



# DESIGN AND TECHNOLOGY

## Progression of Knowledge and Skills

		STRUCTURES						
		EYFS (Reception)		Year 1/2 (A)	Year 1/2 (B)	Year 3/4 (A)	Year 3/4 (B)	Year 5/6 (B)
		(A)	(B)	<u>Constructing a windmill</u>	<u>Baby bear's chair</u>	<u>Constructing a castle</u>	<u>Pavilions</u>	<u>Playgrounds</u>
<b>Skills</b>	<b>Design</b>	<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>	<ul style="list-style-type: none"> <li>• Learning the importance of a clear design criteria.</li> <li>• Including individual preferences and requirements in a design.</li> </ul>	<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 castle with key features to appeal to a specific person/purpose.</li> <li>• Drawing and labelling a castle design using 2D shapes, labelling: - the 3D shapes that will create the features - materials needed and colours.</li> <li>• Designing and/or decorating a castle tower on CAD software.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.</li> <li>• Building frame structures designed to support weight.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.</li> </ul>
	<b>Make</b>	<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>	<ul style="list-style-type: none"> <li>• Making stable structures from card.</li> <li>• Following instructions to cut and assemble the supporting structure of a windmill.</li> <li>• Making functioning turbines and axles which are assembled into a main supporting structure.</li> <li>• Finding the middle of an object.</li> <li>• Puncturing holes.</li> <li>• Adding weight to structures.</li> <li>• Creating supporting structures.</li> <li>• Cutting evenly and carefully.</li> </ul>	<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>• Constructing a range of 3D geometric shapes using nets.</li> <li>• Creating special features for individual designs.</li> <li>• Making facades from a range of recycled materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a range of different shaped frame structures.</li> <li>• Making a variety of free standing frame structures of different shapes and sizes.</li> <li>• Selecting appropriate materials to build a strong structure and cladding.</li> <li>• Reinforcing corners to strengthen a structure.</li> <li>• Creating a design in accordance with a plan.</li> <li>• Learning to create different textural effects with materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Building a range of play apparatus structures drawing upon new and prior knowledge of structures.</li> <li>• Measuring, marking and cutting wood to create a range of structures.</li> <li>• Using a range of materials to reinforce and add decoration to structures.</li> </ul>
	<b>Evaluate</b>	<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>	<ul style="list-style-type: none"> <li>• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't.</li> <li>• Suggest points for improvements.</li> </ul>	<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>• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design.</li> <li>• Suggesting points for modification of the individual designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating structures made by the class.</li> <li>• Describing what characteristics of a design and construction made it the most effective.</li> <li>• Considering effective and ineffective designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Improving a design plan based on peer evaluation.</li> <li>• Testing and adapting a design to improve it as it is developed.</li> <li>• Identifying what makes a successful structure.</li> </ul>

