

	Designing	Evaluating	Making	Structures	Mechanism & Mechanical Systems	Textiles	Electrical Systems	Food
Year 1	<ul style="list-style-type: none"> <li>To know the difference between natural and manufactured (man-made)</li> <li>Know &amp; understand the term 'design'</li> <li>To know that different products are more suitable for different people.</li> <li>To generate ideas to solve problems using resources they are familiar with. To talk about their ideas and to draw them.</li> </ul>	<ul style="list-style-type: none"> <li>To make simple statements about their own personal tastes, things that work well and things that don't.</li> <li>To know that all manufactured products are tested.</li> <li>To explore who and what products are made for and what they are made from</li> <li>To match products to users giving reasons.</li> <li>To say whether or not their ideas have worked, have worked well or haven't worked.</li> </ul>	<ul style="list-style-type: none"> <li>To know the term 'plan'</li> <li>To follow a plan using 'first' 'next' 'then'</li> <li>To suggest what the next step in a plan could be.</li> <li>To know how the tools they are using could hurt us</li> <li>To begin to measure, mark out, cut, shape, assemble, join, combine and finish a range of materials and components.</li> </ul>	<b>Freestanding Structures</b> <ul style="list-style-type: none"> <li>Know the terms: Structure, weak, strong, stiff, stable, base, cut, fold, join, fix</li> <li>To know that structures are more stable when the base is wide or heavy</li> <li>To know that thin materials can be folded to make them stronger and to make them stand up.</li> <li>To recognise the following tools and say what each is used for Scissors, ruler, hole punch</li> </ul>	<b>Sliders &amp; Levers</b> <ul style="list-style-type: none"> <li>Know the terms: slider, lever, pivot, slot, bridge/guide, pull, push, up, down, straight, curve, forwards, backwards</li> <li>Create a lever using a card strip and a paper fastener as a pivot.</li> <li>Create a slider using a card strip and a guide</li> </ul>			<b>Preparing Fruit</b> <ul style="list-style-type: none"> <li>Know the terms: Fruit, vegetable, flesh, skin, seed, pip, core, cutting, squeezing, healthy diet.</li> <li>To know that some food comes from plants and some from animals</li> <li>To know that some foods are healthy and others aren't always</li> <li>To cut using a vegetable knife using a bridge grip</li> <li>To use a juicer</li> <li>To know the importance of hand washing in food preparation</li> </ul>
Year 2	<ul style="list-style-type: none"> <li>To know the terms 'design brief' and 'design criteria'</li> <li>use simple design criteria; state what their products are, who and what they are for and how they will work.</li> <li>generate ideas using their own experiences and existing products; use talk, drawing, templates, mock-ups and, where appropriate, computers</li> </ul>	<ul style="list-style-type: none"> <li>make simple judgements about their products and ideas against design criteria.</li> <li>explore who and what products are for, how they work and are used, what materials they are made from and what they like and dislike about them.</li> <li>To say whether or not their ideas have worked well or not giving reasons for their answers.</li> </ul>	<ul style="list-style-type: none"> <li>plan by suggesting what to do next;</li> <li>Use a numbered plan (ordinal)</li> <li>select from a range of tools, equipment, materials and components.</li> <li>follow procedures for safety and hygiene;</li> <li>measure, mark out, cut, shape, assemble, join, combine and finish a range of materials and components.</li> </ul>		<b>Wheels &amp; Axles</b> <ul style="list-style-type: none"> <li>Know the terms: vehicle, wheel, axle, axle holder, chassis, body, cab</li> <li>To recognise the following tools and say what each is used for - junior hacksaw</li> <li>To measure, mark and cut a wooden dowel to length.</li> </ul>	<b>Templates &amp; Joining Techniques</b> <ul style="list-style-type: none"> <li>Know the terms: fabric, sew, stitch, seam, template, mark-out</li> <li>To recognise the following tools and say what each is used for – needle, pin, safety pin</li> <li>To use a template to duplicate a part</li> <li>To sew using a running stitch</li> </ul>		<b>Preparing Vegetables (salads)</b> <ul style="list-style-type: none"> <li>To know the terms: peel, peeling, slice, grate</li> <li>To know that some food comes from farms, caught in the sea and some can be home grown</li> <li>To know that we should eat 5 portions for fruit or vegetables a day</li> <li>To slice using a vegetable knife using a 'fork secure' grip</li> <li>To use a peeler</li> <li>To use a grater</li> <li>To snip or cut ingredients using scissors</li> <li>To know the importance of good hygiene in food preparation</li> </ul>

