

BEDS D.T Long Term Plan 2024/2025 Year B

Beech	Continuous Provision	<p>Physical Development Develop their small motor skills so that they can use a range of tools competently, safely and confidently, including scissors, paintbrushes and cutlery. Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.</p> <p>Expressive Arts and Design Explore, use and refine a variety of artistic effects to express their ideas and feelings. Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.</p>		
Oak	Unit	Mechanisms – Wheels and Axles - Taxi	Structures Freestanding Structures – Chair for teddy https://www.youtube.com/watch?v=zRm_JzUztAw	Food – Preparing Fruit and Veg PSHE Links
	Knowledge Design	<ul style="list-style-type: none"> • Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
	Knowledge Make	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Use simple utensils and equipment to e.g. peel, cut, slice, 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.
	Knowledge Evaluate	<ul style="list-style-type: none"> • Explore and evaluate a range of products with wheels and axles. • Evaluate their ideas throughout and their products against original criteria. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
	Knowledge Technical	<ul style="list-style-type: none"> • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Know how to make freestanding structures stronger, stiffer and more stable. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>5 a day</i> • Know and use technical and sensory vocabulary relevant to the project. Think about where our food comes from.
	Skills	<ul style="list-style-type: none"> • Using construction kits with wheels and axles, ask children to make a product that moves. 	<ul style="list-style-type: none"> • Demonstrate measuring, marking out, cutting, shaping, joining and finishing techniques with a range of tools and new and reclaimed materials that children are likely to use 	<ul style="list-style-type: none"> • Discuss basic food hygiene practices when handling food including the importance of following instructions to control risk e.g. <i>What should we do</i>

		<ul style="list-style-type: none"> • Demonstrate to children how wheels and axles may be assembled as either fixed axles or free axles. • Show different ways of making axle holders and stress the importance of making sure the axles run freely within the holders. • Ensure that children are taught how to mark out, hold, cut and join materials and components correctly. • Using samples of materials and components they will use when designing and making, ask the children to assemble some examples of wheel, axle, axle holder combinations. Display the work completed as a reference for their DMEA. 	<p>to make their structures. Discuss the suitability of materials for their products according to their characteristics.</p> <ul style="list-style-type: none"> • Ask the children to build and explore a variety of freestanding structures using construction kits, such as wooden blocks, interconnecting plastic bricks and those that make frameworks e.g. <i>How can you stop your structures from falling over? How they can be made stronger and stiffer in order to carry a load?</i> Children could make models of the structures they have seen in school and the local area. • Ask children to fold paper or card in different ways to make freestanding structures, using masking tape where necessary to make joins. Encourage them to think about how folding materials can make them stronger, stiffer, stand up and be more stable e.g. <i>Can they support an object on top of their structures without it falling over or breaking?</i> 	<p><i>before we work with food? Why is following instructions important?</i></p> <ul style="list-style-type: none"> • Demonstrate how to use simple utensils and provide opportunities for the children to practise food-processing skills such as washing, grating, peeling, slicing, squeezing
	Vocab	Axle, chassis, wheel, design, test , presentation		
	NC Links	<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.</p>		
	NC links	<p>Technical knowledge. Build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products</p>	<p>Technical knowledge. Build structures, exploring how they can be made stronger, stiffer and more stable.</p>	<p>Cooking and Nutrition Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from.</p>
	Sticky Knowledge Oak	<p>Mechanisms – Wheels and Axles</p> <p>I can identify a wheel, axle and chassis Wheels can be attached to axles and chassis in a range of different ways. A design can help me plan my resources Testing can help me find out problems in my design. Adding finishing details is important for presentation. Assessing sticky knowledge Evaluation of product</p>	<p>Structures – Chair for Bear</p>	<p>Food – Salad</p>
	Progression			chopping
Elm	Unit	Food – Smoothie	Textiles – Templates and Joining	Mechanisms - Sliders and levers
	Knowledge Design	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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.
	Knowledge Make	<ul style="list-style-type: none"> • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. 	<ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. 	<ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card.

