

Essential Knowledge

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Key Concepts	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms 	Moving Journey		Fairground wheel Making a moving monster	Making a slingshot car		Pop up book	
Technical	<p>To find out about sliders and movement</p> <p>To learn about how to design a journey with one moving part</p> <p>To consider which tools and materials are required to make a slider as part of a picture</p>		<p>To know that different materials have different properties and are therefore suitable for different uses</p> <p>To know that mechanisms are a collection of moving parts that work together as a machine to produce movement</p> <p>To know that there is always an input and output in a mechanism</p> <p>To know that an input is the energy that is used to start something working</p> <p>To know that an output is the movement that happens as a result of the input</p> <p>To know that a lever is something that turns on a pivot</p> <p>To know that a linkage mechanism is made up of a series of levers</p>	<p>To know that air resistance is the level of drag on an object as it is forced through the air</p> <p>To understand that the shape of a moving object will affect how it moves due to air resistance</p>		<p>To know that mechanisms control movement</p> <p>To understand that mechanisms can be used to change one kind of motion into another</p> <p>To understand how to use sliders, pivots and folds to create paper based mechanisms</p>	

Additional			<p>To know that features of a ferris wheel include the wheel, frame, pods, a base, an axle and an axle holder</p> <p>To know that it is important to test my design as I go along so that I can solve any problems that may occur</p> <p>To know that some real life objects contain mechanisms</p>	<p>To know that aesthetics means how an object or product looks in design and technology</p> <p>To know that a template is a stencil you can use to help you draw the same shape accurately</p> <p>To know that a birds-eye view means a view from a high angle (as if a bird is in flight)</p> <p>To know that graphics are images which are designed to explain or advertise something</p> <p>To know that it is important to assess and evaluate design idea sand models against a list of design criteria</p>		<p>To know that a design brief is a description of what I am going to design and make</p> <p>To know that designers often want to hide mechanisms to make a product more aesthetically pleasing</p>	
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Structures 	Construct the 3 little pigs houses Construct a castle Construct a pirate ship	Constructing a windmill	Baby bear's chair	Constructing a castle	Pavillions		Playgrounds
Technical	<p>To know that a structure has been put together</p> <p>To begin to understand why some structures are stronger than others</p> <p>To begin to learn about different ways to attach materials to make a structure</p> <p>To begin to learn that choices can be made regarding different materials to use for different purposes</p>	<p>To understand that the shape of materials can be changed to improve the strength and stiffness of structures</p> <p>To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses)</p> <p>To understand that axels are used in structures and mechanisms to make parts turn in a circle</p> <p>To begin to understand that different structures are used for different purposes</p> <p>To know that a structure is something that has been made and put together</p>	<p>To know that materials can be manipulated to improve strength and stiffness</p> <p>To know that a structure is something which has been formed or made from parts</p> <p>To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move</p> <p>To know that a 'strong' structure is one which does not break easily</p> <p>To know that a 'stiff' structure or material is one which does not bend easily</p>	<p>To understand that wide and flat based objects are more stable</p> <p>To understand the importance of strength and stiffness</p>	<p>To understand what a frame structure is</p> <p>To know that a 'free-standing' structure is one which stands on its own</p>		<p>To know that structures can be strengthened by manipulating materials and shapes</p>
Additional		<p>To know that a client is the person I am designing for</p> <p>To know that design criteria is a list of points to ensure that product</p>		<p>To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and</p>	<p>To know that a pavilion is a decorative building or structure for leisure activities</p> <p>To know that cladding can be</p>		<p>To understand what a 'footprint' plan is</p> <p>To understand that in the real world, design can impact users in positive and negative ways</p>

		<p>meets the clients eeds and wants</p> <p>To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity</p> <p>To know that windmill turbines use wind to turn and make the machines inside work</p> <p>To know that a windmill is a structure with sails that are moved by the wind</p> <p>To know that the three main parts of a windmill are the turbine, axle and structure</p>		<p>gatehouse and their purpose</p> <p>To know that a façade is the front of a structure, To understand that a castle needed to be strong and stable to withstand enemy attach</p> <p>To know that a paper net is a flat 2D shape that can become a 3D shape once assembled</p> <p>To know that a design specification is a list of success criteria for a product</p>	<p>applied to structures for different effects</p> <p>To know that aesthetics are how a product looks</p> <p>To know that a product's function means its purpose</p> <p>To understand that the target audience means that person or group of people a product is designed for</p> <p>To know that architects consider light, shadow and patterns when designing</p>		<p>To know that a prototype is a cheap model to test a design idea</p>
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<p>Textiles</p> 		<p>Puppets</p>		<p>Cross stitch and applique</p>		<p>Stuffed Toy</p>	<p>Waistcoats</p>
<p>Technical</p>		<p>To know that 'joining technique' means joining two pieces of material together</p> <p>To know that there are various temporary methods of joining fabric by using stapels, glue or pins</p> <p>To understand that different techniques for joining materials can be used for different purposes</p> <p>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times</p> <p>To know that drawing a design idea is useful to see how an idea will look</p>		<p>Stand alone lesson</p>		<p>Added in addition</p>	<p>To understand that it is important to design clothing with the client/target cutomer in ind</p> <p>To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric</p> <p>To understand the importance of soncistently sized stitches</p>

