

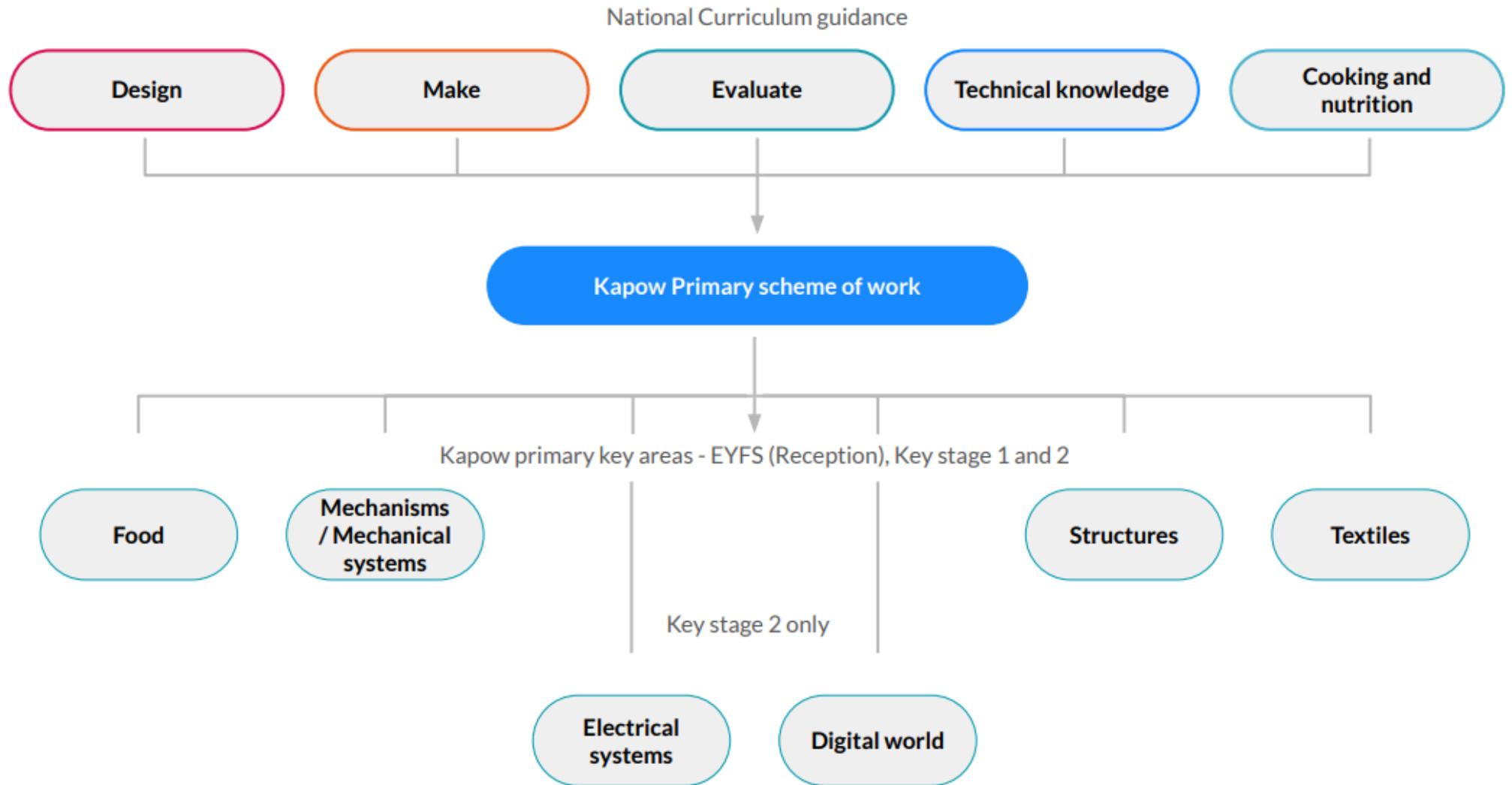


# Design & Technology

## Progression of Knowledge and Skills

*EYFS-Year 6*

# How is the Design and technology scheme of work organised?



		EYFS	KS1		
		Soup	Fruit and Vegetables	A healthy wrap	
Knowledge	Cooking and Nutrition	<ul style="list-style-type: none"> <li>To know that soup is ingredients (usually vegetables and liquid) blended together.</li> <li>To know that vegetables are grown.</li> <li>To recognise and name some common vegetables.</li> <li>To know that different vegetables taste different.</li> <li>To know that eating vegetables is good for us.</li> <li>To discuss why different packages might be used for different foods.</li> </ul>	<ul style="list-style-type: none"> <li>Understanding the difference between fruits and vegetables.</li> <li>To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber).</li> <li>To know that a blender is a machine which mixes ingredients together into a smooth liquid.</li> <li>To know that a fruit has seeds and a vegetable does not.</li> <li>To know that fruits grow on trees or vines.</li> <li>To know that vegetables can grow either above or below ground.</li> <li>To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).</li> </ul>	<ul style="list-style-type: none"> <li>To know that 'diet' means the food and drink that a person or animal usually eats.</li> <li>To understand what makes a balanced diet.</li> <li>To know where to find the nutritional information on packaging.</li> <li>To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</li> <li>To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.</li> <li>To know that nutrients are substances in food that all living things need to make energy, grow and develop.</li> <li>To know that 'ingredients' means the items in a mixture or recipe.</li> <li>To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy.</li> <li>To know that many foods and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.</li> </ul>	
