u> Understand and use electrical systems in their products – series circuits, incorporating switches, bulbs, buzzers and motors.	The dangers of mains electricity. <u>Focused Tasks</u> Make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers. Discuss which of the components in the circuit are input devices e.g. switches, and which are output devices e.g. bulbs and buzzers. Find a fault in a simple circuit and correct it Use a simple computer control program with an interface box or standalone control box to physically control output devices e.g. bulbs and buzzers Make a variety of switches by using simple classroom materials e.g. card, corrugated plastic, aluminium foil, paper fasteners and paper clips. Make switches that operate in different ways e.g. when you press them, when you turn them, when	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. <u>Making</u> 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. <u>Evaluating</u> Investigate and analyse a range of existing battery-powered products. Evaluate their ideas and products against their own design criteria and identify	

	Code blocks can be used in coding software such as 'Scratch' to program and control LEDs.		you push them from side to side. Test their switches in a simple series circuit. Teach how to avoid making short circuits. <u>Design, make and evaluate</u> Develop a design brief Generate a range of ideas Agree on design criteria that can be used to guide the development and evaluation of the children's products, including safety features. Use annotated sketches, cross-sectional and exploded diagrams, as appropriate, to develop, model and communicate their ideas. Consider the main stages in making and testing before assembling high quality products. Evaluate throughout and the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed.	the strengths and areas for improvement in their work. <u>Technical knowledge and understanding</u> 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.	

Autumn 2					
Spring 1 – 1 week **<u>Pneumatics Pop Up Rainforest Animals</u>** (See DATA resources under DT – 2021`-22 Planning, Subjects)) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a pop-up rainforest animal for a Y2 child to demonstrate and share in school **<u>New Learning:</u>** Use annotated sketches. Pneumatics can be used to operate levers.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including construction materials <u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of	<u>Investigate and evaluate:</u> Investigate, analyse and evaluate familiar objects that use air to make them work e.g. bicycle pump, balloon, inflatable swimming aids, foot pump for inflating an air bed. Construct a simple pneumatic system by joining a balloon to 5mm tubing and then to a washing-up liquid bottle Demonstrate lifting an object to think about ways in which this might be used in a product. Demonstrate a range of pneumatic mechanisms using prepared teaching aids including two syringes joined by plastic tubing; three syringes connected using a T-connector and using different sized syringes <u>Focused Tasks</u> Assemble the systems using syringes, tubing, balloons and plastic bottles.	<u>Prior learning</u> Explored simple mechanisms, such as sliders and levers, and simple structures. Learnt how materials can be joined to allow movement. Joined and combined materials using simple tools and techniques. <u>Designing</u> Generate realistic and appropriate 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. <u>Making</u> Order the main stages of making. Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons.	components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight linear, rotary, oscillating, reciprocating user, purpose, function, prototype, design criteria, innovative, appealing, design brief, research, evaluate, ideas, constraints, investigate

		others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Technical Knowledge</u> Understand and use mechanical systems in their products – pneumatics.	Introduce ways in which pneumatic systems can be used to operate levers. Correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques <u>Design, make and evaluate</u> Develop a design brief Generate a range of ideas Agree on design criteria Use annotated sketches and prototypes, to develop, model and communicate their ideas. Consider the main stages in making before assembling. Evaluate the final products against the intended purpose and with the intended user, where safe and practical, drawing on the design criteria previously agreed.	Select from and use finishing techniques suitable for the product they are creating. <u>Evaluating</u> Investigate and analyse books, videos and products with pneumatic mechanisms. Evaluate their own products and ideas against criteria and user needs, as they design and make. <u>Technical knowledge and understanding</u> Understand and use pneumatic mechanisms. Know and use technical vocabulary relevant to the project.	
Spring 2					

Summer 1					
Summer 2 – 1 week **<u>British Inventors</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	To reflect on the impacts that inventions have had on our lives. This project enables the children to reflect on the impact that inventions have had on our lives. . **<u>New Learning:</u>** The internet is a huge network of computers linked together, all over the world. The World Wide Web runs on the internet. The WWW is the webpages and content we look at. Concrete is very versatile. It is strong and can be shaped and moulded. Things can be reinforced by adding materials to support them, or strengthen them, or by layering materials to be stronger.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including construction materials <u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of	<u>Investigate and evaluate:</u> Investigate, analyse and evaluate familiar objects <u>Design, make and evaluate</u> Develop a design brief Generate a range of ideas Agree on design criteria Use annotated sketches and prototypes, to develop, model and communicate their ideas. Consider the main stages in making before assembling. Evaluate the final products against the intended purpose and with the intended user, where safe and practical, drawing on the design criteria previously agreed.	<u>Prior learning</u> 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. <u>Designing</u> 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. <u>Making</u> Order the main stages of making. Select from and use tools and equipment to cut,	Research, facts, messages, streaming, videos, blogging, reinforce, concrete,

		others to improve their work • **<u>Understand how key events and individuals in DT have helped shape the world.</u>**		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. <u>Evaluating</u> 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. <u>Technical knowledge and understanding</u> 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	

