



Design and Technology Curriculum Sequence – Year 6

<u>Honesty</u> Learning to communicate with confidence Asking for help when necessary Giving criticism kindly	<u>Love</u> Offering to help Giving praise to self and others	<u>Forgiveness</u> Being able to accept kind criticism Learn to be patient when sharing	<u>Respect</u> Appreciating the efforts of others Looking after equipment, materials, the classroom environment and each other's work	<u>Cultural Capital Opportunities</u> Investigating products in the school environment, the locality and at home Learning about the impact of nutrition on health Learn about significant designers who have shaped the locality, the UK and the world, e.g. Nikola Tesla, Elon Musk (pioneers in electronics), Jamie Oliver, Nadia Hussain (chefs) Learning where food comes from Learning to use unfamiliar equipment and materials		
<u>A Love Of Language</u> <u>Reading:</u> -reading technical and other key vocabulary -reading instructions -reading age appropriate information about designers and products -reading peers' writing <u>Listening:</u> -listening to instructions -listening to video clips -listening to partners and team members <u>Speaking:</u> -communicating with partners and team members -asking questions -using technical and other key vocabulary -describing and explaining ideas, decisions and opinions <u>Writing:</u> -labelling drawings -writing technical and other key vocabulary -writing instructions -writing product evaluations	<u>Aspirations</u> Identify the ways a product will meet the design criteria Identify the positive effect the product will have on the intended user Self-evaluate their use of equipment and skills and set their own targets for improvement Aspire to become a designer, inventor, mechanical engineer, architect, chef Aspire to use own creativity and practical skills to improve people's ways of life	<u>Bringing Learning To Life</u> Evaluating a variety of existing products Visits to the locality to investigate products Practical use of a range of techniques and materials Making products that function and are appealing	<u>Emotional Well-Being</u> Learning to be supportive and cooperative Being proud of what they have accomplished	<u>Resilience</u> Being willing to take risks Persevering with new techniques and equipment Know that practise brings improvement	<u>Valuing Our Diversity</u> Learning about foods from around the world Finding out about and valuing people's preferences	<u>Respect and Responsibility</u> Listening to safety instructions and using equipment with care Looking after equipment, materials, the classroom / local environment and each other's work Giving praise (to self as well as others) Giving criticism kindly Accept kind criticism Asking for help when necessary Offer to help Learn to be patient when sharing

What will they learn?		In what order?		End points	
Key Concepts	Key Skills	Autumn 1	Spring 1	Summer 1	
<p>Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.</p> <p>Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut out paper).</p> <p>Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</p> <p>Use innovative combinations of electronics (or computing) and mechanics in product designs.</p> <p>Measure accurately and calculate ratios of</p>	<p>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.</p> <ul style="list-style-type: none"> • Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. 	<p>Cooking and Nutrition CELEBRATING CULTURE AND SEASONALITY Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know and use relevant technical and sensory vocabulary throughout the unit : <p>Ingredients, fats, sugar, carbohydrate, protein, vitamins, calories, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality, utensils, combine, design specification, innovative, research, evaluate, design brief</p> <p>Evaluating</p> <ul style="list-style-type: none"> • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables / graphs / pie charts. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand about seasonality in relation to food products and the source of different food products. <p>Evaluating</p> <ul style="list-style-type: none"> • Understand how key chefs have influenced eating habits to promote varied and healthy diets. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know how to use utensils and equipment including heat sources to prepare and cook food. <p>Designing</p>	<p>Monitoring and Control Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know and use technical vocabulary relevant to the project: <p>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 holder, USB cable, wire, insulator, conductor, crocodile clip, microcontroller, code, system, debug, input device, output device, series circuit, function, innovative, design specification, design brief, user, purpose</p> <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand the use of computer control systems in products. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate famous inventors who developed ground-breaking electrical systems and components, e.g. Nikola Tesla, Elon, Musk. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand and use electrical systems in their products. <p>Designing • Use research to develop a design specification for a functional product that responds automatically to changes in the environment.</p> <p>Technical knowledge and understanding</p>	<p>Mechanical systems PULLEYS OR GEARS Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know and use technical vocabulary relevant to the project: <p>pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor</p> <p>circuit, switch, circuit diagram annotated drawings, exploded diagrams</p> <p>mechanical system, electrical system, input, process, output design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief</p> <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand that mechanical and electrical systems have an input, process and an output. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand how pulleys and pulley systems change the direction of movement. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate significant designers and innovations relevant to the project. <p>Designing</p> <ul style="list-style-type: none"> • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. <p>Designing</p>	<p>Autumn: Evaluates the sensory qualities of existing products and ingredients.</p> <p>Understands seasonality and the sources of different food products.</p> <p>Understands how key chefs have promoted varied and healthy diets.</p> <p>Uses utensils, equipment and heat sources to prepare and cook food.</p> <p>Develops a design brief and design specification.</p> <p>Makes design decisions to develop a final product linked to user and purpose.</p> <p>Writes a step-by-step recipe, including a list of ingredients, equipment and utensils.</p> <p>Uses writing, ICT, tables, charts, graphs, cross-sectional and exploded diagrams to record ideas.</p> <p>Selects and accurately uses utensils and equipment to measure and combine ingredients.</p> <p>Makes and presents food products appropriately for the intended user and purpose.</p>