	Skills	Design	<ul style="list-style-type: none"> <li>Designing a soup recipe as a class.</li> <li>Designing soup packaging.</li> </ul>	<ul style="list-style-type: none"> <li>Designing smoothie carton packaging by-hand or on ICT software.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a healthy wrap based on a food combination which work well together.</li> </ul>
		Make	<ul style="list-style-type: none"> <li>Chopping plasticine safely.</li> <li>Chopping vegetables with support.</li> </ul>	<ul style="list-style-type: none"> <li>Chopping fruit and vegetables safely to make a smoothie.</li> </ul>	<ul style="list-style-type: none"> <li>Slicing food safely using the bridge or claw grip.</li> <li>Constructing a wrap that meets a design brief.</li> </ul>
Evaluate		<ul style="list-style-type: none"> <li>Tasting the soup and giving opinions.</li> <li>Describing some of the following when tasting food: look, feel, smell and taste.</li> <li>Choosing their favourite packaging design and explaining why.</li> </ul>	<ul style="list-style-type: none"> <li>Tasting and evaluating different food combinations.</li> <li>Describing appearance, smell and taste.</li> <li>Suggesting information to be included on packaging.</li> </ul>	<ul style="list-style-type: none"> <li>Describing the taste, texture and smell of fruit and vegetables.</li> <li>Taste testing food combinations and final products.</li> <li>Describing the information that should be included on a label.</li> <li>Evaluating which grip was most effective.</li> </ul>	

