

# Design and Technology: Long Term Overview

	Autumn	Spring	Summer
<b>N</b>	<p>Begin to use various one-handed tools such as scissors for snipping paper.</p> <p>Explore joining materials together using glue.</p>	<p>Explore joining materials together using tape.</p> <p>Build models using construction sets to create small world settings.</p> <p>Explore materials freely to develop their own ideas about what they want to make.</p>	<p>To know that tools can be used for a purpose.</p> <p>Learn how to use tools safely and with control.</p> <p>To use taught techniques to join materials independently.</p>
<b>R</b>	<p>Join materials together with a range of adhesives.</p> <p>To use adhesives for a purpose.</p> <p>Build structures using a variety of materials and joining techniques eg flange/folding.</p> <p>Explore the properties of materials.</p> <p>Understand that tools are used for a purpose.</p> <p>Use tools and techniques safely and competently.</p> <p>To interact with a range of technology: Beebots</p>	<p>Use appropriate tools to cut and chop vegetables.</p> <p>Make a range of models/structures with junk materials and construction kits independently.</p> <p>Discuss the models they have made and talk about what they might do differently next time.</p> <p>To interact with a range of technology: drawing app.</p> <p>To thread using varied materials.</p> <p>To independently use one-handed tools for a purpose – hammer and wood.</p>	<p>To design, make and evaluate models and structures.</p> <p>To create props and costumes for role play.</p> <p>To begin to understand and make healthy food choices.</p> <p>To follow a simple recipe to bake.</p>
<b>Y1</b>	<p><b>Structures</b> <b>Freestanding structures</b></p>	<p><b>Mechanisms</b> <b>Sliders and Levers</b></p>	<p><b>Food</b> <b>Preparing fruit and vegetables</b></p>
	<p>Describe different characteristics of materials.</p> <p>Measure and mark out the materials needed for the structure.</p> <p>Use joining, rolling and folding to make structures stronger, stiffer and more stable.</p> <p>Build structures, joining components together to create a finished product.</p>	<p>Understand that different mechanisms produce different types of movements, e.g. wheels, sliders, levers and hinges.</p> <p>Explore and use simple mechanisms. e.g. use sliders in moving pictures, hinges into models.</p> <p>Cut, shape and join using scissors, glue, paper fasteners and masking tape.</p>	<p>Understand the principles of a healthy and varied diet- five portions of fruit and vegetables every day.</p> <p>Identify where a range of fruit and vegetables come from.</p> <p>Use simple tools with help to prepare food safely (a knife and knife skills (bridge method) to cut and slice: using a peeler to peel – new skill Y1).</p>

	Work in order when making a structure.		Wash hands and keep work surfaces clean.  Prepare a dish that is healthy and contains a variety of food (design, make, evaluate).
<b>Y2</b>	<p align="center"><b>Mechanisms</b> <b>Wheels and axles</b></p> <p>Identify how different mechanisms, produce different types of movement- wheels, axles, sliders, turning mechanisms, hinges and levers.</p> <p>Explore and use winding mechanisms.</p> <p>Incorporate wheels and axles into their products.</p> <p>Describe the properties of the materials that I have used.</p>	<p align="center"><b>Textiles</b> <b>Templates and joining techniques</b></p> <p>Identify different forms of textiles/fabric e.g. felt, velvet, cotton.</p> <p>To describe textiles by the way they feel.</p> <p>To identify why fabrics are chosen based on their properties (i.e. wool is used because it is soft and warm).</p> <p>To use certain fabrics based on their suitability to product.</p> <p>To understand why templates are used.</p> <p>To use different fabrics and materials in collages.</p> <p>To use a needle and thread</p> <p>To use a running stitch to join fabrics.</p>	<p align="center"><b>Food</b> <b>Preparing fruit and vegetables</b></p> <p>To identify food groups and sort onto the Eatwell plate and identify that this makes up a healthy diet.</p> <p>To understand where a range of food comes from (plant or animal).</p> <p>To describe the properties of food ingredients: taste, smell, texture and consistency.</p> <p>To use tools with help to prepare food safely. (cut, slice, peel, juice and blend – new skills Y2).</p> <p>To measure ingredients using cup, tsp, tbsp.</p> <p>To prepare a dish that contains a variety of food and is healthy.</p>
<b>Y3</b>	<p align="center"><b>Structures</b> <b>Shell Structures</b></p> <p>Choose and use appropriate materials.</p> <p>Use appropriate tools for cutting (e.g. using a junior hacksaw) and scoring materials.</p> <p>Measure materials.</p> <p>Join materials using a range of joining skills .</p> <p>Use methods to stiffen and strengthen structures (e.g. Triangles, stacking, etc)</p> <p>Work in order when making a structure.</p> <p>To develop and use knowledge of nets of cubes and cuboids to create a product.</p>	<p align="center"><b>Textiles</b> <b>2D shape to 3D product</b></p> <p>Investigate the different properties that textiles have e.g. feel, insulation, texture and waterproof.</p> <p>Thread a needle independently.</p> <p>Select appropriate material for my product</p> <p>Join textiles in a range of different ways including running stitch, back stitch and blanket stitching.</p> <p>Create and use templates to accurately cut out textile design</p> <p>Leave a seam allowance.</p> <p>Use finishing techniques to achieve a required effect e.g. using buttons, beads, sequins.</p> <p>Combine materials to add strength and visual appeal.</p>	<p align="center"><b>Food</b> <b>Healthy and varied diet</b></p> <p>Identify whether foods are grown (underground, on plants), reared or caught.</p> <p>Describe the properties of ingredients and importance of a varied diet to keep healthy.</p> <p>Use utensils and equipment to prepare and combine food in order to prepare a dish (peeling, chopping, slicing, grating, mixing, spreading, kneading and baking)</p> <p>Measure or weigh ingredients using scales.</p> <p>To prepare and cook dishes safely and hygienically.</p> <p>Present my food product well.</p>
	<b>Mechanical Systems</b> <b>Pneumatics</b>	<b>Electronics</b> <b>Electrical Systems - Control</b>	<b>Food</b> <b>Healthy and varied diet</b>

