

CAPTAIN WEBB PRIMARY SCHOOL
DT Curriculum – Key Skills and Knowledge

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Technical Knowledge: Textiles					
	<p>I know different ways of joining fabrics together e.g. gluing, pinning, stapling and stitching.</p> <p>I know how to join two fabrics together using a running stitch.</p> <p>I know that I need to use a template as a tool to create two identical shapes.</p> <p>I know some finishing techniques available</p> <p>I know how to follow relevant health and safety protocols</p> <p>I know technical vocabulary for the project (see vocabulary below)</p>		<p>I know how to sew using a two different stitches. e.g. running stitch and back stitch.</p> <p>I know how to strengthen, stiffen and reinforce existing fabrics</p> <p>I know what seam allowances are.</p> <p>I know how embroidery can embellish a product</p> <p>I know how/when to use decorative stitches to finish a product</p> <p>I know how to follow relevant health and safety protocols.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p>		<p>I know that a 3D textile product can be made from a combination of accurately made pieces.</p> <p>I know when to combine multiple different fabrics to create a 3D product.</p> <p>I know when to use particular stitch types (including finishing stitches)</p> <p>I know the difference between quilting and patchwork.</p> <p>I know the difference between temporary (tacking) and permanent stitching.</p> <p>I know how to follow relevant health and safety protocols.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p> <p>Key Events and Individuals in Design and Technology Do they know who William Morris is and what he invented? Can they explain the impact his invention had on the design world?</p>
Vocabulary					
	Join template fabric sew running stitch fabric needle finish		bayeux tapestry, seam allowance, embroidery, fabric, sew, running stitch, back stitch, technique, join, decorative, strength,		seam, seam allowance, running stitch, cross stitch, back stitch, blanket stitch, running stitch, joining, reinforce, finishing, tacking
Technical Knowledge: Structures					
<p>I know that a freestanding structure stands on its own base without an attachment.</p> <p>I know which materials are useful to make freestanding structures stronger, stiffer and more stable. (Link to Science: Properties of Materials)</p> <p>I know techniques for joining two pieces of wood together e.g. sawing, gluing, nailing.</p> <p>I know some simple finishing techniques to complete their structure. e.g painting, stencilling.</p> <p>I know how to follow relevant health and safety protocols</p> <p>I know technical vocabulary for the project (see vocabulary below)</p>		<p>I know that a shell structure can present, contain and protect another product.</p> <p>I know that shell structures are hollow shapes made by nets.</p> <p>I know how to cut score and assemble a net to make a simple box.</p> <p>I know how to reinforce and strengthen shell structures using techniques such as folding, corrugating, ribbing laminating materials.</p> <p>I know how to use CAD to develop a product.</p> <p>I know how to follow relevant health and safety protocols</p> <p>I know technical vocabulary for the project (see vocabulary below)</p>		<p>I know that a frame structure is made from thin components.</p> <p>I know how to reinforce and strengthen a framed structure using techniques such as triangulation.</p> <p>I know which materials are best suited to stiffen and reinforce by selecting them due to their properties</p> <p>I know that products are made with a purpose in mind.</p> <p>I know which shapes are the strongest and will support the most weight in a structure</p> <p>I know how the structures have been assembled and where the joins are.</p> <p>I know how solar power can be used as a source of energy for a structured building. (Link to Science: Electricity)</p> <p>I know how to use a range of tools i.e. junior hacksaws, G-clamps, bench hooks, hand drills safely</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p> <p>Key Events and Individuals in Design and Technology Do they know who Norman Foster is and what he invented? Can they explain the impact his invention had on the design world?</p>	<p>Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures when making controllable vehicles in Au1</p>

Vocabulary

Freestanding, structure, materials, build, strong stable, sturdy, weatherproof, woodwork, saw, nail, tack, glue, hacksaw, vice, hammer		Shell structure, recyclable, reusable, graphics, nets, 2D, 3D, mark out, cut, score, assemble, strengthen, stiffen, corrugating, ribbing, laminating, text, font		frame structure, stiffened, strengthened, reinforced, stability, triangulation, shape join, temporary, permanent, solar power, solar panels, benefits, limitations, electricity, renewable energy,	
--	--	--	--	--	--