	<ul style="list-style-type: none"> Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. 	<ul style="list-style-type: none"> Select from and use textiles according to their characteristics. 	<ul style="list-style-type: none"> Use simple finishing techniques suitable for the product they are creating.
Knowledge Evaluate	<ul style="list-style-type: none"> Evaluate ideas and finished products against design criteria, including intended user and purpose. 	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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.
Knowledge Technical	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> 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 projects 	<ul style="list-style-type: none"> Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. Know and use technical vocabulary relevant to the project.
Skills	<ul style="list-style-type: none"> Discuss basic food hygiene practices when handling food including the importance of following instructions to control risk e.g. <i>What should we do before we work with food? Why is following instructions important?</i> Demonstrate how to use simple utensils and provide opportunities for the children to practise food-processing skills such as washing, grating, peeling, slicing, squeezing e.g. <i>Do we eat the whole fruit? Why or why not? Which parts do we eat? What might we have to do before eating this? Why do we cut, grate, peel and slice in this way? Discuss different effects achieved by different processes.</i> Discuss healthy eating advice, including eating more fruit and vegetables; using <i>The eatwell plate</i> model talk about the importance of fruit and vegetables in our balanced diet e.g. <i>Why is it good to eat fruit and vegetables? How many pieces of fruit/vegetables do you eat per day? Why is it important to wash fruit/vegetables before we eat them?</i> 	<ul style="list-style-type: none"> Investigate fabrics to determine which is best for the purpose of the product they are creating. Using prepared teaching aids, demonstrate the use of a template or simple paper pattern. Children could make their own templates or paper patterns. If necessary, they can use ones provided by the teacher. Using prepared teaching aids, demonstrate the correct use of appropriate tools to mark out, tape or pin the fabric to the templates or paper patterns and cut out the relevant fabric pieces for the product. Using prepared teaching aids, demonstrate appropriate examples of joining techniques for children to practise in guided groups e.g. running stitch including threading own needle, stapling, lacing and gluing. Talk about the advantages and disadvantages of each technique. Using prepared teaching aids, demonstrate examples of finishing techniques for children to practise in guided groups e.g. sewing buttons, 3-D fabric paint, gluing sequins, printing. 	<ul style="list-style-type: none"> Demonstrate simple levers and sliders to the children using prepared teaching aids. It is helpful if these are also used in context e.g. the slider is used to show a snail appearing from behind a stone, the lever is used to show a butterfly flying to a flower. Use questions to develop children's understanding e.g. <i>How does the slider move? How does the lever move? Which part of the mechanism is the pivot? What does the movement of the slider and lever remind you of?</i> Following teacher demonstration of the correct use of tools and materials, children should develop their knowledge and skills by replicating the slider and lever teaching aids. Encourage children to add pictures to their mechanisms.
Vocab	Balanced diet, squeezing, savoury, blend.		
NC Links	<p>Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology Select from and use a range of tools and equipment to perform practical tasks. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Explore and evaluate a range of existing products. Evaluate their ideas and products against design criteria.</p>		
NC links	<p>Cooking and Nutrition Use the basic principles of a healthy and varied diet to prepare dishes Understand where food comes from.</p>	<p>Build structures, exploring how they can be made stronger, stiffer and more stable.</p>	<p>Build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms</p>
Core Skills ELM	Food - Smoothie	Textiles - Bookmark	Mechanisms - Sliders and levers

	Sticky Knowledge	Fruit and vegetables are an important part in our balanced diet. Juice is released when a fruit is squeezed. Pineapples are sweet and carrots are savoury. To make a smoothie you need to cut and blend fruits and vegetables. Assessing sticky knowledge: Prepare a fruit smoothie .Evaluate smoothie		Sliders and levers can be used to create movement within an illustrated design. A slider moves from up/ down. A lever moves from a pivot. A slider and lever can create motion to add interest to a card. A split pin is a useful resource to create a pivot. A rod and tape are useful resources to create a slider.
		Squeezing, Cutting, Blending		
Birch	Unit	Mechanical systems – levers and linkages – Crocodile Snapper	Food - Healthy and varied diet <i>Dips and Dippers - D.T Unit</i>	Structures - CAD
	Knowledge Design	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. 	
	Knowledge Make	<p>Order the main stages of making.</p> <ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • 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. 	
	Knowledge Evaluate	<p>Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</p> <ul style="list-style-type: none"> • Evaluate their own products and ideas against criteria and user needs, as they design and make. 	<ul style="list-style-type: none"> • 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. 	
	Knowledge Technical	<p>Understand and use lever and linkage mechanisms.</p> <ul style="list-style-type: none"> • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • 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. 	
	Skills	<p>Demonstrate a range of lever and linkage mechanisms to the children using prepared teaching aids.</p> <ul style="list-style-type: none"> • Use questions to develop children's understanding e.g. <i>Which card strip is the lever?</i> 	<ul style="list-style-type: none"> • Learn to select and use a range of utensils and use a range of techniques as appropriate to prepare ingredients hygienically including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking. 	