Knowledge		Technical					
Additional							
	<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>	<ul style="list-style-type: none"> <li>To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</li> <li>To understand that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>To begin to understand that different structures are used for different purposes.</li> <li>To know that a structure is something that has been made and put together.</li> <li>To know that the sails or blades of a windmill are moved by the wind.</li> <li>To know that a structure is something built for a reason.</li> <li>To know that stable structures do not topple.</li> <li>To know that adding weight to the base of a structure can make it more stable.</li> </ul>	<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 that wide and flat based objects are more stable.</li> <li>To understand the importance of strength and stiffness in structures.</li> </ul>	<ul style="list-style-type: none"> <li>To understand what a frame structure is.</li> <li>To know that a 'free-standing' structure is one which can stand on its own.</li> </ul>	<ul style="list-style-type: none"> <li>To know that structures can be strengthened by manipulating materials and shapes.</li> </ul>
	<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>	<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>	<ul style="list-style-type: none"> <li>To know that design criteria is a list of points to ensure the product meets the clients needs and wants.</li> <li>To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity.</li> <li>To know that windmill turbines use wind to turn and make the machines inside work.</li> <li>To know that a windmill is a structure with sails that are moved by the wind.</li> <li>To know the three main parts of a windmill are the turbine, axle and structure.</li> <li>To know that windmills are used to generate power and were used for grinding flour.</li> </ul>	<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 know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose.</li> <li>To know that a façade is the front of a structure.</li> <li>To understand that a castle needed to be strong and stable to withstand enemy attack.</li> <li>To know that a paper net is a flat 2D shape that can become a 3D shape once assembled.</li> <li>To know that a design specification is a list of success criteria for a product.</li> </ul>	<ul style="list-style-type: none"> <li>To know that a pavilion is a a decorative building or structure for leisure activities.</li> <li>To know that cladding can be applied to structures for different effects.</li> <li>To know that aesthetics are how a product looks.</li> <li>To know that a product's function means its purpose.</li> <li>To understand that the target audience means the person or group of people a product is designed for.</li> <li>To know that architects consider light, shadow and patterns when designing.</li> </ul>	<ul style="list-style-type: none"> <li>To understand what a 'footprint plan' is.</li> <li>To understand that in the real world, design , can impact users in positive and negative ways.</li> <li>To know that a prototype is a cheap model to test a design idea.</li> </ul>

## Mechanisms / mechanical systems

		Year 1/2 (B)	Year 3/4 (B)	Year 5/6 (A)	Year 5/6 (A)	
		<u>Fairground wheel</u>	<u>Making a moving monster</u>	<u>Making a slingshot car</u>	<u>Making a pop up book</u>	<u>Gears and pulleys</u>
Skills	Design	<ul style="list-style-type: none"> <li>Conducting simple surveys or discussions to gather opinions on what others need or like in a design.</li> <li>Knowing that a survey is used to find out what people like.</li> <li>Using a simple design brief that outlines the intended use, target user, and key features of the product, to create simple design criteria.</li> <li>Knowing that a design brief helps to decide what to make.</li> <li>Knowing that design criteria are the steps for making a product successful.</li> <li>Creating ideas with design criteria in mind.</li> <li>Referring to specific parts of existing products when generating ideas.</li> <li>Knowing that the design criteria help when thinking of ideas.</li> <li>Using labels to explain parts of a design, label materials, etc.</li> <li>Using labels to explain parts of a design, label materials, etc.</li> <li>Knowing that drawings can help explain how something works.</li> <li>Knowing that a label explains part of a drawing.</li> </ul>	<ul style="list-style-type: none"> <li>Creating a class design criteria for a moving monster.</li> <li>Designing a moving monster for a specific audience in accordance with a design criteria.</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>	<ul style="list-style-type: none"> <li>Designing a pop-up book which uses a mixture of structures and mechanisms.</li> <li>Naming each mechanism, input and output accurately.</li> <li>Storyboarding ideas for a book.</li> </ul>	<ul style="list-style-type: none"> <li>Noticing wider-reaching problems or needs in the community.</li> <li>Identifying a wide range of needs and potential barriers through market research.</li> <li>Writing more complex problem statements that consider multiple factors and constraints.</li> <li>Creating more complex design criteria that require considering detailed user needs, environmental impact, materials and cost.</li> <li>Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality.</li> <li>Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design.</li> <li>Using a series of prototypes to refine and improve their designs.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>Choosing materials, ingredients or components from a wider range of materials, ingredients or components.</li> <li>Explaining their choices based on the properties of materials and components.</li> <li>Knowing some properties of materials like hard, soft, flexible, waterproof, strong etc.</li> <li>Following and recalling simple safety instructions.</li> <li>Knowing that some tools are sharp like scissors and knives.</li> <li>Choosing known geometric shapes when making.</li> <li>Beginning to shape objects to improve how they work.</li> <li>Knowing the names of some geometric shapes: triangle, pyramid, square, cube, circle, sphere.</li> <li>Considering balance in their finishing, like evenly spaced decoration.</li> </ul>	<ul style="list-style-type: none"> <li>Making linkages using card for levers and split pins for pivots.</li> <li>Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.</li> <li>Cutting and assembling components neatly.</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>	<ul style="list-style-type: none"> <li>Following a design brief to make a pop up book, neatly and with focus on accuracy.</li> <li>Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</li> <li>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</li> </ul>	<ul style="list-style-type: none"> <li>Consistently apply safety instructions.</li> <li>Select appropriate scissors to handle delicate cutting tasks and challenging materials.</li> <li>Cutting patterns and drawings accurately.</li> <li>In supervised groups, using hot glue guns safely.</li> <li>Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly.</li> <li>Choosing PVA glue over hot glue for its safety when joining materials in less intensive projects.</li> </ul>
	Evaluate	<ul style="list-style-type: none"> <li>Discussing a range of existing products and saying what they like and dislike about them.</li> <li>Evaluating existing products against design criteria.</li> <li>Evaluating their ideas and creations against simple design criteria.</li> <li>Knowing that design criteria help to decide if their product is a success.</li> <li>Suggesting improvements to their peers' designs and products.</li> <li>Knowing that improve means to make something better.</li> <li>Knowing that their suggestions can improve someone else's work.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating own designs against design criteria.</li> <li>Using peer feedback to modify a final design.</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>	<ul style="list-style-type: none"> <li>Evaluating the work of others and receiving feedback on own work.</li> <li>Suggesting points for improvement.</li> </ul>	<ul style="list-style-type: none"> <li>Reflecting on the usability, aesthetics, innovation and sustainability of products and discussing how design choices impact these aspects.</li> <li>Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost.</li> <li>Considering alternative materials, tools or techniques that could enhance the product.</li> <li>Providing feedback that is helpful, specific, and encouraging.</li> <li>Incorporating feedback from peers or users improve their product further, explaining the changes they made and the impact they had.</li> </ul>