		LKS2	
		<i>Eating seasonally</i>	<i>Adapting a recipe</i>
<i>Knowledge</i>	<b>Cooking and Nutrition</b>	<ul style="list-style-type: none"> <li>• To know that not all fruits and vegetables can be grown in the UK.</li> <li>• To know that climate affects food growth.</li> <li>• To know that vegetables and fruit grow in certain seasons.</li> <li>• To know that cooking instructions are known as a 'recipe'.</li> <li>• To know that imported food is food which has been brought into the country.</li> <li>• To know that exported food is food which has been sent to another country.</li> <li>• To understand that imported foods travel from far away and this can negatively impact the environment.</li> <li>• To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre.</li> <li>• To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health.</li> <li>• To know safety rules for using, storing and cleaning a knife safely.</li> <li>• To know that similar coloured fruits and vegetables often have similar nutritional benefits.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that the amount of an ingredient in a recipe is known as the 'quantity.'</li> <li>• To know that it is important to use oven gloves when removing hot food from an oven.</li> <li>• To know the following cooking techniques: sieving, creaming, rubbing method, cooling.</li> <li>• To understand the importance of budgeting while planning ingredients for biscuits</li> </ul>
	<b>Design</b>	<ul style="list-style-type: none"> <li>• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a biscuit within a given budget, drawing upon previous taste testing judgements.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination.</li> <li>• Following the instructions within a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a baking recipe, from start to finish, including the preparation of ingredients.</li> <li>• Cooking safely, following basic hygiene rules.</li> <li>• Adapting a recipe to improve it or change it to meet new criteria (e.g. from savoury to sweet).</li> </ul>
<i>Skills</i>	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Establishing and using design criteria to help test and review dishes.</li> <li>• Describing the benefits of seasonal fruits and vegetables and the impact on the environment.</li> <li>• Suggesting points for improvement when making a seasonal tart.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating a recipe, considering taste, smell, texture and appearance.</li> <li>• Describing the impact of the budget on the selection of ingredients.</li> <li>• Evaluating and comparing a range of food products.</li> <li>• Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins).</li> </ul>

		UKS2	
		<i>What could be healthier?</i>	<i>Three course meal</i>
<i>Knowledge</i>	<b>Cooking and Nutrition</b>	<ul style="list-style-type: none"> <li>• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues.</li> <li>• To know that I can adapt a recipe to make it healthier by substituting ingredients.</li> <li>• To know that I can use a nutritional calculator to see how healthy a food option is.</li> <li>• To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that 'flavour' is how a food or drink tastes.</li> <li>• To know that many countries have 'national dishes' which are recipes associated with that country.</li> <li>• To know that 'processed food' means food that has been put through multiple changes in a factory.</li> <li>• To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides.</li> <li>• To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).</li> </ul>
	<b>Design</b>	<ul style="list-style-type: none"> <li>• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients.</li> <li>• Writing an amended method for a recipe to incorporate the relevant changes to ingredients.</li> <li>• Designing appealing packaging to reflect a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing a recipe, explaining the key steps, method and ingredients.</li> <li>• Including facts and drawings from research undertaken.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Cutting and preparing vegetables safely.</li> <li>• Using equipment safely, including knives, hot pans and hobs.</li> <li>• Knowing how to avoid cross-contamination.</li> <li>• Following a step-by-step method carefully to make a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a recipe, including using the correct quantities of each ingredient.</li> <li>• Adapting a recipe based on research.</li> <li>• Working to a given timescale.</li> <li>• Working safely and hygienically with independence</li> </ul>
<i>Skills</i>	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Identifying the nutritional differences between different products and recipes.</li> <li>• Identifying and describing healthy benefits of food groups.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating a recipe, considering taste, smell, texture and origin of the food group.</li> <li>• Taste testing and scoring final products.</li> <li>• Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process.</li> <li>• Evaluating health and safety in production to minimise cross contamination.</li> </ul>

