

Design Technology Curriculum Long Term Plan

Overview:

At Richard Coates, there should be a DT project planned once each term. Where possible, this should link to the topic being taught however it is key that the progression documents are used to ensure the correct skills are being taught and that these are progressive (please see shared folder).

There are key strands in the National Curriculum for Design and Technology that need to be covered:

Design Make Evaluate Technical knowledge Food and nutrition

Within these there are key areas that come up and link to the key skill areas in the National Curriculum:

KS1: Food, materials, textiles, construction, mechanics

KS2: Food, materials, textiles, construction, mechanics, computing, electricals and electronics

I have mapped out the key skills and areas for each term and where appropriate tried to include the links that could be exploited. There may be opportunity in the year where there are other areas of the DT curriculum addressed. Please use this to help ensure all areas are covered throughout the year.

I have uploaded all progression documents into the DT folder in the Curriculum Leaders File. Please cross reference with the National Curriculum when planning out units.

Some objectives do lend themselves to cross-curricular work in science and computing. I also intend to explore a STEM week with Carly and Julie.

Year Group	Autumn	Spring	Summer
Nursery	I know how to combine malleable materials and loose parts to build structures I know how to use loose parts to make creations e.g. <i>lolly sticks, straw, card, string, tubes</i> I know how to use large construction e.g. tyres and planks to make creations by stacking, grouping, making ramps, steps	I know how to use construction kits with a purpose in mind and describe the functions of different components e.g. farm vehicles, ambulance I know how to explore force and motion	I know how to build more complex structures on a small and large scale, including towers and enclosures, both indoors and outdoors, ascribing meaning to their structures e.g. covering, bridging, enclosing, balancing
Reception	I know how to measure cupfuls of ingredients I know how to use a spoon to scoop soft and hard ingredients I know how to use a wooden spoon and a bowl to mix I know how to knead bread I know bread cooks when heated I know how to investigate mechanisms and models e.g toys I know how to use a wooden/plastic nut and bolt to join construction equipment I know how to make a model with two components - e.g. walls, roof, head, body	I know how to investigate mechanisms and machines e.g space stations, my house I know how to use a wooden/plastic nut and bolt to join construction equipment I know how to connect small construction bricks/parts I know how to use a screwdriver I know how to build a model with more than two components e.g base, top, walls, sides, wheels I know how to add details e.g. windows, wings, doors I know how to use a knife to spread I know how to use a knife carefully I know how to use the bridge technique to cut soft food safely I know how to choose two components/ ingredients e.g. chapati, pancake, butter, jam, soft cheese, ham	I know how to use a knife to cut hard vegetables using a bridge hold - cut, chop, mix, sprinkle I know how to grate food I know how to add two or three components I know some healthy vegetables to eat e.g . cress, salad leaves, eggs, meat, potatoes I know food can change when heated or cooled and needs to be stored safely I know how to wash and clean during cookery I know how to join different materials to make a model e.g wood, metal washers, wheels, dowing, cork, bobbins, beads, tape measure, ruler I know how to make moving models using more complex construction kits
Year One	<u>To design, make, evaluate and improve:</u> • Design products that have a clear purpose and an intended user. <u>To take inspiration from design throughout history:</u> • Explore objects and designs to identify likes and dislikes of the designs. • Suggest improvements to existing designs		
Topic area with possible links	<u>Topic:</u> <u>ENCHANTED WORLD</u> <u>LINKS:</u> Pupils design, make and evaluate food for our Fairytale Banquet. Taste different fruits and salads- (Data handling/adjectives/senses links). Learn how to safely wash and cut the food items.	<u>Topic:</u> <u>PAWS, CLAWS AND WHISKERS</u> <u>LINKS:</u> Pupils can design and make animal masks. <u>SKILLS:</u> <u>Materials:</u> • Cut materials safely using tools provided.	<u>Topic:</u> <u>Going Green TOYS THROUGHOUT TIME</u> <u>LINKS:</u> Pupils to design, make and evaluate their own toy after learning about different mechanisms. Use recycled materials to create these. <u>Construction:</u> • Use materials to practise gluing and nailing to make and strengthen products. • Design and create a moving toy