Year 3	<ul style="list-style-type: none"> <li>To know the terms 'user' 'purpose' and 'design feature' relating to design criteria.</li> <li>To know that information from different sources can be used to inform design decisions.</li> <li>To know that the user may have different requirements from themselves.</li> <li>To generate effective ideas using information given or collected about the user.</li> <li>To produce clear labelled drawings of their ideas on paper and using ICT.</li> </ul>	<ul style="list-style-type: none"> <li>To know the term 'Evaluate'</li> <li>To know the designer's responsibility to evaluate their products</li> <li>To evaluate their ideas and products using their knowledge of their user and purpose.</li> <li>To explain the success or otherwise of their design decisions.</li> </ul>	<ul style="list-style-type: none"> <li>Plan making a project, identifying and numbering the main stages.</li> <li>Understand that some stages can be undertaken concurrently without affecting others.</li> <li>follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy</li> </ul>	<b>Shell Structures</b> <ul style="list-style-type: none"> <li>Know the terms: shell structure, three-dimensional (3-D) shape, net, length, width, breadth, capacity, marking out, scoring, tabs, corrugating, ribbing, laminating</li> <li>To score a line accurately with a ruler and tool</li> <li>To add tabs to a 2D shape to allow joining</li> <li>To stiffen a flat piece of material using laminating, ribbing and corrugating</li> <li>To recognise the following tools and say what each is used for – scoring tool</li> </ul>		<b>2D Shape to 3D Product</b> <ul style="list-style-type: none"> <li>Know the terms: fastener, applique</li> <li>To create a 3D product from 2D pattern pieces</li> <li>To sew using a back stitch</li> <li>To use seam allowances when creating with textiles</li> </ul>		<b>Dips &amp; Dippers</b> <ul style="list-style-type: none"> <li>To know the terms: crush, mix, combine, blend</li> <li>To identify healthy and potentially unhealthy ingredients.</li> <li>To know that our food is grown all over the world</li> <li>To slice using a vegetable knife and a claw grip</li> <li>To know the importance of packaging in food hygiene</li> </ul>
Year 4	<ul style="list-style-type: none"> <li>gather information about user needs; develop their own design criteria; describe the user, purpose and design features of their products and explain how they will work.</li> <li>generate realistic ideas based on user needs; use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design.</li> </ul>	<ul style="list-style-type: none"> <li>evaluate their ideas and products against their design criteria.</li> <li>compare how well two products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used and how well they work.</li> </ul>	<ul style="list-style-type: none"> <li>order the main stages of making including any that are critical (one that subsequent stages cannot be started before it is complete)</li> <li>select suitable tools, equipment, materials and components and explain their choices.</li> <li>Begin to devise their own procedures for safety and hygiene</li> <li>use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with some accuracy.</li> </ul>		<b>Pneumatics</b> <ul style="list-style-type: none"> <li>Know the terms: - components, system, tubing, syringe, plunger, pneumatic input ,output, control, compression, pressure, inflate, deflate, pump, seal, air-tight, hydraulic</li> <li>Know how a pneumatic system works with an input and output movement</li> <li>To combine a pneumatic system with a slider or lever</li> <li>To know that a hydraulic system uses a liquid instead of air</li> </ul>		<b>Simple Circuits and Switches</b> <ul style="list-style-type: none"> <li>Know the terms: series circuit, fault, connection, switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip</li> <li>To make a variety of simple switches using classroom materials</li> <li>To include a switch in their finished product</li> <li>To include a circuit diagram in their design</li> </ul>	<b>Making a healthy snack bar</b> <ul style="list-style-type: none"> <li>To know the terms: dice, chop finely, melt, heat</li> <li>To know some healthy alternatives to popular sweets and drinks</li> <li>To warm and melt ingredients safely using a heat source</li> <li>To understand an ingredient's or product's shelf life including use by and best before dates</li> </ul>