<b>Knowledge</b>	<b>Technical</b>	<ul style="list-style-type: none"> <li>• To know everyday objects have mechanisms.</li> <li>• To know many things that move have parts inside to help them work.</li> <li>• To know mechanisms usually limit unwanted movement.</li> <li>• To know everyday objects utilise wheels and axles.</li> <li>• To know wheels must be able to turn to work effectively.</li> <li>• To know axles allow wheels to turn without falling off.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</li> <li>• To know that there is always an input and output in a mechanism.</li> <li>• To know that an input is the energy that is used to start something working.</li> <li>• To know that an output is the movement that happens as a result of the input.</li> <li>• To know that a lever is something that turns on a pivot.</li> <li>• To know that a linkage mechanism is made up of a series of levers.</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>	<ul style="list-style-type: none"> <li>• To know that mechanisms control movement.</li> <li>• To understand that mechanisms can be used to change one kind of motion into another.</li> <li>• To understand how to use sliders, pivots and folds to create paper-based mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>• That mechanical systems that use gears in everyday objects (eg bicycle, clock).</li> <li>• That gears and pulleys allow us to transfer movement and force from one part of a mechanical system to another.</li> <li>• That gears allow us to increase the output of a mechanism.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>• To know the features of a fairground wheel include the wheel, frame, pods, a base an axle and an axle holder.</li> </ul>	<ul style="list-style-type: none"> <li>• To know some real-life objects that contain mechanisms.</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> <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>	<ul style="list-style-type: none"> <li>• To know that a design brief is a description of what I am going to design and make.</li> <li>• To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.</li> </ul>	<ul style="list-style-type: none"> <li>• That market research is a way of collecting information about problems or needs.</li> <li>• That constraints are things that might stop our ideas being successful.</li> <li>• That original and innovative ideas are different from what has been made before.</li> <li>• That annotations are detailed labels and comments on diagrams.</li> <li>• That risks are things that might happen.</li> <li>• That hot glue creates a strong bond quickly.</li> <li>• That is often better to choose safer equipment.</li> <li>• That sustainability means thinking about the materials that were used to make a product and how the product was made.</li> <li>• That their final product can still be improved by different materials or techniques.</li> <li>• That evaluating their designs in detail will help them understand its successful and less successful parts.</li> <li>• That feedback should be positive, helpful and specific.</li> <li>• That explaining how they used feedback to improve their design can help them create better products in the future.</li> </ul>