	Using healthy food from different seasons to create menus/sandwiches/fruit kebab. This can be planned into the "Fairytale Banquet" as well as links with the seasons. <u>SKILLS:</u> <u>Food:</u> • Cut ingredients safely and hygienically. • Assemble or cook ingredients.	• Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). <u>Textiles:</u> • Shape textiles using templates. • Colour and decorate textiles	<u>Mechanics:</u> • Create products using levers and sliders
Year Two	<u>To design, make, evaluate and improve:</u> • Make products, refining the design as work progresses. • Use software to design. <u>To take inspiration from design throughout history:</u> • Explore objects and designs to identify likes and dislikes of the designs. • Suggest improvements to existing designs. • Explore how products have been created.		
Year Two SKILLS THAT NEED TO BE PLANNED INTO A STEM WEEK/ OTHER OPPORTUNITIES: Electricals and electronics: • I can recognise if a battery operated device works	<u>Out and About - Local Area study</u> Autumn 1 Focus: Ponteland Autumn 2 Focus: Castles <u>LINKS</u> - Castles and drawbridges with moving mechanisms. <u>SKILLS:</u> <u>Construction:</u> • Use materials to practise drilling and screwing materials to make and strengthen products. <u>Mechanics:</u> • Create products using mechanisms.	<u>Superheroes - Significant people from the past</u> Spring 1: Explorers Spring 2: Grace Darling <u>LINKS</u> - Design, create and evaluate a shelter/tent/beach hut which could protect somebody from bad weather. <u>SKILLS:</u> <u>Construction:</u> • Use materials to practise drilling and screwing materials to make and strengthen products.	<u>Around the World</u> Summer Amazing Africa - Kenya <u>LINKS:</u> Cooking and Nutrition Unit. This may be stand alone or linked with African Cultures and their food. Taste different fruits and salads- (Data handling/adjectives/senses links). Learn how to safely wash, peel and prepare the food items. Using healthy food from different seasons to create menus/ sandwiches/ pizza.

		<u>Materials:</u> • Measure and mark out to the nearest cm. • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). <u>Textiles:</u> • Join textiles using running stitch. • Colour and decorate textiles using a number of techniques <u>Computing:</u> • Model designs using software e.g. Paint	Try salad foods with different dips. Grow veg to use in a salad/sandwich Follow a recipe to make and taste a simple meal. <u>SKILLS:</u> <u>Food:</u> • Cut, peel or grate ingredients safely and hygienically. • Measure or weigh using measuring cups or electronic scales.
Year Three Objectives	<u>To design, make, evaluate and improve:</u> • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, evaluating the end product design. <u>To take inspiration from design throughout history:</u> • Identify some of the great designers in all of the areas of study to generate ideas for designs. • Improve upon existing designs, giving reasons for choices.		
Year Three SKILLS THAT NEED TO BE PLANNED INTO A STEM WEEK/ OTHER OPPORTUNITIES: <u>Electricals and Electronics:</u> Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).	Topic: FROM STONE AGE TO IRON AGE <u>Links:</u> Stone-age jewellery and clothing. They were responsible in pre-historic times for the first needle. SKILLS: <u>Materials:</u> • Cut materials accurately and safely by selecting appropriate tools. • Select appropriate joining techniques. <u>Textiles:</u> • Understand the need for a seam allowance. • Join textiles with appropriate stitching.	Topic: Water Food. Design and make a healthy sandwich. SKILLS: <u>Food:</u> • Prepare ingredients hygienically using appropriate utensils. • Measure accurately. • Follow a recipe. • Assemble or cook ingredients. (Note that Y3 now includes use of a heat source when cooking)	Topic: ROMANS <u>Links:</u> Explore the history, uses and materials of catapults and then design, create and evaluate a model. Provide the children with a set height and distance which they must reach. <u>SKILLS:</u> <u>Mechanics:</u> • Use scientific knowledge of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). <u>Construction:</u>

<u>Computing:</u> • Control and monitor models using software designed for this purpose			• Choose suitable techniques to construct products or to repair items.
Year Four Objectives	<u>To design, make, evaluate and improve:</u> • Design with purpose by identifying opportunities to design. • Make products by working efficiently • Refine work and techniques as work progresses, continually evaluating the product design. • Use software to design and represent product designs. <u>To take inspiration from design throughout history:</u> • Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. • Disassemble products to understand how they work.		
Year Four SKILLS THAT NEED TO BE PLANNED INTO A STEM WEEK/OTHER OPPORTUNITIES: <u>Electricals and electronics:</u> • Create designs which include simple series circuits	<u>Topic:</u> <u>Brazil Rainforest Project</u> <u>LINK:</u> Design, make and evaluate biscuits (links with chocolate and the cocoa bean). Also look into the packaging design as well as making the biscuits. Links with computing to be exploited. <u>SKILLS:</u> <u>Food:</u> Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram. • Assemble and cook	<u>Topic:</u> <u>Viking Raiders</u> <u>LINK:</u> Design and build a Viking Long Boat SKILLS: <u>Materials:</u> • Measure and mark out to the nearest mm. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). <u>Textiles:</u>	<u>Topic:</u> <u>Settlements</u> <u>LINK:</u> STEM activity linked to buildings and bridges topic in science. SKILLS: <u>Materials:</u> • Measure and mark out to the nearest mm. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). <u>Construction:</u>

