

Design and Technology : STICKY KNOWLEDGE MAP

	KS1		LKS2		UKS2	
<u>Cycle A</u>	<ul style="list-style-type: none"> • A structure is a building constructed using parts and used for different reasons. • A structure needs to be purposeful and functional. • A structure needs to be checked against design criteria to make sure it is fit for purpose and suitable. • A structure needs to be stable using foundations. • A structure can be made stronger and stiffer by adding materials to strengthen it. • Materials can be joined in different ways using different resources. • Materials can be cut, joined and shaped to produce a structure. 	<ul style="list-style-type: none"> • Puppets are designed to entertain. • Puppets can be made to move using rods, strings or hands. • Some types of puppets: <ul style="list-style-type: none"> - sock puppets - marionettes - hand/finger puppet • Designers will collect ideas about what people like and dislike to help them make decisions about their design. • Fabric glue can be used to join fabric and other materials. • Sewing with thread can join pieces of fabric together. • A running stitch uses a 'through and over, through and under' pattern. 	<ul style="list-style-type: none"> • Many mechanisms take one type of input motion and output it as a different type of motion. • Types of motion: <ul style="list-style-type: none"> - rotary - linear - oscillating • The input is the movement of the main lever by the user. • The output is the movement that is made by the smaller levers. • A lever is a stiff bar that moves around a pivot. • A linkage is the part of the mechanism used to join one or more levers to produce the type of movement required. • A loose pivot joins the levers together. 	<ul style="list-style-type: none"> • Needle and thread began to be used to join fabrics in the Neolithic period. • A Stone Age pouch was discovered in Germany that dates back to 2500BCE and was decorated with over 100 dog teeth. • A 3D textile structure can be made using two identical fabric shapes. • Templates or pattern pieces are used to cut fabric into the correct shape. • When joining two pieces of fabric, a neat edge can be made by a running stitch, then turning the product inside out. • Another way of creating a straight edge it with an over stitch or back stitch. • Detail can be added to a product using 	<ul style="list-style-type: none"> • Designers can use computers to create a 3D representation of a real world object. • When designing an artefact, the shapes can be broken up into 3D objects. • Digital tools can be used to manipulate 3D objects • Placeholders can be used to create holes in 3D objects. • The measurements you input on the digital design will refer to the real-life measurements when you print. • 3D printers print in thin layers that are built up into a 3D product. This means that the orientation of the digital design can affect the 	<ul style="list-style-type: none"> • Fashion designers increase the value and appeal of their work by adding detail to their products. • Visual artists can also include textiles in their work. • Embroidery uses a needle and thread to add shapes and patterns. • Cross stitch uses X shaped stitches to create patterns and images. • Applique is where small pieces of fabric are attached to a larger piece. • A blanket stitch can reinforce the edge of two pieces of joined material.

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			<ul style="list-style-type: none"> A fixed pivot joins the levers to the overall object. 	<p>stitches (embroidery)</p>	<p>effectiveness of the printing. (e.g. no overhanging/suspended pieces.)</p>	
<u>Cycle B</u>	<ul style="list-style-type: none"> Mechanisms are used in products to allow parts to move Different types of mechanisms allow different movements There are different types of mechanisms: sliders, levers, wheel, axle A slider is a knob that is moved left and right or up and down to control or move something A lever is a solid bar resting on a fulcrum that allows the lever to pivot and move An axle is a rod that goes through the centre of the wheel and it be fixed or allowed to turn A wheel is attached to the end of the axle 	<ul style="list-style-type: none"> Food comes from plants or animals and provides us with nutrients to live and grow Food has to be farmed, caught or grown Food provides us with different vitamins and minerals and provides our body with what it needs to stay healthy Food can be sorted into different groups Food needs to be stored in certain ways to keep it safe to eat Personal hygiene and safety is highly important when preparing food 	<p>Electrical systems</p>	<p><i>Humans need a healthy and varied diet. We use a range of cooking techniques to prepare and cook a healthy meal - scrub, peel, cut, chop, boil, bake. Foods are seasonal and influence our use of produce. A variety of ingredients are grown, reared, caught and processed.</i></p>	<ul style="list-style-type: none"> Automata are often designed to entertain and amaze. Many automata use CAMs. Common use of CAMs today are in cars. CAMs turn rotary motion into linear motion. The shape of the CAM affects the movement it creates. Gears lock together to change the rotary direction. Different sized gears alter the speed of rotation. Gears found in clocks to wind the hands. Pulleys can be used to change the speed, 	<ul style="list-style-type: none"> Wash hands before, during and after preparing food. Food expiration dates should be checked. Preparing the ingredients uses slicing, measuring, mixing. Use oven gloves to handle hot food/dishes We can find the nutritional value of foods on labels. Fruits and vegetables come in and out of season, and taste their best when they are in season. In WW2 many foods were scarce or rationed, so

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	can be fixed or allowed to turn	<ul style="list-style-type: none">• Prepare an appealing and appetising meal			direction or force of a movement.	where able, ingredients were preserved or substituted.
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