Technical Knowledge: Mechanisms

<u>Sliders and Levers</u>	<u>Wheels and axles</u>	<u>Levers and Linkages</u>		<u>Pulleys</u>	<u>Gears</u>
<p>I know that different mechanisms produce different types of movements. E.g. sliders and levers.</p> <p>I know that mechanisms are used in everyday products in the classroom or the school grounds. e.g. – lever on a door handle.</p> <p>I know that sliders move backwards and forwards in a straight direction. (Sliders move from side to side and up and down.)</p> <p>I know that levers move in a curve and have a pivot point.</p> <p>I know some simple fixing techniques and when to use them (i.e. masking tape to secure a lollipop stick slider)</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p>	<p>I know that an axle is a rod that enables a wheel to rotate.</p> <p>I know the difference between fixed and free moving axles. <i>e.g. The wheel can rotate freely on the axle or be fixed to, and turn with, the axle.</i></p> <p>I know that the axle holder is the component through which an axle fits and rotates.</p> <p>I know that a winding mechanism has a handle and an axle that turns.</p> <p>I know simple methods to fix wheels and axles to a product.</p> <p>I know which materials are best used for particular components. e.g. cotton reels, wooden dowels etc.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p>	<p>I know that a lever is a rigid bar that moves around a pivot.</p> <p>I know the pivot can be loose or fixed.</p> <p>I know the linkage joins one or more levers to produce the type of movement.</p> <p>I know that all mechanical systems have an input, process and an output. <i>e.g. In a lever and linkage mechanism the 'input system' is where the user pushes or pulls a card strip. The output movement' is where one or more parts of the picture moves.</i></p> <p>I know how to increase accuracy when measuring, marking out and cutting (i.e. measure in mm rather than cm or inches)</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p> <p>Key Events and Individuals in Design and Technology Do they know who Robert Sabuda is and what he invented? Can they explain the impact his invention had on the design world?</p>		<p>I know that mechanical and electrical systems have an input, process and output. (<i>Drivers and followers</i>)</p> <p>I know that a pulley is a grooved wheel over which a drive belt can run.</p> <p>I know that belt and pulley systems are used to transfer movement from one axle to another.</p> <p>I know that pulleys can be used to change the direction of movement.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p> <p style="text-align: center;">Scientific Enquiry</p> <p>I know what forces are acting on pulleys and gears (i.e. friction, gravity)</p>	<p>I know that a gear is a wheel with teeth around its circumference.</p> <p>I know that gears can be used to speed up, slow down or change the direction of movement.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p> <p style="text-align: center;">Mathematical Enquiry</p> <p>I know how ratio affects speed of rotation</p>

Vocabulary

Mechanisms, lever, sliders, slot, pivot, masking tape, fastener, pull, push, down, forwards, backwards, straight, curve,	Components, wheel, axle, handle, rotate, fixed, free, dowel, winding mechanism,	Mechanism, lever, linkage, slider, loose pivot, fixed pivot, system, input, output, process, mark out, cut,		mechanical system, pulley, gear, driver, follower, speed, rotation, motor, belt, axle, switch,	mechanical system, pulley, follower, drive belt, gear, rotation, spindle, axle, motor, switch forces, friction, gravity, ratio,
--	---	---	--	--	---

Knowledge: Electrical Systems

			<u>Simple circuits and switches.</u>	<u>Circuits and switches.</u>	<u>More complex circuits</u>
			<p>I know what an electrical circuit is. (A path through which electricity passes)</p> <p>I know a range of simple electrical components and their functions, such as a bulb, buzzer and switch.</p> <p>I know that some electrical components are input devices e.g. switches and some are output devices e.g. bulbs and buzzers.</p> <p>I know that most commercially available torches contain a simple circuit involving metal connectors which do not necessarily have to be wires.</p> <p>I know how to construct a simple series circuit.</p> <p>I know how to make a range of simple secure connections (twisting wires together, wrapping ends, taping over, connecting block)</p> <p>I know ways that the electrical components can be safely fixed inside.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p>	<p>I know how to incorporate simple self-made switches in a circuit</p> <p>I know how simple switches can be made.</p> <p>I know how to test components in a simple series circuit.</p> <p>I know how to connect up the Crumble Controller and use it to programme the fairground rides. (e.g. run them forwards and backwards, at different speeds and for a specified ride time.)</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p>	<p>I know how to test components in more complex circuits (series and parallel)</p> <p>I know how to assess faults in their own electrical systems.</p> <p>I know how to test components in a simple series circuit.</p> <p>I know technical vocabulary relevant to the project (see vocabulary below)</p> <p style="text-align: center;">Challenge</p> <p>I know how to make a steerable vehicle using two separate motors for the two driving wheels.</p>

			<p>Key Events and Individuals in Design and Technology Do they know who Thomas Edison is and what he invented?</p> <p>Can they explain the impact his invention had on the design world?</p>		
--	--	--	---	--	--

Vocabulary

			Electrical, components, battery, series circuit, input, output, switch, reflector, bulb, casing, circuit, connecting wires, safety	electrical system, components, series / parallel circuit, switch, computer control, crumble controller, coding	circuit, assemble, securely, connect
--	--	--	--	--	--------------------------------------

Knowledge: Food, Cooking and Nutrition.