<p>Cooking and nutrition</p> 	<p>Healthy Eating Growing Cooking</p>	<p>Fruit and vegetables</p>		<p>Eating seasonally</p>		<p>What could be healthier?</p>	
<p>Technical</p>	<p>Healthy Eating To know that some foods are healthier than others and to be able to group some of these</p> <p>To know some reasons why healthy food is good for us</p> <p>Growing To know what a plant needs in order to survive</p> <p>To know how to plant a seed</p> <p>Cooking To know why it is important to wash hands before cooking food</p> <p>To begin to learn about chopping safely</p>	<p>Understand the difference between fruit and vegetables</p> <p>To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber)</p> <p>To know that a blender is a machine which mixes ingredients together into a smooth liquid</p> <p>To know that a fruit has seeds and a vegetable does not</p> <p>To know that fruits grow on trees or vines</p> <p>To know that vegetables can grow either above or below ground</p> <p>To know that vegetables can come from different parts of the plant (e.g. roots:potatoes, leave:lettuce, fruit:cucumber)</p>		<p>To know that not all fruit and vegetables can be grown in the UK</p> <p>To know that climate affects food growth</p> <p>To know that vegetables and fruit grow in certain seasons</p> <p>To know that cooking instructions are known as a recipe</p> <p>To know that imported food is food which has been brought into the country</p> <p>To know that exported food is food which has been sent to another country To understand that imported foods travel from far away and this can negatively</p>		<p>To understand where meat comes from – learning that beef is from cattle and how beef is reared and processed, including key welfare issues</p> <p>To know that I can adapt a recipe to make it healthier by substituting ingredients</p> <p>To know that I can use a nutritional calculator to see how healthy a food option is</p> <p>To understand that ‘cross contamination’ means that bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects</p>	

				<p>impact the environment</p> <p>To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre</p> <p>To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health</p> <p>To know safety rules for using, storing and cleaning a knife safely</p> <p>To know that similar coloured fruits and vegetables often have similar nutritional benefits</p>			
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<p>Electrical systems (KS2 only)</p> 					Torches	Doodlers (moved from Y5)
Technical					<p>To know that an electrical system must be complete for electricity to flow</p> <p>To know that a switch can be used to complete and break an electrical circuit</p>	<p>To know that series circuits only have one direction for the electricity to flow</p> <p>To know when there is a break in a series circuit all components turn off</p> <p>To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin</p> <p>To know a motorised product is one which uses a motor to function</p>
Additional					<p>To know the features of a torch, case, contacts, batteries, switch, reflector, lamp, lens</p> <p>To know facts from the history and invention of the electric light bulb(s) by Sir Joseph Swan and Thomas Edison</p>	<p>To know that product analysis is critiquing the strengths and weaknesses of a product</p> <p>To know that 'configuration' means how the parts of a product are arranged</p>

<p>Digital world (KS2 only)</p> 				<p>Electronic charm</p>			<p>Navigating the world</p>
<p>Technical</p>				<p>To understand that programming a 'loop' is code that repeats something again and again until stopped</p> <p>To know that a Micro:bit is a pocket-sized codeable computer</p> <p>Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm</p>			<p>To know that accelerometers can detect movement</p> <p>To understand that sensors can be useful in products as they mean the product can function without human input</p>
<p>Additional</p>				<p>To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result</p> <p>To know that in Design and Technology the term 'smart' means a programmed product</p>			<p>To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request</p> <p>To know that 'multifunctional' means an object or product has more than one function</p> <p>To know that magnetometers are devices that measure the Earth's magnetic field to</p>

				<p>To know the difference between analogue and digital technologies</p> <p>To understand what is meant by 'point of sale display'</p> <p>To know that CAD stands for Computer-aided design</p>			<p>determine which direction you are facing</p>
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