<p>ingredients to scale up or down from a recipe.</p> <p>Make products through stages of prototypes, making continual refinements.</p>	<p>Making</p> <ul style="list-style-type: none"> • 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 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 their electrical product to respond to changes in the environment. • 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. <p>Evaluating</p> <ul style="list-style-type: none"> • Carry out sensory evaluations of a range of relevant products and ingredients. Record the 	<ul style="list-style-type: none"> • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. <p>Designing</p> <ul style="list-style-type: none"> • Explore a range of initial ideas and make design decisions to develop a final product linked to user and purpose. <p>Designing</p> <ul style="list-style-type: none"> • Use words, annotated sketches, exploded diagrams and information and communication technology as appropriate to develop and communicate ideas. <p>Designing</p> <ul style="list-style-type: none"> • Write a step-by-step recipe, including a list of ingredients, equipment and utensils <p>Making</p> <ul style="list-style-type: none"> • Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients. <p>Making</p> <ul style="list-style-type: none"> • Make, decorate and present the food product appropriately for the intended user and purpose. <p>Evaluating</p> <ul style="list-style-type: none"> • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying Improvements. 	<ul style="list-style-type: none"> • Apply their understanding of computing to program, monitor and control their products. <p>Designing</p> <ul style="list-style-type: none"> • Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. <p>Making</p> <ul style="list-style-type: none"> • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. <p>Making</p> <ul style="list-style-type: none"> • Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. <p>Making</p> <ul style="list-style-type: none"> • Create and modify a computer control program to enable their electrical product to respond to changes in the environment. <p>Evaluating</p> <ul style="list-style-type: none"> • Continually evaluate and modify the working features of the product to match the initial design specification. <p>Evaluating</p> <ul style="list-style-type: none"> • Test the system to demonstrate its effectiveness for the intended user and purpose. 	<ul style="list-style-type: none"> • Develop a simple design specification to guide their thinking. <p>Designing</p> <ul style="list-style-type: none"> • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. <p>Making</p> <ul style="list-style-type: none"> • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. <p>Making</p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. <p>Evaluating</p> <ul style="list-style-type: none"> • Consider the views of others to improve their work. <p>Evaluating</p> <ul style="list-style-type: none"> • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. <p>Evaluating</p> <ul style="list-style-type: none"> • Compare the final product to the original design specification. 	<p>Knows and uses relevant technical and sensory vocabulary.</p> <p>Evaluates the final product with reference to the design brief and design specification, taking into account the views of others when identifying improvements.</p> <p>Spring:</p> <ul style="list-style-type: none"> • Investigate famous inventors who developed ground-breaking electrical systems and components. • Understands the use of computer control systems in products. • Creates and modifies a computer control program to enable their electrical product to respond to changes in the environment. • Tests the system to demonstrate its effectiveness for the intended user and purpose. • Uses research to develop a design specification for a functional product that responds automatically to changes in the environment. • Generates, develops and communicates ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. • Formulates a step-by-step plan to guide making, listing tools, equipment, materials and components. <ul style="list-style-type: none"> • Applies their understanding of computing to program,
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	<p>evaluations using e.g. tables / graphs / charts such as star diagrams.</p> <ul style="list-style-type: none"> • 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. • 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. • 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. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Know and use technical vocabulary relevant to the projects. 				<p>monitor and control their products.</p> <ul style="list-style-type: none"> • Competently selects and accurately assembles materials, and securely connect electrical components to produce a reliable, functional product. • Knows and uses technical vocabulary relevant to the project. • Continually evaluates and modifies the working features of the product to match the initial design specification. <p><u>Summer:</u></p> <ul style="list-style-type: none"> • Investigates famous manufacturing and engineering companies relevant to the project. • Generates innovative ideas by carrying out research using surveys, interviews, questionnaires, and web-based resources. • Develops a simple design specification to guide their thinking. • Develops and communicate ideas through discussion, annotated drawings, exploded diagrams and drawings from different views. • Produces detailed lists of tools, equipment and materials. <p>Formulates step-by-step plans and, if appropriate, allocate tasks within a team.</p> <ul style="list-style-type: none"> • Selects 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.
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	<ul style="list-style-type: none">• 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 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.• 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.				<ul style="list-style-type: none">• Tests products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.• Considers the views of others to improve their work.• Understands that mechanical and electrical systems have an input, process and an output.• Understands how gears and pulleys can be used to speed up, slow down or change the direction of movement.• Know and use technical vocabulary relevant to the project• Compares the final product to the original design specification.
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