

Design & Technology Skills & Knowledge Progression



Spirituality:

Design and Technology lessons provide children with meaningful opportunities to develop their spirituality by fostering creativity, purpose, and reflection. As pupils engage in designing and making products that solve real-world problems, they are encouraged to consider the needs of others, the impact of their choices, and the ethical implications of design. This nurtures a sense of responsibility, empathy, and appreciation for innovation and craftsmanship. Through collaborative projects and reflective evaluation, children can explore their values, express their individuality, and develop a deeper understanding of how they can contribute positively to the world around them.

		Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
EYFS	TOPIC	Super Me!	Let's Celebrate!	Dress to Impress	Once upon a time...	Amazing Animals	All Aboard!
Expressive Arts and Design	Outcome	- Paper Fastener Skeletons - Superhero crafts	- Rain sticks - Christmas crafts	- Box Model washing machines - Threading and weaving - Concertina dragons - Paper Lanterns	- Three Bears chairs and beds 3 Little Pig's houses models	- Dear Zoo animals -lift the flap - minibeasts	- Trains and paper aeroplanes - Floating boats - Pirate crafts
This consists of two strands: Creating with Materials, and Being Imaginative and Expressive	Knowledge and Skills	Children develop skills of planning, measuring, folding, cutting, joining, attaching, building, balancing, selecting materials, evaluating and developing their work, independently at our creative area and construction area, but also with adult support. Sometimes they work on the above specific adult-initiated challenge, but the rest of the time they have free choice to create whatever they can imagine! These are some key questions that you could ask within D&T lessons. Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype? Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process? Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about in other D&T lessons that could help you? What construction skills do you already have?					



Year 1

		Autumn	Spring	Summer	
YR 1	TOPIC	This old house People who help us	Where did the dinosaurs go? All creatures great and small	Happy Ever After How can I make a difference?	
	Outcome	Snowman hand puppet		Moving picture linked to Jack and the Beanstalk	Fruit and vegetable salads
	Aspect of DT	Textiles		Mechanisms	Cooking & Nutrition
	Focus	Templates and joining techniques		Sliders & Levers	Preparing fruit and vegetables
	Knowledge, Skills and Understanding	Developing, Planning and Communicating ideas - Can they think of some ideas on their own? - Can they explain what they want to do and why? - Can they use pictures and words to plan? - Can they design a product, which has a purpose and is appealing? Working with tools, equipment, materials and components to make quality products - Can they explain what they are making? - Which tools are they using? Evaluating processes and products (own ideas and products and existing products) - Can they describe how something works? - Can they talk about their own work and things that other people have done?			

	Designing	• 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.	• 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.	• 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	• 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 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.	• 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	• 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.	• 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.	• 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.
	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	• Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the project.	• 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 <i>The eatwell plate</i>. • Know and use technical and sensory vocabulary relevant to the project.

	Key Questions	Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype? Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process? Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about in other D&T lessons that could help you? What construction skills do you already have? <u>METACOGNITIVE</u> questions have the greatest impact on pupil progress.		
		• Can they describe how different textiles feel? • Can they make a product from textile by gluing? • Can they measure textiles? • Can they join textiles together to make something? • Can they cut textiles? • Can they explain why they chose a certain textile?	• Can they make a product which moves? • Can they cut materials using scissors? • Can they describe the materials using different words? • Can they say why they have chosen moving parts? • Can they make a structure/model using different materials? • Is their work tidy? • Can they make their model stronger if it needs to be? • Can they talk with others about how they want to construct their product? • Can they select appropriate resources and tools for their building projects? • Can they make simple plans before making objects e.g. drawings, arranging pieces of construction before building?	• Can they use techniques such as cutting, grating and peeling safely? • Can they describe the texture of foods? • Can they describe the properties of the ingredients they are using? • Do they wash their hands and make sure that surfaces are clean? • Can they explain what it means to be hygienic? • Are they hygienic in the kitchen? • Can they think of interesting ways of decorating food they have made? • Do they understand the principles of a balanced and varied diet? • Can they name and sort foods into the five groups in The Eatwell Plate? • Do they understand where food comes from? (plants and animals) • Do they understand that food has to be farmed, grown elsewhere or caught?



		Autumn	Spring	Summer
YR 2	TOPIC	Fire and Fever	Humans Vs Animals	World Party
	Outcome		Arctic animal habitats	A carnival float (vehicle)
	Aspect of DT		Structures	Mechanisms
	Focus		Free standing structures	Wheels and axles
	Knowledge, Skills and Understanding	Developing, Planning and Communicating ideas • Can they think of ideas and plan what to do next? • Can they use knowledge of existing products to come up with ideas? • Can they say how their intended products are suitable for their intended users? • Can they use simple design criteria to develop their ideas? • Can they choose the best tools and materials? Can they give a reason why these are the best? • Can they describe their design by using pictures, diagrams, models and words? • Can they model ideas by making templates and mockups? • Can they use ICT, where appropriate, to develop and communicate their ideas? Working with tools, equipment, materials and components to make quality products • Can they join things (materials/components) together in different ways? Evaluating processes and products (own ideas and products and existing products)		

		• What materials are existing products made from? • What do you like/dislike about existing products? • What went well with their work? • If they did it again, what would they want to improve?		
	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 initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups.
	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 kits to build their structures. • Use simple finishing techniques suitable for the structure 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.
	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.	• 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		• Know how to make freestanding structures stronger, stiffer and more stable. • 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.
	Key Questions	Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype? Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process?		

		Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about inn other D&T lessons that could help you? What construction skills do you already have? <u>METACOGNITIVE</u> questions have the greatest impact on pupil progress.		
			• Can they make sensible choices as to which material to use for the constructions? • Can they develop their own ideas from initial starting points? • Can they incorporate some type of movement into models? • Can they consider how to improve their construction? • Can they measure materials to use in a model or structure? • Can they join materials in different ways? • Can they use joining, folding or rolling to make materials stronger?	• Can they make sensible choices as to which material to use for the constructions? • Can they develop their own ideas from initial starting points? • Can they incorporate some type of movement into models? • Can they consider how to improve their construction? • Can they measure materials to use in a model or structure? • Can they join materials in different ways? • Can they use joining, folding or rolling to make materials stronger? • Can they join materials together as part of a moving product? • Can they add some kind of design to their product?



Year 3

		Autumn	Spring	Summer
YR 3	TOPIC	Place Invaders	The Great Food Debate	Fashion Forward
	Outcome		World Food	Reflective safety wear
	Aspect of DT		Cooking and Nutrition	Textiles
	Focus		Healthy and varied diet	2-D shape to 3-D product
	Knowledge, Skills and Understanding	Developing, Planning and Communicating ideas - Can they show that their design meets a range of requirements? - Can they put together a step-by-step plan which shows the order and also what equipment and tools they need? - Can they describe their design using an accurately labelled sketch and words? - How realistic is their plan? Working with tools, equipment, materials and components to make quality products - Can they use equipment and tools accurately? Evaluating processes and products - What did they change which made their design even better?		
	Designing		Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma	Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.

			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.	• Produce annotated sketches, prototypes, final product sketches and pattern pieces.
	Making		• 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.	• 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.
	Evaluating		• 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.	• Investigate a range 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.
	Technical knowledge and understanding		• Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	• 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.
	Key Questions	Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype? Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process? Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about other D&T lessons that could help you? What construction skills do you already have? <u>METACOGNITIVE</u> questions have the greatest impact on pupil progress.		
			• Can they choose a right ingredient for a product? • Can they use equipment safely? • Can they make sure that their product looks attractive? • Can they describe how their combined ingredients come together? • Can they set out to grow plants such as cress and herbs from seed with the intention of using them for their food product? • Do they know what to do to be hygienic and safe? • Have they thought what they can do to present their product in an interesting way?	• Can they join textiles of different types in different ways? • Can they choose textiles both for their appearance and also qualities? • Do they think about what the user would want when choosing textiles? • Have they thought about how to make their product strong? • Can they devise a template? • Can they explain how to join things in a different way?

Year 4



		Autumn	Spring	Summer
YR 4	TOPIC	Cities at War – Second World War	Story of a River – Trent and Mississippi	Breaking down barriers- Refugees
	Outcome	Shelters	Moving poster to explain the water cycle	Torch / reading light
	Aspect of DT	Structures	Mechanical systems	Electrical systems
	Focus	Shell Structures	Levers and linkages	Simple circuits and switches
	Knowledge, Skills and Understanding	Developing, Planning and Communicating ideas - Can they come up with at least one idea about how to create their product? - Do they take account of the ideas of others when designing? - Can they produce a plan and explain it to others? - Can they suggest some improvements and say what was good and not so good about their original design? Working with tools, equipment, materials and components to make quality products - Can they tell if their finished product is going to be good quality? - Are they conscious of the need to produce something that will be liked by others? - Can they show a good level of expertise when using a range of tools and equipment? Evaluating processes and products - Have they thought of how they will check if their design is successful? - Can they begin to explain how they can improve their original design? - Can they evaluate their product, thinking of both appearance and the way it works?		
	Designing	- 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	- 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.	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.
	Making	• Order the main stages of making. • 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.	• 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.	• 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.
	Evaluating	• 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 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.	• 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.
	Technical knowledge and understanding	• Develop and use knowledge of how to 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.	• Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project.	• 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
	Key Questions	Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype?		

		Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process? Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about in other D&T lessons that could help you? What construction skills do you already have? <u>METACOGNITIVE</u> questions have the greatest impact on pupil progress.		
		• Do they use the most appropriate materials? • Can they work accurately to make cuts and holes? • Can they join materials? • Do they select the most appropriate materials? • Can they use a range of techniques to shape and mould? • Do they use finishing techniques? • Can they measure carefully so as to make sure they have not made any mistakes? • How have they attempted to make their product strong? • Do they take time to consider how they could have made their idea better? • Do they work at their product even though their original idea might not have worked?	• Do they use the most appropriate materials? • Can they work accurately to make cuts and holes? • Can they join materials? • Do they select the most appropriate materials? • Can they use a range of techniques to shape and mould? • Do they use finishing techniques? • Can they measure carefully so as to make sure they have not made any mistakes? • How have they attempted to make their product strong? • Do they take time to consider how they could have made their idea better? • Do they work at their product even though their original idea might not have worked?	• Do they select the most appropriate tools and techniques for a given task? • Can they make a product, which uses both electrical and mechanical components? • Can they use a simple circuit? • Can they use a number of components? • Can they add things to their circuits? • How have they altered their product after checking it? • Are they confident about trying out new and different ideas?