		EYFS	KS1	
		Bookmarks	Puppets	Pouches
<b>Knowledge</b>		<ul style="list-style-type: none"> <li>To know that a design is a way of planning our idea before we start.</li> <li>To know that threading is putting one material through an object.</li> </ul>	<ul style="list-style-type: none"> <li>To know that 'joining technique' means connecting two pieces of material together.</li> <li>To know that there are various temporary methods of joining fabric by using staples, glue or pins.</li> <li>To understand that different techniques for joining materials can be used for different purposes.</li> <li>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</li> <li>To know that drawing a design idea is useful to see how an idea will look.</li> </ul>	<ul style="list-style-type: none"> <li>To know that sewing is a method of joining fabric.</li> <li>To know that different stitches can be used when sewing.</li> <li>To understand the importance of tying a knot after sewing the final stitch.</li> <li>To know that a thimble can be used to protect my fingers when sewing.</li> </ul>
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>Discussing what a good design needs.</li> <li>Designing a simple pattern with paper.</li> <li>Designing a bookmark.</li> <li>Choosing from available materials.</li> </ul>	<ul style="list-style-type: none"> <li>Using a template to create a design for a puppet.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a pouch.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>Developing fine motor/cutting skills with scissors.</li> <li>Exploring fine motor/threading and weaving (under, over technique) with a variety of materials.</li> <li>Using a prepared needle and wool to practise threading.</li> </ul>	<ul style="list-style-type: none"> <li>Cutting fabric neatly with scissors.</li> <li>Using joining methods to decorate a puppet.</li> <li>Sequencing steps for construction.</li> </ul>	<ul style="list-style-type: none"> <li>Selecting and cutting fabrics for sewing.</li> <li>Decorating a pouch using fabric glue or running stitch.</li> <li>Threading a needle.</li> <li>Sewing running stitch, with evenly spaced, neat, even stitches to join fabric.</li> <li>Neatly pinning and cutting fabric using a template.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Reflecting on a finished product and comparing to their design.</li> </ul>	<ul style="list-style-type: none"> <li>Reflecting on a finished product, explaining likes and dislikes.</li> </ul>	<ul style="list-style-type: none"> <li>Troubleshooting scenarios posed by teacher.</li> <li>Evaluating the quality of the stitching on others' work.</li> <li>Discussing as a class, the success of their stitching against the success criteria.</li> <li>Identifying aspects of their peers' work that they particularly like and why.</li> </ul>

Progression of knowledge and skills

Textiles

		LKS2	UKS2
		Book sleeve	Stuffed toys
<b>Knowledge</b>		<ul style="list-style-type: none"> <li>• To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro.</li> <li>• To know that different fastening types are useful for different purposes.</li> <li>• To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.</li> <li>• To understand that it is easier to finish simpler designs to a high standard.</li> <li>• To know that soft toys are often made by creating appendages separately and then attaching them to the main body.</li> <li>• To know that small, neat stitches which are pulled taut are important to ensure that the soft toy is strong and holds the stuffing securely.</li> </ul>
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Writing design criteria for a product, articulating decisions made.</li> <li>• Designing a personalised book sleeve.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a stuffed toy, considering the main component shapes required and creating an appropriate template.</li> <li>• Considering the proportions of individual components.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Making and testing a paper template with accuracy and in keeping with the design criteria.</li> <li>• Measuring, marking and cutting fabric using a paper template.</li> <li>• Selecting a stitch style to join fabric.</li> <li>• Working neatly by sewing small, straight stitches.</li> <li>• Incorporating a fastening to a design.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a 3D stuffed toy from a 2D design.</li> <li>• Measuring, marking and cutting fabric accurately and independently.</li> <li>• Creating strong and secure blanket stitches when joining fabric.</li> <li>• Threading needles independently.</li> <li>• Using appliqué to attach pieces of fabric decoration.</li> <li>• Sewing blanket stitch to join fabric.</li> <li>• Applying blanket stitch so the spaces between the stitches are even and regular.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Testing and evaluating an end product against the original design criteria.</li> <li>• Deciding how many of the criteria should be met for the product to be considered successful.</li> <li>• Suggesting modifications for improvement.</li> <li>• Articulating the advantages and disadvantages of different fastening types</li> </ul>	<ul style="list-style-type: none"> <li>• Testing and evaluating an end product and giving point for further improvements.</li> </ul>