YEAR 5					
	Rationale	Key content from NC	Skills/Processes	Essential Knowledge	Vocabulary
Autumn 1 – 2 weeks **<u>Building Bridges</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a model suspension bridge supporting a smooth deck which a toy car can roll across. This project builds upon the skills and knowledge of making various types of bridges understanding compression forces and tension. **<u>New Learning:</u>** The flat surface of a bridge is called the deck. Side sections of a bridge are called parapets. Pillars allow bridge builders to span even wider gaps. A truss is made up of several beams connected together in different ways. Gravity is a downward force acting on bridges generating compression forces. Stone breaks easily under tension, but can withstand huge compression forces.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including construction materials <u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of	<u>Investigate and evaluate:</u> Investigate and make annotated drawings of a range of portable and permanent frame structures, e.g. tents, bus shelters, umbrellas. Research key events and individuals related to their study of frame structures e.g. Stephen Sauvestre – a designer of the Eiffel Tower; Thomas Farnolls Pritchard – designer of the Iron Bridge <u>Focused Tasks</u> Use a construction kit to build various bridge types. Compare the strength of square frameworks with triangular frameworks with Meccano or K'nex. Demonstrate how paper tubes can be made from rolling sheets of newspaper diagonally around pieces of e.g. dowel. Use these tubes and masking tape or paper straws with pipe cleaners to build 3-D frameworks such as cubes, cuboids and pyramids	<u>Prior learning</u> 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. <u>Designing</u> 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. <u>Making</u> Formulate a clear plan, including a step-by-step list	frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, beam, pillar, compression, suspension, truss, gravity, downward force, arch, technical drawing,

	Arch bridges are designed to spread out the compression forces.	others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Technical Knowledge</u> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structure	Accurate use of tools and equipment Demonstrate skills and techniques for accurately joining framework materials together e.g. paper straws, square sectioned wood. <u>Design, make and evaluate</u> Discuss the brief of designing and making a small-scale bridge. Generate innovative ideas, drawing on their research. Develop a simple design specification to guide their thinking. Produce a detailed, step-by-step plan, listing tools and materials. Sketches should be annotated with notes to help develop and communicate their ideas. Model their ideas first using materials such as paper, card and paper straw Make product with accuracy.	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. <u>Evaluating</u> 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. <u>Technical knowledge and understanding</u> Understand how to strengthen, stiffen	

			Evaluate their work and their completed product, drawing on their design specification, and thinking about the intended purpose and user.	and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.	
Autumn 2					
Spring 1 – 1 week (& cooking time across the half term) **<u>Burgers</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	Design, make and evaluate a burger for Y5 to demonstrate changes in materials. This project builds upon the skills and knowledge of food technology developed as part of the Eat More Fruit and Veg project in Spring 1 Y1 and Seasonal Food in Spring 1 Y3. The children should have the opportunity to try different sauces, salads and bread rolls to go with their burger. **<u>New Learning:</u>** Nutrition labels tell us what the food contains and how many calories it has. Nutrition labels tell us how many fats, proteins and carbohydrates there are in the food we eat. Nutrition labels help us to make choices about the food we eat.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including ingredients <u>Evaluate</u>	<u>Investigate and evaluate:</u> Use first hand and secondary sources to carry out relevant research into existing products to include personal/cultural preferences, ensuring a healthy diet, meeting dietary needs and the availability of locally sourced/seasonal/organic ingredients. Include a visit to a local bakery, farm, farm shop or supermarket Carry out sensory evaluations of a variety of existing food products and ingredients relating to the project. The ingredients could include those that could be added to a basic recipe such as herbs, spices, vegetables or cheese Present results in e.g. tables/graphs/charts and by using evaluative writing.	<u>Prior learning</u> Have knowledge and understanding about food hygiene, nutrition, healthy eating and a varied diet. Be able to use appropriate equipment and utensils, and apply a range of techniques for measuring out, preparing and combining ingredients. <u>Designing</u> 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	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, 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, patties, grill, mince, rolls, bread, gluten free,