## ELECTRICAL SYSTEMS (KS2 ONLY)

Year 3/4 (B)

Year 5/6 (A)

Torches

Doodlers

		Year 3/4 (B)	Year 5/6 (A)
		<u>Torches</u>	<u>Doodlers</u>
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product.</li> <li>• Developing design criteria based on findings from investigating existing products.</li> <li>• Developing design criteria that clarifies the target user.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Making a torch with a working electrical circuit and switch.</li> <li>• Using appropriate equipment to cut and attach materials.</li> <li>• Assembling a torch according to the design and success criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• Altering a product's form and function by tinkering with its configuration.</li> <li>• Making a functional series circuit, incorporating a motor.</li> <li>• Constructing a product with consideration for the design criteria.</li> <li>• Breaking down the construction process into steps so that others can make the product.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Evaluating electrical products.</li> <li>• Testing and evaluating the success of a final product.</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses.</li> <li>• Determining which parts of a product affect its function and which parts affect its form.</li> <li>• Analysing whether changes in configuration positively or negatively affect an existing product.</li> <li>• Peer evaluating a set of instructions to build a product.</li> </ul>
<b>Knowledge</b>	<b>Technical</b>	<ul style="list-style-type: none"> <li>• To understand that electrical conductors are materials which electricity can pass through.</li> <li>• To understand that electrical insulators are materials which electricity cannot pass through.</li> <li>• To know that a battery contains stored electricity that can be used to power products.</li> <li>• To know that an electrical circuit must be complete for electricity to flow.</li> <li>• To know that a switch can be used to complete and break an electrical circuit.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that series circuits only have one direction for the electricity to flow.</li> <li>• To know when there is a break in a series circuit, all components turn off.</li> <li>• To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin.</li> <li>• To know a motorised product is one which uses a motor to function.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>• To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens.</li> <li>• To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that product analysis is critiquing the strengths and weaknesses of a product.</li> <li>• To know that 'configuration' means how the parts of a product are arranged.</li> </ul>

		COOKING & NUTRITION		
		Year 1/2 (A)	Year 3/4 (A)	Year 5/6 (A)
		<u>Smoothies</u>	<u>Eating seasonally</u>	<u>Developing a recipe</u>
Skills	Design	<ul style="list-style-type: none"> <li>• Designing smoothie carton packaging by-hand.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a recipe for a savoury tart.</li> </ul>	<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> <li>• Researching existing recipes to inform ingredient choices.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>• Chopping fruit and vegetables safely to make a smoothie.</li> <li>• Juicing fruits safely to make a smoothie.</li> </ul>	<ul style="list-style-type: none"> <li>• Following the instructions within a recipe.</li> <li>• Tasting seasonal ingredients.</li> <li>• Selecting seasonal ingredients.</li> <li>• Peeling ingredients safely.</li> <li>• Cutting safely with a vegetable knife.</li> </ul>	<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>
	Evaluate	<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> <li>• Comparing their own smoothie with someone else's.</li> </ul>	<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>• Identifying the nutritional differences between different products and recipes.</li> <li>• Identifying and describing healthy benefits of food groups.</li> </ul>
Knowledge		<ul style="list-style-type: none"> <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.</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 is any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).</li> </ul>	<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 know that eating seasonal foods can have a positive impact on the environment.</li> <li>• To know that similar coloured fruits and vegetables often have similar nutritional benefits.</li> <li>• To know that the appearance of food is as important as taste.</li> </ul>	<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.</li> <li>• To know that recipes can be adapted to suit nutritional needs and dietary requirements.</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> <li>• To know that coloured chopping boards can prevent cross-contamination.</li> <li>• To know that nutritional information is found on food packaging.</li> <li>• To know that food packaging serves many purposes.</li> </ul>