<u>Computing:</u> • Control and monitor models using software designed for this purpose.	ingredients (controlling the temperature of the oven or hob, if cooking). <u>Materials:</u> • Measure and mark out to the nearest mm. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). <u>Computing:</u> • Control and monitor models using software designed for this purpose	• Select the most appropriate techniques to decorate textiles. <u>Construction:</u> • Strengthen materials using suitable techniques. <u>Mechanics:</u> • Use scientific knowledge to choose appropriate mechanisms for a product - link to building design.	• Strengthen materials using suitable techniques. <u>Mechanics:</u> • Use scientific knowledge to choose appropriate mechanisms for a product - link to building design.
Year Five Key Objectives	<u>To design, make, evaluate and improve:</u> • Design with the user in mind, motivated by the service a product will offer. • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. <u>To take inspiration from design throughout history:</u> • Combine elements of design from a range of inspirational designers throughout history. • Create innovative designs that improve upon existing products.		
Year Five SKILLS THAT NEED TO BE PLANNED INTO A STEM WEEK/ OTHER OPPORTUNITIES: <u>Electricals and electronics:</u> • Create circuits using electronics	<u>TOPIC:</u> World War Two Explorers https://www.stem.org.uk/resources/community/collection/286498/world-war-ii LINKS: Construction project focus. Building Air Raid shelters. (Possible chance to include wartime recipes, make do and mend to cover the food and textile objectives if planning allows)	<u>TOPIC:</u> The Greeks LINKS: Making a Trojan Horse. Ensure mechanic skills are included. <u>SKILLS:</u> <u>Materials:</u> • Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).	<u>TOPIC:</u> Make £5 grow LINK: In here, pupils need to ensure projects involve textile or food and nutrition elements <u>SKILLS:</u> <u>Food:</u> • Understand the importance of correct storage and handling of ingredients (knowledge of micro-organisms).

kits that employ a number of components (such as LEDs, switches, motors and buzzers). <u>Computing:</u> • Write code to control and monitor models or products (FLOWOL/WEDO).	SKILLS: <u>Construction:</u> • Develop a range of practical skills to create products (e.g cutting, drilling and screwing, nailing, gluing, filling and sanding). <u>Materials:</u> • Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). (Possibly exploit links with circuits)	<u>Mechanics:</u> • Convert rotary motion to linear using cams	• Demonstrate a range of baking and cooking techniques. <u>Textiles:</u> • Create objects (such as a cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration)
Year Six Key Objectives	<u>To design, make, evaluate and improve:</u> • Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs. <u>To take inspiration from design throughout history:</u> • Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Evaluate the design of products to suggest improvements to the user experience.		
Year Six SKILLS THAT NEED TO BE PLANNED INTO A STEM WEEK/ OTHER OPPORTUNITIES: <u>Electricals and electronics:</u> • Create circuits using electronics kits that employ a	<u>TOPIC:</u> <u>Africa</u> DT Water Aid STEM activity https://www.wateraid.org/uk/publications/schools-challenge-ks2 SKILLS: <u>Materials:</u> • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (e.g. the nature of fabric may require sharper scissors than would be used to cut paper).	<u>TOPIC:</u> Extreme Earth LINK: Making models of volcanoes and Earth's core https://www.stem.org.uk/resources/community/collection/284761/earthquakes-and-volcanoes SKILLS:<u>Mechanics:</u> • Use innovative combinations of electronics (or computing) and mechanics in product designs - designing the models using computing programmes?	<u>TOPIC:</u> The Victorians LINK: Designing and making a Victorian afternoon Tea SKILLS: <u>Food:</u> • Measure accurately and calculate ratios of ingredients to scale up or down from recipe. • Create and refine recipes, including ingredients, methods, cooking times and temperatures.

number of components with increasing confidence, including sensors. <u>Computing:</u> • Write code to control and monitor models or products. (FLOWOL/WEDO)	<u>Textiles:</u> • Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as those reflective materials in life jackets.) <u>Construction:</u> • Develop a range of practical skills to create different products (consolidation and application of all prior skills - see previous years skills) <u>Mechanics:</u> • Use innovative combinations of electronics (or computing) and mechanics in product designs - designing the models using computing programmes?	<u>Materials:</u> • Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (e.g. the nature of fabric may require sharper scissors than would be used to cut paper). <u>Construction:</u> • Develop a range of practical skills to create different products (consolidation and application of all prior skills - see previous years skills)	<u>Textiles:</u> • Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as designs for decorative bunting)
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