		<p><i>Which card strip is acting as the linkage? Which part of the system is the input and which part the output? What does the type of movement remind you of? Which are the fixed pivots and which are the loose pivots?</i></p> <ul style="list-style-type: none"> • Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. • Children should develop their knowledge and skills by replicating one or more of the teaching aids. 	<ul style="list-style-type: none"> • Food preparation and cooking techniques could be practised by making a food product using an existing recipe. • Discuss basic food hygiene practices when handling food including the importance of following instructions to control risk e.g. <i>What should we do before we work with food? Why is following instructions important?</i> 	
	Vocab			
	NC Links	<p>Design - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Make - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities Evaluate - investigate and analyse a range of existing products - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world</p>		
	NC links	<p>Technical knowledge apply their understanding and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p>	<p>Cooking and Nutrition Understand and apply the principles of a healthy and varied diet Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>	<p>Technical knowledge apply their understanding and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>
	Sticky Knowledge Birch	Mechanical systems -	Food - Dips and dippers	
			<p>A dip is a combination of blended food that is accompanied by a dipper. A healthy dip will be a combination of food from the eat well guide. A dip is made by combining ingredients. You peel from the base gliding the peeler away from you. Seasoning can enhance and alter taste. Sensory evaluation of product.</p>	
	Progression		Slicing, peeling, mixing	
Rowan		5 /6 – Frame Structures Frame for bird hide	Electric – Electrical circuits – Simple switches and circuits	Mechanisms pneumatics- balloon toy (twinkle resources)
	Knowledge Design (4) Design (5)	<p>Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.</p> <ul style="list-style-type: none"> • Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. • Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources. 	<p>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.</p>	<ul style="list-style-type: none"> • Generate realistic and appropriate ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas.

	<ul style="list-style-type: none"> Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. 			
Knowledge Make (4) Make (5)	<p>Order the main stages of making.</p> <ul style="list-style-type: none"> 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. 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. 	<p>Order the main stages of making.</p> <p>Select from and use tools and equipment to cut, shape, join and finish with some accuracy.</p> <p>Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</p>	<p>Order the main stages of making.</p> <ul style="list-style-type: none"> Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons. Select from and use finishing techniques suitable for the product they are creating. 	
Knowledge Evaluate(4) Evaluate(5)	<p>Investigate and evaluate a range of existing Frame Structures including the materials, components and techniques that have been used.</p> <ul style="list-style-type: none"> Test and evaluate their own products against design criteria and the intended user and purpose. 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. 	<p>Investigate and analyse a range of existing battery-powered products.</p> <p>Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</p>	<p>Investigate and analyse books, videos and products with pneumatic mechanisms.</p> <ul style="list-style-type: none"> Evaluate their own products and ideas against criteria and user needs, as they design and make. 	
Knowledge Technical(4) Technical (5)	<p>Frame Structures</p> <ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project. 	<p>Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</p> <ul style="list-style-type: none"> Know and use technical vocabulary relevant to the project. 	<p>Understand and use pneumatic mechanisms.</p> <ul style="list-style-type: none"> Know and use technical vocabulary relevant to the project. 	
Skills	<p>Frame Structures</p> <ul style="list-style-type: none"> Use a construction kit consisting of plastic strips and paper fasteners to build 2-D frameworks. Compare the strength of square frameworks with triangular frameworks. Ask the children to reinforce square frameworks using diagonals to 	<p>Recap with the children how to make manually controlled, simple series circuits with batteries and different types of switches, bulbs and buzzers. Discuss which of the components in the circuit are input devices e.g. switches, and which are output devices e.g. bulbs and buzzers.</p> <ul style="list-style-type: none"> Demonstrate how to find a fault in a simple circuit and correct it, giving pupils opportunities to practise. 	<p>Demonstrate how to assemble the systems using syringes, tubing, balloons and plastic bottles. Introduce ways in which pneumatic systems can be used to operate levers.</p>	