	Calories are energy that fuel our body and they come from fats, proteins and carbohydrates.	• Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Cooking and Nutrition</u> • Understand and apply the principles of a healthy and varied diet • Prepare and cook a variety of savoury dishes using a range of cooking techniques • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.	Research key chefs and how they have promoted seasonality, local produce and healthy eating. <u>Focused Tasks</u> Demonstrate how to measure out, cut, shape and combine e.g. mix, knead.. Demonstrate how to use appropriate utensils and equipment safely and hygienically Ask questions about which ingredients could be changed or added in a basic recipe such as types of flour, seeds, garlic, vegetables. Consider texture, taste, appearance and smell. Explore making different shapes to change the appearance of the food product <u>Design, make and evaluate</u> Develop a design brief Develop design criteria relating to nutrition and healthy eating Generate a range of ideas	to develop and communicate ideas. <u>Making</u> 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. <u>Evaluating</u> 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, considering the views of others when identifying improvements. Understand how key chefs have influenced eating	

			Agree on design criteria that can be used to guide the development and evaluation of the product. Use annotated sketches, discussion and information and communication technology if appropriate, to develop and communicate their ideas. Record the steps, equipment, utensils and ingredients for making the food Evaluate the work as it progresses and the final product against the intended purpose and user reflecting on the design specification previously agreed.	habits to promote varied and healthy diets. <u>Technical knowledge and understanding</u> 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 and use relevant technical and sensory vocabulary.	
Spring 2					
Summer 1					
Summer 2					
YEAR 6					
	Rationale	Key content from NC	Skills/Processes	Essential Knowledge	Vocabulary
Autumn 1 – 2 weeks **<u>Programming Pioneers</u>** (See Plan Bee resources under DT on Staff Resources) (You must complete the 'I am a technologist' proforma	Design, make and evaluate a light up sign which can be coded to work at specific times. This project builds upon the skills and knowledge of electrical systems in products in Autumn 1 Year 4 'Light Up Signs'.	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their ideas through discussion,	<u>Investigate and evaluate:</u> Discuss a range of relevant products (such as nightlights, garden lights, alarm systems, security lighting, electronic moneyboxes) that respond to changes in the environment using a computer control program	<u>Prior learning</u> Initial experience of using computer control software and an interface box, a standalone box or microcontroller, e.g. Crumble. Some experience of writing and modifying a program to	Quartz, computer, microchip, engineer, debugging, reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch light emitting diode (LED), bulb, bulb holder, battery, battery

at the end of the unit of work – see DT on staff resources)	**Key learning:** Memory chips store data by setting thousands, millions or billions of switches (called transistors) in on or off positions. The changes in the level of electrical current flowing through the open or closed switches can be read and interpreted. Microcontrollers are small, inexpensive computer systems on chips. Debugging finding and fixing faults in a system.	annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Make • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including ingredients Evaluate • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in DT have helped shape the world.	e.g. Why is a computer control program used to operate the products? What are the advantages of using computer control? What input devices, e.g. switches, and output devices, e.g. bulbs and buzzers, have been used? Who have the products been designed for and for what purpose? Investigate sensors such as light dependent resistors (LDRs) and a range of switches such as push-to make, push-to-break, toggle, micro and reed switches. To gain an understanding of how they are operated by the user and how they work, ask the children to use each component to control a bulb in a simple circuit. Remind children about the dangers of mains electricity. Children could research famous inventors related to the project e.g. Thomas Edison – light bulb. Steve Jobs. Focused Tasks Through teacher demonstration and explanation, recap	make a light turn on or flash on and off. Understanding of the essential characteristics of a series circuit and experience of creating a battery bowered, functional, electrical product. Designing Develop a design specification for a functional product that responds automatically to changes in the environment. Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams Making 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.	holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit function, innovative, design specification, design brief, user, purpose

			measuring, marking out, cutting and joining skills with construction materials that children will need to create their electrical products. Using a model circuit, demonstrate and enable children to practise using different input and output devices. Allow them to practise methods for making secure electrical connections e.g. using wire strippers, twist and tape connections, screw connections, crocodile clips and connecting blocks. Remind children how to avoid making short circuits. Drawing on science understanding, ask the children to explore a range of electrical systems that could be used to control their products, including a simple series circuit where a single output device is controlled, a series circuit where two output devices are controlled by one switch and, where appropriate, parallel circuits where two output devices are controlled	Create and modify a computer control program to enable their electrical product to respond to changes in the environment. <u>Evaluating</u> 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. <u>Technical knowledge and understanding</u> Understand and use electrical systems in their products. Understand the use of computer control systems in products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project.	