Progression of knowledge and skills

Structures

		EYFS	
		Junk Modelling	Boats
Knowledge	Technical	<ul style="list-style-type: none"> <li>To know there are a range to different materials that can be used to make a model and that they are all slightly different.</li> <li>Making simple suggestions to fix their junk model</li> </ul>	<ul style="list-style-type: none"> <li>To know that 'waterproof' materials are those which do not absorb water.</li> </ul>
	Additional		<ul style="list-style-type: none"> <li>To know that some objects float, and others sink.</li> <li>To know the different parts of a boat.</li> </ul>
Skills	Design	<ul style="list-style-type: none"> <li>Making verbal plans and material choices.</li> <li>Developing a junk model.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a junk model boat.</li> <li>Using knowledge from exploration to inform design.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>Improving fine motor/scissor skills with a variety of materials.</li> <li>Joining materials in a variety of ways (temporary and permanent).</li> <li>Joining different materials together.</li> <li>Describing their junk model, and how they intend to put it together.</li> </ul>	<ul style="list-style-type: none"> <li>Making a boat that floats and is waterproof, considering material choices.</li> </ul>
	Evaluate	<ul style="list-style-type: none"> <li>Giving a verbal evaluation of their own and others' junk models with adult support.</li> <li>Checking to see if their model matches their plan.</li> <li>Considering what they would do differently if they were to do it again.</li> <li>Describing their favourite and least favourite part of their model.</li> </ul>	<ul style="list-style-type: none"> <li>Making predictions about and evaluating different materials to see if they are waterproof.</li> <li>Making predictions about and evaluating existing boats to see which floats best.</li> <li>Testing their design and reflecting on what could have been done differently.</li> <li>Investigating the how the shapes and structure of a boat affect the way it moves.</li> </ul>

		KS1	UKS2
		Baby Bear's Chair	Bridges
Knowledge	Technical	<ul style="list-style-type: none"> <li>To know that shapes and structures with wide, flat bases or legs are the most stable.</li> <li>To understand that the shape of a structure affects its strength.</li> <li>To know that materials can be manipulated to improve strength and stiffness.</li> <li>To know that a structure is something which has been formed or made from parts.</li> <li>To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.</li> <li>To know that a 'strong' structure is one which does not break easily.</li> <li>To know that a 'stiff' structure or material is one which does not bend easily.</li> </ul>	<ul style="list-style-type: none"> <li>To understand some different ways to reinforce structures.</li> <li>To understand how triangles can be used to reinforce bridges.</li> <li>To know that properties are words that describe the form and function of materials.</li> <li>To understand why material selection is important based on properties.</li> <li>To understand the material (functional and aesthetic) properties of wood.</li> </ul>

	<b>Additional</b>	<ul style="list-style-type: none"> <li>To know that natural structures are those found in nature.</li> <li>To know that man-made structures are those made by people.</li> </ul>	<ul style="list-style-type: none"> <li>To understand the difference between arch, beam, truss and suspension bridges.</li> <li>To understand how to carry and use a saw safely.</li> </ul>
<i>Skills</i>	<b>Design</b>	<ul style="list-style-type: none"> <li>Generating and communicating ideas using sketching and modelling.</li> <li>Learning about different types of structures, found in the natural world and in everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a stable structure that is able to support weight.</li> <li>Creating a frame structure with a focus on triangulation.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>Making a structure according to design criteria.</li> <li>Creating joints and structures from paper/card and tape.</li> <li>Building a strong and stiff structure by folding paper.</li> </ul>	<ul style="list-style-type: none"> <li>Making a range of different shaped beam bridges.</li> <li>Using triangles to create truss bridges that span a given distance and support a load.</li> <li>Building a wooden bridge structure.</li> <li>Independently measuring and marking wood accurately.</li> <li>Selecting appropriate tools and equipment for particular tasks.</li> <li>Using the correct techniques to saws safely.</li> <li>Identifying where a structure needs reinforcement and using card corners for support.</li> <li>Explaining why selecting appropriating materials is an important part of the design process.</li> <li>Understanding basic wood functional properties.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Exploring the features of structures.</li> <li>Comparing the stability of different shapes.</li> <li>Testing the strength of own structures.</li> <li>Identifying the weakest part of a structure.</li> <li>Evaluating the strength, stiffness and stability of own structure.</li> </ul>	<ul style="list-style-type: none"> <li>Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.</li> <li>Suggesting points for improvements for own bridges and those designed by others.</li> </ul>