	<p>help develop an understanding of using triangulation to add strength to a structure.</p> <ul style="list-style-type: none"> • Demonstrate how paper tubes can be made from rolling sheets of newspaper diagonally around pieces of e.g. dowel. Ask children to use these tubes and masking tape or paper straws with pipe cleaners to build 3-D frameworks such as cubes, cuboids and pyramids. <i>How could each of the frameworks be reinforced and strengthened?</i> • Demonstrate the accurate use of tools and equipment. Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. • Demonstrate skills and techniques for accurately joining framework materials together e.g. paper straws, square sectioned wood. Ask children to practise these, mounting their joints onto card for future reference. 	<ul style="list-style-type: none"> • Ask the children to make a variety of switches by using simple classroom materials e.g. card, corrugated plastic, aluminium foil, paper fasteners and paper clips. Encourage children to make switches that operate in different ways e.g. when you press them, when you turn them, when you push them from side to side. Ask the children to test their switches in a simple series circuit. • Teach children how to avoid making short circuits. 	<ul style="list-style-type: none"> • Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. • Provide the materials and ask the children to try out and draw the three systems they have been shown: a) Balloon connected to a washing-up liquid bottle. <i>What happens when you squeeze the bottle? What happens when you let go?</i> b) Two syringes of the same size connected together. <i>What happens when you press the plunger of one syringe down? How far does the other syringe move?</i> c) Two syringes of different sizes connected together. <i>How far do these syringes move when pressed?</i> <p>Note: take care as the syringe may come out with force.</p>
Vocab	<p>Frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent</p> <p>design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional</p>	<p>series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip</p>	<p>components, fixing, attaching, tubing, syringe, plunger, split pin, paper fastener</p> <p>pneumatic system, input movement, process, output movement, control, compression, pressure, inflate, deflate, pump, seal, air-tight</p> <p>linear, rotary, oscillating, reciprocating</p>
NC Links	<p>Design - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate - investigate and analyse a range of existing products - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world</p>		
NC links	<p>Technical knowledge Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p>	<p>Technical knowledge apply their understanding and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>	<p>Technical knowledge apply their understanding and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p>
Sticky Knowledge Rowan	<p>Structures – Bird Hide</p> <p>A frame structure is a structure such as a house, church or windmill e.g. The London Eye, a bird hide</p> <p>Structures need to be stable and aesthetically pleasing.</p> <p>A prototype can be used to develop and model ideas.</p> <p>A well-made structure has neat, strong joints and accurate angles.</p> <p>Assessing Sticky Knowledge:</p>	<p>Electric – Electrical circuits – Simple switches and circuits - Torch</p> <p>Torches have a bulb, battery and reflector.</p> <p>An electrical circuit can be controlled with a switch.</p> <p>A reflector is a concave mirrored surface that enhances the light generated from the bulb.</p> <p>A bulb needs to be secured in place within the casing.</p>	<p>Mechanisms pneumatics</p>

		Write a paragraph to explain how to build a stable structure.	Finishing techniques can make your product more appealing and practical.	
Willow	Unit	Textiles – Combining different fabric shapes <i>Make a Tamagotchi</i>	Electric – Monitoring and control	Food – Celebrating culture and Seasonality Spring Rolls
	Skills Design	Generate innovative ideas by carrying out research <ul style="list-style-type: none"> Develop, model and communicate ideas through talking, drawing, templates, mood boards 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. 	Develop a design specification for a functional product that responds automatically to changes in the environment. <ul style="list-style-type: none"> Generate, develop and communicate ideas through discussion, annotated sketches and pictorial representations of electrical circuits or circuit diagrams. 	<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. 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.
	Make	<ul style="list-style-type: none"> 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. 	Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. <ul style="list-style-type: none"> 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. 	<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
	Evaluate	Investigate and analyse textile products linked to their final product. <ul style="list-style-type: none"> 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 	Continually evaluate and modify the working features of the product to match the initial design specification. <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"> 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.
	Technical	A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. <ul style="list-style-type: none"> Fabrics can be strengthened, stiffened and reinforced where appropriate. 	Understand and use electrical systems in their products. <ul style="list-style-type: none"> Understand the use of computer control systems in products. Apply their understanding of computing to program, monitor and control their products. Know and use technical vocabulary relevant to the project. 	<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. Know and use relevant technical and sensory vocabulary.
	Skills	Develop skills of threading needles and joining textiles using a range of stitches. This activity must build upon children’s earlier experiences of stitches e.g. improving appearance and consistency of stitches and introducing new stitches. If available, demonstrate and allow	Through teacher demonstration and explanation, recap measuring, marking out, cutting and joining skills with construction materials that children will need to create their electrical products.	<ul style="list-style-type: none"> Demonstrate how to measure out, cut, shape and combine e.g. knead, beat, rub and mix ingredients. Demonstrate how to use appropriate utensils and equipment that the children may use safely and hygienically. Techniques could be practised following a basic recipe to prepare and cook a savoury food product.