			independently by two separate switches. Drawing on related computing activities, ensure that children can write and modify computer control programs that include inputs, outputs and decision making. Test out the programs using electrical components connected to microcontrollers, interface boxes or standalone boxes. <u>Design, make and evaluate</u> Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams, including the microcontroller, interface box or standalone box to be used. Drawings should indicate the design decisions made, including the location of the electrical components and how they work as a system with an input, process and output. Reference should be made to the control program used and how it will operate to control the inputs and outputs. Produce detailed step-by-step plans and lists of tools, equipment and		

			materials needed. If appropriate, allocate tasks within a team. Make high quality products, applying knowledge, understanding and skills from IEAs and FTs. Create and modify a computer control program to enable the product to work automatically in response to changes in the environment. Critically evaluate throughout and the final product, comparing it to the original design specification. Test the system to demonstrate its effectiveness for the intended user and purpose.		
Autumn 2					
Spring 1					
Spring 2					
Summer 1					
Summer 2 – 2 weeks **<u>Fashion and Textiles</u>** (See Plan Bee resources under DT on Staff Resources)	Design, make and evaluate a shopping bag for yourself. This project links to and builds upon previous projects in Y2 'Puppets' and Y3 'Seasonal Stockings' where they were taught	<u>Design</u> • Use research and develop design criteria to inform the design of innovative, functional and appealing products that are fit for purpose. • Generate, develop, model and communicate their	<u>Investigate and evaluate:</u> investigate, analyse and evaluate a range of existing products which have been produced by combining fabric shapes.	<u>Prior learning</u> Experience of basic stitching, joining textiles and finishing techniques. Experience of making and using simple pattern pieces. <u>Designing</u>	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

(You must complete the 'I am a technologist' proforma at the end of the unit of work – see DT on staff resources)	key stitches and ways to join fabrics. **<u>Key Learning:</u>** Products which are woven are called textiles. Different textiles have different properties. Most products made using textiles are joined using sewing. Textiles an also be joined with fasteners, glue or riveting. Applique is when a smaller piece of fabric is added to another. Pattern pieces are drawings that are the exact shape and size as the sections of textiles to make a product. Pattern pieces can be used again and again.	ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <u>Make</u> • Select from and use a wider range of tools and equipment to perform practical tasks e.g. cutting, joining and finishing • Select from and use a wider range of materials and components, including textiles <u>Evaluate</u> • Investigate and analyse a range of existing products • Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • Understand how key events and individuals in DT have helped shape the world. <u>Technical Knowledge</u> Apply their understanding of how to strengthen,	Investigate work by designers and their impact on fabrics and products Investigate and analyse how existing products have been constructed. Disassemble a product and evaluate what the fabric shapes look like, how the parts have been joined, how the product has been strengthen and stiffened, what fastenings have been used and why. Investigate properties of textiles through investigation e.g. exploring insulating properties, water resistance, wear and strength of textiles. <u>Focused Tasks</u> Develop skills of threading needles and joining textiles using a range of stitches If available, use sewing machines to join fabric with close adult supervision. Develop skills of sewing textiles by joining right side together and making seams.	Generate innovative ideas by carrying out research including surveys, interviews 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. <u>Making</u> 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.	criteria, annotate, design decisions, functionality, innovation, authentic, user, purpose, evaluate, mock-up, prototype, applique,

		stiffen and reinforce more complex structure	Investigate how to sew and shape curved edges by snipping seams, how to tack or attach wadding or stiffening and learn how to start and finish off a row of stitches. Develop skills of 2-D paper pattern making using grid or tracing paper to create a 3-D mock-up of a chosen product. Teach how to pin a pattern on to fabric ensuring limited wastage, how to leave a seam allowance and different cutting techniques. <u>Design, make and evaluate</u> Create a design brief Generate ideas Communicate ideas through detailed, annotated drawings from different perspectives Drawings should indicate design decisions made, the methods of strengthening, the type of fabrics to be used and the types of stitching that will be incorporated.	<u>Evaluating</u> Investigate and 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. <u>Technical knowledge and understanding</u> 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	

			Produce step-by-step plans Make product Use a range of decorating techniques to ensure a well-finished final product that matches the intended user and purpose. Critically evaluate the quality of the design, the manufacture, functionality, innovation shown and fitness for intended user and purpose, considering others' opinions. Communicate the evaluation in various forms e.g. writing for a particular purpose, giving a well-structured oral evaluation, speaking clearly and fluently.		