*Progression of knowledge and skills*

*Mechanisms / mechanical systems*

		<i>KS1</i>	<i>LKS2</i>
		<i>Wheels and axles</i>	<i>Slingshot Car</i>
<i>Knowledge</i>	<b>Technical</b>	<ul style="list-style-type: none"> <li>To know that wheels need to be round to rotate and move.</li> <li>To understand that for a wheel to move it must be attached to a rotating axle.</li> <li>To know that an axle moves within an axle holder which is fixed to the vehicle or toy.</li> <li>To know that the frame of a vehicle (chassis) needs to be balanced.</li> </ul>	<ul style="list-style-type: none"> <li>To understand that all moving things have kinetic energy.</li> <li>To understand that kinetic energy is the energy that something (object/person) has by being in motion.</li> <li>To know that air resistance is the level of drag on an object as it is forced through the air.</li> <li>To understand that the shape of a moving object will affect how it moves due to air resistance.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>To understand that products change and evolve over time.</li> <li>To know that aesthetics means how an object or product looks in design and technology.</li> </ul>

			<ul style="list-style-type: none"> <li>• To know that a template is a stencil you can use to help you draw the same shape accurately.</li> <li>• To know that a birds-eye view means a view from a high angle (as if a bird in flight).</li> <li>• To know that graphics are images which are designed to explain or advertise something.</li> <li>• To know that it is important to assess and evaluate design ideas and models against a list of design criteria.</li> </ul>
<i>Skills</i>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move.</li> <li>• Creating clearly labelled drawings that illustrate movement.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a shape that reduces air resistance.</li> <li>• Drawing a net to create a structure from.</li> <li>• Choosing shapes that increase or decrease speed as a result of air resistance.</li> <li>• Personalising a design.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Adapting mechanisms, when: <ul style="list-style-type: none"> <li>➤ they do not work as they should.</li> <li>➤ to fit their vehicle design.</li> <li>➤ to improve how they work after testing their vehicle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Measuring, marking, cutting and assembling with increasing accuracy.</li> <li>• Making a model based on a chosen design.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</li> </ul>

		LKS2	UKS2
		<i>Electric Poster</i>	<i>Steady Hand Game</i>
<i>Knowledge</i>	<b>Technical</b>	<ul style="list-style-type: none"> <li>• To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit.</li> <li>• To understand common features of an electric product (switch, battery or plug, dials, buttons etc.).</li> <li>• To list examples of common electric products (kettle, remote control etc.).</li> <li>• To understand that an electric product uses an electrical system to work (function).</li> <li>• To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that batteries contain acid, which can be dangerous if they leak.</li> <li>• To know the names of the components in a basic series circuit, including a buzzer.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>• To understand the importance and purpose of information design.</li> <li>• To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached).</li> </ul>	<ul style="list-style-type: none"> <li>• To know that 'form' means the shape and appearance of an object.</li> <li>• To know the difference between 'form' and 'function'.</li> <li>• To understand that 'fit for purpose' means that a product works how it should and is easy to use.</li> <li>• To know that form over purpose means that a product looks good but does not work very well.</li> <li>• To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.</li> <li>• To understand the diagram perspectives 'top view', 'side view' and 'back'.</li> </ul>
<i>Skills</i>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas.</li> <li>• Generate a final design for the electric poster with consideration to the client's needs and design criteria.</li> <li>• Design an electric poster that fits the requirements of a given brief.</li> <li>• Plan the positioning of the bulb (circuit component) and its purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a steady hand game - identifying and naming the components required.</li> <li>• Drawing a design from three different perspectives.</li> <li>• Generating ideas through sketching and discussion.</li> <li>• Modelling ideas through prototypes.</li> <li>• Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Create a final design for the electric poster.</li> <li>• Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of the circuit on the rear.</li> <li>• Measure and mark materials out using a template or ruler.</li> <li>• Fit an electrical component (bulb).</li> <li>• Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing a stable base for a game.</li> <li>• Accurately cutting, folding and assembling a net.</li> <li>• Decorating the base of the game to a high-quality finish.</li> <li>• Making and testing a circuit.</li> <li>• Incorporating a circuit into a base.</li> </ul>