<p>I know that I use 4 of my human senses when exploring different foods.</p> <p>I know how to use simple cutting tools to peel, chop, slice and grate soft fruit and vegetables.</p> <p>I know the importance of fruit and vegetables in our balanced diet including eating 5 fruits and vegetables a day. Link to PSHE: Healthy Me</p> <p>I know where a range of fruit and vegetables come from e.g. farmed or grown at home.</p> <p>I know to follow the safety rules when using sharp tools e.g. knife, grater</p> <p>I know to follow simple hygiene rules when preparing fruit and vegetables.</p> <p>I know technical vocabulary relevant to the project (see vocab)</p>	<p>I know how to evaluate different foods using my human senses.</p> <p>I know how to prepare simple dishes safely and hygienically.</p> <p>I know how to use techniques such as cutting, peeling and grating with greater confidence and independency.</p> <p>I know that all foods come from animals or plants. Link to Science Unit: Animals including humans.</p> <p>I know that we also eat foods that animals make e.g. chicken lay eggs, cows produce milk. Link to Science Unit: Animals including humans.</p> <p>I know the five food groups in the EATWELL plate. Link to Science Unit: Animals including humans & PSHE unit Healthy Me.</p> <p>I know that it is important to pick a variety of foods from each food group for a balanced and healthy diet. Link to Science Unit: Animals including humans & PSHE unit Healthy Me.</p> <p>I know technical vocabulary relevant to the project (see vocab)</p>	<p>I know how to use sensory information to evaluate a variety of ingredients.</p> <p>I know how to use the claw grip to cut harder foods.</p> <p>I know how to combine foods using different utensils. e.g. whisk, spatula.</p> <p>I know the techniques required for making bread e.g. kneading the bread</p> <p>To know relevant health and safety procedures when handling and preparing foods.</p> <p>I know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>I know that the Eatwell guide shows how much of what we eat overall should come from each food group to achieve a healthy, balanced diet.</p> <p>I know technical vocabulary relevant to the project (see vocab)</p>	<p>I know how to use sensory information to evaluate a variety of ingredients.</p> <p>I know how to chop a wider range of foods using different techniques i.e. claw grip, bridge grip.</p> <p>I know how to prepare simple dishes safely and hygienically using a heat source.</p> <p>I know that fruits and vegetables naturally ripen during a certain seasons of the year.</p> <p>I know that some vegetables should be cooked for eating e.g. swede, parsnip, potato and some can be eaten raw. e.g. carrot, peas</p> <p>I know that different foods and drink, provide different substances the body needs to be healthy and active e.g. carbs for energy.</p> <p>I know technical vocabulary relevant to the project (see vocab)</p>	<p>I know how to follow a recipe.</p> <p>I know how to use weighing scales to measure and weigh ingredients.</p> <p>I know how to select appropriate utensils for specific jobs</p> <p>I know that all food products contain a food label that explains the foods nutritional values.</p> <p>I know where and how a variety of ingredients are grown, reared, caught and processed.</p> <p>I know that foods are sourced, processed and sold in different ways.</p> <p>I know how to safely use a hob and oven for heating and baking, applying recommended cooking times and temperatures.</p> <p>I know technical vocabulary relevant to the project (see vocab)</p>	<p>I know how to measure ingredients to the nearest gram and millimetre and calculate ratios of ingredients.</p> <p>I know how to analyse information on food labels to inform choice, including its nutritional value.</p> <p>I know what a dietary consideration is and use this to adapt a meal.</p> <p>I know that foods are imported from different parts of the world.</p> <p>I know that around the world, different cultures and traditions use varied ingredients in their cooking. (Mexican Cuisine)</p> <p>I know that different foods, diets from around the world are based on similar food groups to help people to stay healthy.</p> <p>I know the importance of following food safety and hygiene rules including the storage, preparation and cooking of different foods. e.g. raw meats away from other food; cross contamination)</p> <p>I know technical vocabulary relevant to the project (see vocab)</p>
--	--	--	---	--	---