Year 5	<ul style="list-style-type: none"> <li>To plan an information gathering exercise to collect data on the user.</li> <li>To know that they can decide on their own design criteria for a product.</li> <li>To generate innovative ideas using information collected using accurate labelled drawings, prototypes and computer-aided design</li> </ul>	<ul style="list-style-type: none"> <li>To make realistic judgements about the products they make in relation to the design brief.</li> <li>To suggest ways that their designs could be improved and the effect this would have on the user.</li> <li>To compare how well a range of products have been designed and made whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used and how well they work.</li> </ul>	<ul style="list-style-type: none"> <li>Begin to formulate lists of resources and equipment and create step-by-step plans; select suitable tools, equipment, materials and components and explain their choices.</li> <li>To devise and follow procedures for safety and hygiene;</li> <li>use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</li> </ul>	<p><b>Frame Structures</b></p> <ul style="list-style-type: none"> <li>To know the following terms frame structure, reinforce, triangulation, temporary, permanent</li> <li>To recognise the following tools and say what each is used for junior hacksaw, bench hook</li> <li>To use e bench hook to cut at 90°</li> <li>To reinforce a 'but' joint using card triangles</li> <li>To reinforce square frames using triangulation</li> </ul>			<p><b>More complex circuits and switches</b></p> <ul style="list-style-type: none"> <li>Know the terms: parallel circuit, input, output, monitoring, control</li> <li>To write a control programme as part of their design</li> <li>To design a product using a parallel circuit controlled by two or more switches</li> <li>To control the operation of their product</li> </ul>	<p><b>Celebrating Culture Savoury biscuits</b></p> <ul style="list-style-type: none"> <li>know the terms: sweet, savoury, mix, bake, weigh, wet, dry</li> <li>To understand the seasonal nature of food and its availability and how modern production can negate this.</li> <li>To know that cooking ingredients can change their taste, texture and use</li> <li>To know how to use an oven safely including using an oven glove.</li> </ul>
Year 6	<ul style="list-style-type: none"> <li>carry out research; develop a simple design specification; describe the user, purpose and design features of their products and explain how they will work.</li> <li>generate innovative ideas drawing on research; use a range of drawing skills, discussion, prototypes, pattern pieces and computer-aided design</li> </ul>	<ul style="list-style-type: none"> <li>identify strengths and areas to develop in their ideas and products against their design specification; consider the views of others to make improvements.</li> <li>investigate how well products have been designed and made, whether they are fit for purpose and meet user needs; why materials have been chosen, the methods of construction used, how well they work, and how innovative and sustainable they are.</li> </ul>	<ul style="list-style-type: none"> <li>formulate lists of resources and detailed step-by-step plans; select suitable tools, equipment, materials and components and explain their choices.</li> <li>To devise and follow procedures for safety and hygiene; use a wider range of materials and components; measure, mark out, cut, shape, assemble, join, combine and finish with accuracy.</li> </ul>		<p><b>Cams</b></p> <ul style="list-style-type: none"> <li>Know the terms: cam, , follower, axle, handle, housing/ framework, rotation, rotary motion, oscillating motion, reciprocating motion</li> <li>To recognise the following tools and say what each is used for – hand drills, clamps</li> <li>To make an accurate hole through a piece of wood using a hand drill</li> <li>To investigate the different motions produced by different shaped cams.</li> <li>To combine a cam with a follower</li> </ul>	<p><b>Combining Fabric shapes</b></p> <ul style="list-style-type: none"> <li>Know the terms: tack, embroider, reinforce</li> <li>To know how fabric is strengthened</li> <li>To fasten pieces together temporarily using a large running stitch (tack)</li> <li>To combine different types of fabric</li> <li>To use embroidery to decorate fabric.</li> <li>To embroider using a sating stitch</li> </ul>		<p><b>Celebrating Culture British Tea Party</b></p> <ul style="list-style-type: none"> <li>Know the terms: yeast, dough, flour, wholemeal, unleavened, spice, herbs</li> <li>To understand the processing of ingredients such as flour from wheat</li> <li>To know that some ingredients can be unhealthy for people with food allergies</li> <li>To rub in flour and knead dough</li> </ul>