	<p>children to use sewing machines to join fabric with close adult supervision.</p> <ul style="list-style-type: none"> • Develop skills of sewing textiles by joining right side together and making seams. Children should investigate how to sew and shape curved edges by snipping seams, how to tack or attach wadding or stiffening and learn how to start and finish off a row of stitches. • Develop skills of 2-D paper pattern making using grid or tracing paper to create a 3-D dipryl mock-up of a chosen product. Remind/teach how to pin a pattern on to fabric ensuring limited wastage, how to leave a seam allowance and different cutting techniques. • Develop skills of computer-aided design (CAD) by using on-line pattern making software to generate pattern pieces. Investigate using art packages on the computer to design prints that can be applied to textiles using iron transfer paper. <p>?</p>	<ul style="list-style-type: none"> • Using a model circuit, demonstrate and enable children to practise using different input and output devices. Allow them to practise methods for making secure electrical connections e.g. using wire strippers, twist and tape connections, screw connections, crocodile clips and connecting blocks. • Remind children how to avoid making short circuits. • Drawing on science understanding, ask the children to explore a range of electrical systems that could be used to control their products, including a simple series circuit where a single output device is controlled, a series circuit where two output devices are controlled by one switch and, where appropriate, parallel circuits where two output devices are controlled independently by two separate switches. • Drawing on related computing activities, ensure that children can write and modify computer control programs that include inputs, outputs and decision making. Test out the programs using electrical components connected to microcontrollers, interface boxes or standalone boxes. 	<ul style="list-style-type: none"> • Ask questions about which ingredients could be changed or added in a basic recipe such as types of flour, seeds, garlic, vegetables. Consider texture, taste, appearance and smell. • When using a basic dough recipe, explore making different shapes to change the appearance of the food product e.g. <i>Which shape is most appealing and why?</i>
Vocab	<p>seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces</p> <p>Tamagotchi, mood board annotated sketches</p> <p>Packaging promote</p>	<p>micro bit programming monitoring</p> <p>control input, output</p>	<p>texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury</p> <p>hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested</p> <p>healthy/varied diet planning, design criteria,</p>
NC Links	<p>Design - use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p>Evaluate - investigate and analyse a range of existing products - evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world</p>		
NC links	<p>Technical knowledge</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p>	<p>Technical knowledge apply their understanding and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>	<p>Cooking and Nutrition</p> <p>Understand and apply the principles of a healthy and varied diet</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed</p>
Willow	<p>Textiles – Combining different fabric shapes - <i>Make a Tamagotchi</i></p>	<p>Electric - Monitoring and control</p>	<p>Food - Spring Rolls</p>
Sticky Knowledge	<p>Mood boards can be used to explore and record ideas.</p>	<p>A virtual toy is controlled by programmable device.</p> <p>a microcontroller is a small device that controls outputs and responds to inputs using computer coding.</p>	

		<p>A design can be a series of annotated sketches, equipment lists, step by step plans to inform the making process. You need to pin to secure fabric before stitching.</p> <p>Stitching is used to strengthen edges and when joining to fabrics.</p> <p>The importance of using a template (pattern) to accurately mark out a design on a fabric.</p> <p>Packaging is used to sell and promote products.</p> <p>CAD - can be used to aid the making process through images and lettering fonts.</p> <p>.</p>		<p>A programming product allows the user to control and monitor the device including lights, sounds and motion.</p>	
					<p>Slicing, peeling, grating, assembling baking, squeezing, seasoning,</p>