Year 5

		Autumn	Spring	Summer
YR 5	TOPIC	The Space Race	Fragile Earth	The Stereotype Challenge
	Outcome	Space Food	Tent	Display with moving parts
	Aspect of DT	Cooking & Nutrition	Structures	Mechanical Systems
	Focus	Celebrating culture and seasonality	Frame Structures	Pulleys or Gears
	Knowledge, Skills and Understanding	Developing, Planning and Communicating ideas - Can they come up with a range of ideas after they have collected information? - Do they take a user's view into account when designing? - Can they produce a detailed step-by-step plan? - Can they suggest some alternative plans and say what the good points and drawbacks are about each? Working with tools, equipment, materials and components to make quality products - Can they explain why their finished product is going to be good quality? - Can they explain how their product will appeal to the audience? - Can they use a range of tools and equipment expertly? Evaluating processes and products - Do they keep checking that their design is the best it can be? - Do they check whether they anything could be improved? - Can they evaluate appearance and function against the original criteria?		
	Designing	Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.	- 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,	- Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. - Develop a simple design specification to guide their thinking.

		• 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.	taking account of constraints including time, resources and cost. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.	• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.
	Making	• 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.	• Formulate a clear plan, including a 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.	• 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	• 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.	• 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.	• 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	• 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.	• Understand how to strengthen, stiffen and reinforce 3-D frameworks. • 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 relevant technical and sensory vocabulary.		• Know and use technical vocabulary relevant to the project.
	Key Questions	Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype? Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process? Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about other D&T lessons that could help you? What construction skills do you already have? <u>METACOGNITIVE</u> questions have the greatest impact on pupil progress.		
		•Can they describe what they do to be both hygienic and safe? •How have they presented their product well? •Can they explain how their product should be stored with reasons? •Can they set out to grow their own products with a view of making a salad, taking account of time required to grow different foods?	•Are their measurements accurate enough to ensure that everything is precise? •How have they ensured that their product is strong and fit for purpose? •Are they motivated enough to refine and improve their product? •Do they persevere through different stages of the making process?	•Are their measurements accurate enough to ensure that everything is precise? •How have they ensured that their product is strong and fit for purpose? •Are they motivated enough to refine and improve their product? •Do they persevere through different stages of the making process? •Can they incorporate hydraulics, pneumatics, pulleys and gears?



Year 6

		Autumn	Spring	Summer
YR 6	TOPIC	Digging for Treasure	Oceans Apart	We all Matter
	Outcome	An electrical wire game (if you touch the wire it buzzes/flashses)		Bag for Life
	Aspect of DT	Electrical Systems		Textiles
	Focus	More complex switches and circuits		Combining different fabric shapes
	Knowledge, Skills and Understanding	Developing, Planning and Communicating ideas - Can they use a range of information to inform their design? - Can they use market research to inform plans? - Can they work within time constraints? - Can they follow and refine their plan if necessary? - Can they justify their plan to someone else? - Do they consider culture and society in their design? Working with tools, equipment, materials and components to make quality products - Can they use tools and materials precisely? - Do they change the way they are working if needed? Evaluating processes and products - How well do they test and evaluate their final product? - Is it fit for purpose? - What would improve it? - Would different resources have improved their product? - Would they need more or different information to make it even better?		

	Designing	• 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.		• 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.
	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. • Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.		• 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	• 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.		• 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.

	Technical knowledge and understanding	• 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.		• 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 Questions	Factual – What ingredients did you use? What fabric is this? Who is this designer? What is the tool called? Conceptual – Can you name some healthy foods? How did you reinforce structure? What did you learn about diet? What happened to the prototype? Procedural – What happened next? What are the steps we follow designing and making a product? How do you use this tool safely? Can you remember the next stage in the design process? Metacognitive - What are your design criteria? Is there a way of helping you remember each stage of the design process? What have you learned about in other D&T lessons that could help you? What construction skills do you already have? <u>METACOGNITIVE</u> questions have the greatest impact on pupil progress.		
		•Can they incorporate a switch into their product? •Can they use different kinds of circuit in their product? •Can they think of ways in which adding a circuit would improve their product? •Can they justify why they selected specific materials? •Can they work within a budget? •How have they ensured that their work is precise and accurate? •Can they hide joints so as to improve the look of their product? •Did they consider the use of the product when selecting materials? •Does their product meet all design criteria?		•Do they think what the user would want when choosing textiles? •How have they made their product attractive and strong? •Can they make up a prototype first? •Can they use a range of joining techniques? •Have they thought about how their product could be sold? •Have they given considered thought about what would improve their product even more?