<p><b>Y4</b></p>	<p>Understand how levers and linkages or pneumatic systems create movement.</p> <p>Understand why levers and linkages or pneumatic systems are used.</p> <p>Identify the difference between fixed and loose pivots.</p> <p>Identify where fixed and loose pivots are used in products</p> <p>Join materials to make product using both permanent and temporary fastening.</p> <p>Measure, mark out and cut with increasing accuracy.</p> <p>Produce models that incorporate mechanical systems such as levers, linkages or pneumatic systems to create movement.</p>	<p>Use a number of components in a series circuit- switches, buzzers and bulbs.</p> <p>Apply scientific knowledge to create series and parallel circuits.</p> <p>To use electrical systems in their product for example, series circuits incorporating switches, buzzers and bulbs.</p> <p>Apply their understanding of computing to control their product.</p> <p>To use finishing and decorative techniques suitable for the product they are designing and making.</p>	<p>Explain how food and drinks are required for healthy active bodies.</p> <p>Use appropriate utensils, equipment and techniques to prepare and combine food in order to prepare a dish.</p> <p>Identify where food comes from – UK and the wider world.</p> <p>Measure accurately to the nearest gram.</p> <p>Present food ensuring that it is interesting, appealing and fit for purpose.</p>
------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<p><b>Y5</b></p>	<p style="text-align: center;"><b>Food</b> <b>Celebrating culture and seasonality</b></p> <p>Explain how there are different substances in food and drink required for good health.</p> <p>Understand food can be grown, reared or caught in the UK and the wider world.</p> <p>Understand the seasonality of food.</p> <p>Understand that some foods may not be eaten raw as it is unsafe.</p> <p>Measure ingredients accurately using different units.</p> <p>Use a range of utensils and equipment to prepare a dish.</p> <p>Use a range of techniques to prepare and combine food (kneading and baking) in order to prepare a dish.</p> <p>Present and package food using a range of DT skills.</p>	<p style="text-align: center;"><b>Machines and Mechanisms</b> <b>Cams and pulley mechanism</b></p> <p>Understand that mechanical systems have an input and an output system.</p> <p>Develop a greater understanding of how cams, pulley or gears create movement.</p> <p>Design and make a product that incorporates a cam mechanism, pulleys or gears.</p> <p>To explain how parts of the product will work.</p> <p>To refine ideas by making prototypes</p> <p>Apply a high-quality finish (e.g. using carving, paint, glaze, varnish).</p> <p>To identify the strengths and areas for improvement in their work.</p>	<p style="text-align: center;"><b>Structures</b> <b>Frame Structures</b></p> <p>To select materials considering intended use of product, the aesthetics and functionality.</p> <p>To select materials which are best suited to stiffen and reinforce the product.</p> <p>To stiffen, strengthen and reinforce a range of 3D structures.</p> <p>To use a range of tools i.e. junior hacksaws, G clamps, bench hooks, hand drills safely</p> <p>To explain how the product meets the design criteria.</p> <p>To use finishing techniques to strengthen and improve the appearance of their models.</p>
<p><b>Y6</b></p>	<p style="text-align: center;"><b>Textiles</b> <b>Combining different fabric shapes</b></p> <p>Choose textiles appropriate to the user and intended use.</p> <p>Design, plan and decorate a fabric piece.</p> <p>Use own patterns and template.</p> <p>Use a range of techniques to join materials, e.g. over sewing, back stitch and/or blanket stitch</p> <p>Join textiles using art skills such as stitching, embroidering and plaiting to make a durable and desirable product.</p>	<p style="text-align: center;"><b>Control and monitoring</b> <b>Alarm system</b></p> <p>Understand and use electrical systems in their product-series circuits incorporating switches, bulbs, buzzers and motors.</p> <p>Create circuits using electronic kits that employ a number of components (such as LED's, resistors, transistors and chips).</p> <p>Test components in more complex circuits (series and parallel).</p> <p>To write a step by step plan, including a list of resources required.</p> <p>Apply computing skills to program, monitor and control their products.</p>	<p style="text-align: center;"><b>Food</b> <b>Celebrating culture and seasonality</b></p> <p>To select and use appropriate utensils for specific jobs.</p> <p>To measure accurately and calculate ratios of ingredients to scale up or down from a recipe.</p> <p>To adapt recipes to change appearance, taste, texture or aroma.</p> <p>To formulate a step by step plan to guide making, listing tools, equipment, materials and components.</p> <p>To prepare and cook a variety of dishes safely and hygienically including the use of a heat source.</p>

	<p>Produce a 3D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics.</p> <p>Create a product that is strong and fit for purpose.</p>	<p>Identify faults in their own electrical system.</p> <p>To refine ideas by making prototypes.</p>	<p>To use my science knowledge of irreversible changes to create food products that combine to make a new material.</p> <p>To use my science knowledge of micro-organisms to store and prepare food safely and properly.</p>
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------