	<b>Evaluate</b>	<ul style="list-style-type: none"><li>• Learning to give and accept constructive criticism on own work and the work of others.</li><li>• Testing the success of initial ideas against the design criteria and justifying opinions.</li><li>• Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs.</li></ul>	<ul style="list-style-type: none"><li>• Testing own and others finished games, identifying what went well and making suggestions for improvement.</li><li>• Gathering images and information about existing children's toys. • Analysing a selection of existing children's toys.</li></ul>
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		LKS2	UKS2
		<i>Mindful moments timer</i>	<i>Monitoring devices</i>
<i>Knowledge</i>	<b>Technical</b>	<ul style="list-style-type: none"> <li>• To understand what variables are in programming.</li> <li>• To know some of the features of a Micro:bit.</li> <li>• To know that an algorithm is a set of instructions to be followed by the computer.</li> <li>• To know that it is important to check my code for errors (bugs).</li> <li>• To know that a simulator can be used as a way of checking your code works before installing it onto an electronic device.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record.</li> <li>• To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose.</li> <li>• To understand that conditional statements (and, or, if Booleans) in programming are a set of rules which are followed if certain conditions are met.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>• To understand the terms 'ergonomic' and 'aesthetic'.</li> <li>• To know that a prototype is a 3D model made out of cheap materials, that allows us to test design ideas and make better decisions about size, shape and materials.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand key developments in thermometer history.</li> <li>• To know events or facts that took place over the last 100 years in the history of plastic, and how this is changing our outlook on the future.</li> <li>• To know the 6Rs of sustainability.</li> <li>• To understand what a virtual model is and the pros and cons of traditional vs CAD modelling.</li> </ul>
<i>Skills</i>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Writing design criteria for a programmed timer (Micro:bit).</li> <li>• Exploring different mindfulness strategies.</li> <li>• Applying the results of my research to further inform my design criteria.</li> <li>• Developing a prototype case for my mindful moment timer.</li> <li>• Using and manipulating shapes and clipart by using computer-aided design (CAD), to produce a logo.</li> <li>• Following a list of design requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Researching (books, internet) for a particular (user's) animal's needs.</li> <li>• Developing design criteria based on research.</li> <li>• Generating multiple housing ideas using building bricks.</li> <li>• Understanding what a virtual model is and the pros and cons of traditional and CAD modelling.</li> <li>• Placing and manoeuvring 3D objects, using CAD.</li> <li>• Changing the properties of, or combining one or more 3D objects, using CAD</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Developing a prototype case for my mindful moment timer.</li> <li>• Creating a 3D structure using a net.</li> <li>• Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of seconds/minutes upon button press.</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding the functional and aesthetic properties of plastics.</li> <li>• Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages.</li> <li>• Evaluating my Micro:bit program against points on my design criteria and amending them to include any changes I made.</li> <li>• Documenting and evaluating my project.</li> <li>• Understanding what a logo is and why they are important in the world of design and business.</li> <li>• Testing my program for bugs (errors in the code).</li> <li>• Finding and fixing the bugs (debug) in my code.</li> </ul>	<ul style="list-style-type: none"> <li>• Stating an event or fact from the last 100 years of plastic history.</li> <li>• Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices.</li> <li>• Explaining key functions in my program (audible alert, visuals).</li> <li>• Explaining how my product would be useful for an animal carer including programmed features.</li> </ul>