Vocabulary

Healthy, fruit, vegetables, texture, appearance, smell, taste, plants, underground, ingredients, equipment, safely, wash, cut, chop, peel, slice.	prepare, roll, cut, grate, cook, safely, hygienically, healthy, balanced diet, food groups, food plant, animals vegetables, fruit meat, dairy sources, senses, taste, smell, texture, appearance.	sensory, texture, taste, smell, appearance, balanced diet, fruits and vegetables, carbohydrates, fats and sugars, protein, and dairy, recipe, kneading, baking, harvested, reared, grown, caught, hygiene, safety, kneading, baking, combine, ingredients	seasonality, spring, summer, autumn, winter, imported, ripe, sustainable, seasonal taste, texture, smell, raw cooked, nutritious, nutrients protein, eatwell plate, hygiene safety, wash, chop, slice, peel, blend, heat, boil	Appearance, flavour, texture, brand, cost, grown, reared, caught, processed, sourced, sold, seasonality, hygiene, safety, preheat, hob, melt, combine, mixture, bake, oven, cool	Imported, food miles, healthy, varied diet, nutritional value, fats, sugars, carbohydrates, protein, vitamins, nutrients, recipe, safety, hygiene, storage Preparation, cross contamination, measure, slice Stir, combine, heat, boil, cook, taste test.
---	---	---	--	--	--

Design
Developing, planning and communicating ideas

	<p>I know that design criteria are precise goals that a project must achieve in order to be successful.</p>	<p>I know that a prototype is an early sample/model built to test a concept or process.</p> <p>I know that an annotated sketch includes a combination of notes and labelled drawings that provide an explanation.</p>	<p>I know that market research is the activity of gathering information about consumers' needs and preferences.</p>	<p>I know that a design specification is a detailed document providing a list of points regarding a product or process.</p>	<p>I know that an exploded diagram shows the parts and components of a product, how they fit together and the order of assembly.</p>
<p>I can begin to draw on my own experiences to help generate design ideas.</p> <p>I can use words and pictures to describe my ideas and explain what I want to do.</p> <p>I can design a product following a given design criteria.</p>	<p>I can draw on my own and other people's experiences to generate design ideas.</p> <p>I can describe my design by using pictures, diagrams, models and words.</p> <p>I can explain the purpose of product, how it will work and how it will be suitable for the user.</p> <p>I can identify simple design criteria.</p> <p>I can choose the best tools and</p>	<p>I can generate ideas for a product, considering its purpose and user/s.</p> <p>I can begin to create own design criteria.</p> <p>I can create a plan that shows order, equipment, and tools.</p> <p>I can describe my design using accurately labelled sketches and words.</p> <p>I can make a prototype.</p>	<p>I can use research for design ideas.</p> <p>I can create own design criteria.</p> <p>I can suggest some improvements and say what was good and not so good about their original design.</p> <p>I can produce a plan by ordering the main stages of making and explain it to others.</p> <p>I can use annotated sketches to describe and explain how my product will work.</p>	<p>I can use questionnaires and internet for research and design ideas.</p> <p>I can take a user's view into account when designing.</p> <p>I can create a design brief and design criteria that outlines specific requirements.</p> <p>I can write a detailed step-by-step plan including a list of resources required.</p>	<p>I can draw on market research to inform design.</p> <p>I can use research of the user's individual need, wants, and requirements to develop a design specification.</p> <p>I can create a step by step plan including a list of resources, costings and timings.</p> <p>I can use annotated sketches, cross sectional drawings and exploded diagrams including accurate measurements.</p>

	materials, and explain choices. I can start to order the main stages of making.	I can begin to use computers to show design.	I can use computer aided design.	I can use cross sectional and annotated sketches, clearly explaining how each part of the product works. I can use computer aided designs.	I can use computer aided designs.
--	--	--	----------------------------------	---	-----------------------------------

