



Whitley Memorial CE Primary School
Design Technology Knowledge Progression

EYFS

ELG: Expressive Arts and Design

Creating with Materials:

Children at the expected level of development will.
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.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Food	<p>To understand the difference between fruits 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</p>	<p>To know that 'diet' means the food and drink that a person or animal usually eats.</p> <p>To understand what makes a balanced diet.</p> <p>To know where to find the nutritional information on packaging.</p> <p>To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</p> <p>To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.</p> <p>To know that nutrients are substances in food that all living things need to make energy, grow and develop.</p> <p>To know that 'ingredients'</p>	<p>To know that not all fruits 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 that has been brought into the country.</p>	<p>To know that the amount of an ingredient in a recipe is known as the 'quantity'.</p> <p>To know that it is important to use oven gloves when removing hot food from an oven.</p> <p>To know the following cooking techniques: sieving, creaming, rubbing method, cooling.</p> <p>To understand the importance of budgeting while planning ingredients for biscuits</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>To know that 'flavour' is how food or drink tastes.</p> <p>To know the countries have 'national dishes' which are recipes associates with that country.</p> <p>To know that 'processed food' means food that has been put through multiple changes in a factory.</p> <p>To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides.</p> <p>To understand what happens to a certain food before it appears on the supermarket shelf (Farm to fork).</p>

		<p>means the items in a mixture or recipe.</p> <p>To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy.</p> <p>To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.</p>				
Mechanism	<p>To know that a mechanism is the parts of an object that move together.</p> <p>To know that a slider mechanism moves an object from side to side.</p> <p>To know that a slider mechanism has a slider, slots, guides and an object.</p> <p>To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.</p> <p>To know that wheels need to be round to rotate and move.</p> <p>To understand that for a wheel to move it must be attached to a rotating axle.</p> <p>To know that an axle moves within an axle</p>	<p>To know that different materials have different properties and are therefore suitable for different uses.</p> <p>To know the 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 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 an 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</p>	<p>To understand how pneumatic systems work.</p> <p>To understand that pneumatic systems can be used as part of a mechanism.</p> <p>To know that pneumatic systems operate by drawing in, releasing and compressing air.</p>	<p>To understand that all moving things have kinetic energy.</p> <p>To understand that kinetic energy is the energy that something (object/person) has by being in motion.</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 understand that the mechanism in an automata uses a system of cams, axels and followers.</p> <p>To understand that different shaped cams produce different outputs.</p> <p>To know that an automata is a hand powered mechanical toy.</p> <p>To know that a cross sectional diagram shows the inner workings of a product.</p>

	<p>holder which is fixed to the vehicle or toy.</p> <p>To know that the frame of a vehicle (chassis) needs to be balanced.</p> <p>To know some real-life items that use wheels.</p>	<p>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>				
Structures	<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 (and, therefore, they are the main shape used for windmills and lighthouses).</p> <p>To understand that axles 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 shapes and structures with wide, flat bases or legs are the most stable.</p> <p>To understand that the shape of a structure affects its strength.</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 know that shapes and structures with wide, flat bases or legs are the most stable.</p> <p>To understand that the shape of a structure affects its strength.</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 in structures.</p> <p>To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse – and their purpose.</p> <p>To know that a façade is the front of a structure.</p> <p>To understand that a castle needed to be strong and stable to withstand enemy attack.</p>	<p>To understand what a frame structure is.</p> <p>To know that a 'free-standing' structure is one that can stand on its own.</p> <p>To know that a pavilion is a decorative building or structure for leisure activities.</p> <p>To know that cladding can be applied to structures for different effects.</p> <p>To know that aesthetics are how a product looks.</p>	<p>To know that structures can be strengthened by manipulating materials and shapes.</p> <p>To understand what a foot print plan is.</p> <p>To understand that in the real world, designs can impact users in a positive and negative way.</p> <p>To know that a prototype is a cheap model to test a design idea.</p>

Textiles	<p>To know that 'joining technique' means connecting two pieces of material together.</p> <p>To know that there are various temporary methods of joining fabric by using staples, 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>To know that sewing is a method of joining fabric.</p> <p>To know that different stitches can be used when sewing.</p> <p>To understand the importance of tying a knot after sewing the final stitch.</p> <p>To know that a thimble can be used to protect my fingers when sewing.</p>	<p>To know that appliqué is a way of mending or decorating a textile by applying smaller pieces of fabric.</p> <p>To know that when two edges of fabric have been joined together it is called a seam.</p> <p>To know that it is important to leave space on the fabric for the seam.</p> <p>To understand that some products are turned inside out after sewing so the stitching is hidden.</p>	<p>To know that a fastening is something that holds two pieces of material together.</p> <p>To know that different fastening types are useful for different purposes.</p> <p>To know that creating a mock-up (prototype) of their design is useful for checking ideas and proportions.</p>	<p>To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.</p> <p>To understand that it is easier to finish simpler designs to a high standard.</p> <p>To know that soft toys are often made by creating appendages separately and then attaching them to the main body.</p> <p>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</p>	<p>To know that it is important to design clothing with the client/target customer in mind.</p> <p>To know that using a template (or clothing pattern) helps to accurately mark out a design fabric.</p> <p>To understand the importance of consistently sized stitching.</p>
Digital world			<p>To understand that in 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 understand what variables are in programming.</p> <p>To know some of the features of a Micro:bit.</p> <p>To know that an algorithm is a set of instructions to be followed by the computer.</p> <p>To know that it is important to check my code for errors (bugs).</p>	<p>To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record.</p> <p>To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose.</p> <p>To understand that conditional statements (and, or, if booleans) in programming are a set of</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>To know that designers write design briefs and develop design criteria to enable them to fulfil a clients requests.</p> <p>To know that</p>

				<p>To know that a simulator can be used as a way of checking that your code works before installing it onto an electronic device.</p>	<p>rules which are followed if certain conditions are met.</p>	<p>multifunctional means an object or product with more than one function.</p> <p>To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing.</p>
<p>Electrical System</p>			<p>To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit.</p> <p>To understand common features of an electric product (switch, battery or plug, dials, buttons etc.)</p> <p>To list examples of common electric products (kettle, remote control etc.)</p> <p>To understand that an electric product uses an electrical system to work (function).</p> <p>To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.</p>	<p>To understand that electrical conductors are materials which electricity can pass through.</p> <p>To understand that electrical insulators are materials which electricity cannot pass through.</p> <p>To know that a battery contains stored electricity that can be used to power products.</p> <p>To know that an electrical circuit 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, in a series circuit, electricity only flows in one direction.</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>	<p>To know that 'form' means the shape and appearance of an object. To know the difference between 'form' and 'function'.</p> <p>To understand that 'fit for purpose' means that a product works how it should and is easy to use.</p> <p>To know that 'form over purpose' means that a product looks good but does not work very well.</p> <p>To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.</p> <p>To understand the diagram perspectives 'top view', 'side view' and 'back'</p>