TEXTILES				
EYFS: Reception		Year 1/2 (A)	Year 5/6 (B)	
		<u>Puppets</u>	<u>Waistcoats</u>	
Skills	Design	<ul style="list-style-type: none"> <li>• Discussing what a good design needs.</li> <li>• Designing a simple pattern with paper.</li> <li>• Creating a design</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 waistcoat in accordance to a specification linked to set of design criteria.</li> <li>• Annotating designs, to explain their decisions.</li> </ul>
	Make	<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 the steps taken during construction.</li> </ul>	<ul style="list-style-type: none"> <li>• Using a template when cutting fabric to ensure they achieve the correct shape.</li> <li>• Using pins effectively to secure a template to fabric without creases or bulges.</li> <li>• Marking and cutting fabric accurately, in accordance with their design.</li> <li>• Sewing a strong running stitch, making small, neat stitches and following the edge.</li> <li>• Tying strong knots.</li> <li>• Decorating a waistcoat, attaching features (such as appliqué) using thread.</li> <li>• Finishing the waistcoat with a secure fastening (such as buttons).</li> <li>• Learning different decorative stitches.</li> <li>• Sewing accurately with evenly spaced, neat stitches.</li> </ul>
	Evaluate	<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>• Reflecting on their work continually throughout the design, make and evaluate process.</li> </ul>
Knowledge	<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 understand that it is important to design clothing with the client/ target customer in mind.</li> <li>• To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.</li> <li>• To understand the importance of consistently sized stitches.</li> </ul>	

## DIGITAL WORLD (KS2 ONLY)

### Year 3/4 (A)

### Year 5/6 (B)

#### Wearable technology

#### Navigating the world

		Year 3/4 (A)	Year 5/6 (B)
		<u>Wearable technology</u>	<u>Navigating the world</u>
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>• Problem solving by suggesting which features on a micro:bit might be useful and justifying my ideas.</li> <li>• Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.</li> <li>• Developing design ideas through annotated sketches to create a product concept.</li> <li>• Developing design criteria to respond to a design brief.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing a design brief from information submitted by a client</li> <li>• Developing design criteria to fulfil the client's request</li> <li>• Considering and suggesting additional functions for my navigation tool</li> <li>• Developing a product idea through annotated sketches</li> <li>• Placing and manoeuvring 3D objects, using CAD</li> <li>• Changing the properties of, or combine one or more 3D objects, using CAD</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>• Following a list of design requirements.</li> <li>• Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.</li> </ul>	<ul style="list-style-type: none"> <li>• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo)</li> <li>• Explaining material choices and why they were chosen as part of a product concept</li> <li>• Programming an N,E, S,W cardinal compass</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>• Analysing and evaluating wearable technology.</li> <li>• Using feedback from peers to improve design.</li> </ul>	<ul style="list-style-type: none"> <li>• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool</li> <li>• Developing an awareness of sustainable design</li> <li>• Identifying key industries that utilise 3D CAD modelling and explain why</li> <li>• Describing how the product concept fits the client's request and how it will benefit the customers</li> <li>• Explaining the key functions in my program, including any additions</li> <li>• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool</li> <li>• Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch</li> <li>• Demonstrating a functional program as part of a product concept</li> </ul>
<b>Knowledge</b>	<b>Technical</b>	<ul style="list-style-type: none"> <li>• To understand that, in programming, a 'loop' is code that repeats something again and again until stopped.</li> <li>• To know that a micro:bit is a pocket-sized, codeable computer.</li> <li>• To know that a simulator is able to replicate the functions of an existing piece of technology.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that accelerometers can detect movement</li> <li>• To understand that sensors can be useful in products as they mean the product can function without human input</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>• To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result.</li> <li>• To understand what is meant by 'point of sale display.'</li> <li>• To know that CAD stands for 'Computer-aided design'.</li> <li>• To know what a focus group is by taking part in one.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request</li> <li>• To know that 'multifunctional' means an object or product has more than one function</li> <li>• To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing</li> </ul>