Making

Working with tools, equipment, materials and components to make quality products

I can use simple tools safely. e.g. knife, scissors, hammer. With support I can mark out, cut, shape a range of materials. I can join materials and components together in different ways. E.g. glue, nails. I can choose suitable materials and explain choices. I can use simple finishing techniques to improve the appearance of my product. I can work safely and hygienically.	I can select from and use a range of tools and materials, explaining my choices. I can measure, cut and score with some accuracy. I can use hand tools safely and appropriately I can assemble, join and combine materials/ingredients in order to make a product. I can cut, shape and join fabric to make a simple garment, using basic sewing techniques. (Running stitch) I can follow safe procedures for food safety and hygiene. I can choose and use appropriate finishing techniques.	I can select from a range of appropriate tools/ equipment and begin to use them accurately. I can select appropriate materials fit for purpose. I can think about my ideas as I make progress and will make changes if it improves my work. I can measure, mark out, cut and shape materials/components with increasing accuracy. I can to assemble, join and combine materials and components with increasing accuracy. I can work safely and accurately with a range of simple tools. I can demonstrate hygienic food preparation and storage. I can use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT.	I can select suitable tools and equipment, explain choices in relation to required techniques and use accurately. I can select appropriate materials, fit for purpose and explain my choices. I can measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. I can use simple graphical communication techniques. I can join and combine materials and components accurately in temporary and permanent ways I can measure cut and join fabric with increasing accuracy. I can sew using a range of different stitches. (Running stitch, back stitch) I can ... food I can use finishing techniques strengthen and improve the appearance of their product using a range of equipment including ICT.	I can select appropriate materials, tools and techniques, fit for purpose and explain choices, considering functionality. I can use selected tools/equipment with good level of precision. I can weigh and measure accurately (time, dry ingredients, liquids) I can cut and join with accuracy to ensure a good-quality finish to the product. I can make modifications as they go along. I can apply a range of finishing techniques. I can apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens.	I can use selected tools and equipment safely, competently and accurately. I can select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics. I can accurately measure, mark out, cut and shape materials/components. I can accurately assemble, join and combine materials/components to make a working model. I can accurately apply a range of finishing techniques I can follow my step-by-step plan, adapting where necessary, make changes to improve quality. I can construct products using permanent joining techniques I can pin, sew and stitch materials together to create a textile product.
---	---	---	---	--	--

Evaluating

Evaluating processes and products

I can talk about existing products considering: use, materials, how they work, audience, where they might be used I can talk about existing products, and say what is and isn't good I can evaluate my product by asking questions about what they have made and how I've made it. I can evaluate my product by discussing how well it works in relation to the purpose. I can evaluate my product, identifying strengths and possible changes I might make.	I can talk about existing products considering: use, materials, how they work, audience, where they might be used; and express personal opinion. I can evaluate how good existing products are. I can evaluate my product by describing what went well and how well it meets the design criteria. I can evaluate my product as it develops, identifying strengths and possible changes I might make. I can talk about what I would do differently if I were to do it again and why.	I can evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose. I can test my product with the intended user. I can evaluate my product against original design criteria e.g. <i>how well it meets its intended purpose</i> . I can say what I would change to make design better.	I can investigate and evaluate a range of existing products. I can evaluate my work by carrying out appropriate tests. I can evaluate my work both during and at the end of the assignment, identifying the strengths and areas of improvement in their work.	I can investigate, analyse and compare existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose * begin to evaluate how much products cost to make and how innovative they are. I can evaluate my ideas and finished product against specification, considering purpose and appearance. I can test my products with intended user and seek peer evaluation. I can research how sustainable materials are.	I can carry out thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose. I can evaluate how much products cost to make and how sustainable and innovative they are. I can consider the impact of products beyond their intended purpose. I can continually evaluate and modify the working features of the product to match the initial design specification. I can test and evaluate final product; explain what would improve it and the effect different resources may have had.
--	---	--	---	--	---

Vocabulary

design, ideas, choose, drawing, make, materials, tools, evaluate, improve	Explore, evaluate, product, design, criteria, materials, tools, equipment, ingredients, template, mock up, improve	Investigate, analyse, user, purpose, design criteria, materials, tools, mechanical components, annotated sketch, prototype, evaluate, improvement, criteria, feedback	Investigate, analyse, design criteria, purpose, user, market research generate, refine, annotated diagram, computer design, instructions, materials, tools, electrical components, construct, measure, test evaluate, strengths, improvement	Investigate, analyse, compare, purpose, user, annotated sketch, design specification, research, feedback, functional, innovative, annotated exploded diagrams, step by step plan, prototypes, drawbacks, alternative, amendments, critically evaluate test, quality, views drawbacks	Investigate, disassemble, analyse, compare, innovative, design decisions, exploded diagrams, design brief, user, purpose, functional, aesthetic, sustainability, market research, design specification, design proposal, computer aided design (CAD) step by step plan, process, drawbacks, constraints, amendments, test, critically evaluate, strengths, areas of development
---	--	---	--	--	---