

## Design Technology Progression of Skills

<b><u>Progression of skills - Structures</u></b>				
<b>Skills</b>	<b>Design</b>	<b>Make</b>	<b>Evaluate</b>	<b>Technical</b>
<b>EYFS</b>	<ul style="list-style-type: none"> <li>• Making verbal plans and material choices.</li> <li>• Developing a junk model.</li> <li>• Designing a junk model boat.</li> <li>• Using knowledge from exploration to inform design</li> </ul>	<ul style="list-style-type: none"> <li>• Improving fine motor/scissor skills with a variety of materials.</li> <li>• Joining materials in a variety of ways (temporary and permanent).</li> <li>• Joining different materials together.</li> <li>• Describing their junk model, and how they intend to put it together.</li> <li>• Making a boat that floats and is waterproof, considering material choices</li> </ul>	<ul style="list-style-type: none"> <li>• Giving a verbal evaluation of their own and others' junk models with adult support.</li> <li>• Checking to see if their model matches their plan.</li> <li>• Considering what they would do differently if they were to do it again.</li> <li>• Describing their favourite and least favourite part of their model.</li> <li>• Making predictions about, and evaluating different materials to see if they are waterproof.</li> <li>• Making predictions about, and evaluating existing boats to see which floats best.</li> <li>• Testing their design and reflecting on what could have been done differently.</li> <li>• Investigating the how the shapes and structure of a boat affect the way it moves.</li> </ul>	<ul style="list-style-type: none"> <li>• To know there are a range to different materials that can be used to make a model and that they are all slightly different.</li> <li>• Making simple suggestions to fix their junk model.</li> <li>• To know that 'waterproof' materials are those which do not absorb water.</li> </ul>
<b>Year 1/2</b>	<ul style="list-style-type: none"> <li>• Learning the importance of a clear design criteria.</li> <li>• Including individual preferences and requirements in a design.</li> </ul>	<ul style="list-style-type: none"> <li>• Making stable structures from card.</li> <li>• Following instructions to cut and assemble the supporting structure of a windmill.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't.</li> <li>• Suggest points for improvements.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</li> </ul>

	<ul style="list-style-type: none"> <li>• Generating and communicating ideas using sketching and modelling.</li> <li>• Learning about different types of structures, found in the natural world and in everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li>• Making functioning turbines and axles which are assembled into a main supporting structure.</li> <li>• Finding the middle of an object.</li> <li>• Puncturing holes.</li> <li>• Adding weight to structures.</li> <li>• Creating supporting structures.</li> <li>• Cutting evenly and carefully.</li> <li>• Making a structure according to design criteria.</li> <li>• Creating joints and structures from paper/card and tape. <ul style="list-style-type: none"> <li>• Building a strong and stiff structure by folding paper.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Exploring the features of structures.</li> <li>• Comparing the stability of different shapes.</li> <li>• Testing the strength of own structures.</li> <li>• Identifying the weakest part of a structure.</li> <li>• Evaluating the strength, stiffness and stability of own structure.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>• To begin to understand that different structures are used for different purposes.</li> <li>• To know that a structure is something that has been made and put together.</li> <li>• To know that the sails or blades of a windmill are moved by the wind.</li> <li>• To know that a structure is something built for a reason.</li> <li>• To know that stable structures do not topple.</li> <li>• To know that adding weight to the base of a structure can make it more stable.</li> <li>• To know that shapes and structures with wide, flat bases or legs are the most stable.</li> <li>• To understand that the shape of a structure affects its strength.</li> <li>• To know that materials can be manipulated to improve strength and stiffness.</li> <li>• To know that a structure is something which has been formed or made from parts.</li> <li>• To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.</li> <li>• To know that a 'strong' structure is one which does not break easily.</li> </ul>
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Year 3	<ul style="list-style-type: none"> <li>• Designing a castle with key features to appeal to a specific person/purpose.</li> <li>• Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours.</li> <li>• Designing and/or decorating a castle tower on CAD software.</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing a range of 3D geometric shapes using nets.</li> <li>• Creating special features for individual designs.</li> <li>• Making facades from a range of recycled materials.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design.</li> <li>• Suggesting points for modification of the individual designs.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that wide and flat based objects are more stable.</li> <li>• To understand the importance of strength and stiffness in structures.</li> </ul>
Year 4	<p>Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.</p> <ul style="list-style-type: none"> <li>• Building frame structures designed to support weight.</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a range of different shaped frame structures.</li> <li>• Making a variety of free standing frame structures of different shapes and sizes.</li> <li>• Selecting appropriate materials to build a strong structure and cladding.</li> <li>• Reinforcing corners to strengthen a structure.</li> <li>• Creating a design in accordance with a plan.</li> <li>• Learning to create different textural effects with materials</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating structures made by the class.</li> <li>• Describing what characteristics of a design and construction made it the most effective.</li> <li>• Considering effective and ineffective designs.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand what a frame structure is.</li> <li>• To know that a 'free-standing' structure is one which can stand on its own.</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Designing a stable structure that is able to support weight.</li> </ul>	<ul style="list-style-type: none"> <li>• Making a range of different shaped beam bridges.</li> </ul>	<ul style="list-style-type: none"> <li>• Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand some different ways to reinforce structures.</li> <li>• To understand how triangles can be used to reinforce bridges.</li> </ul>

	<ul style="list-style-type: none"> <li>• Creating a frame structure with a focus on triangulation.</li> </ul>	<ul style="list-style-type: none"> <li>• Using triangles to create truss bridges that span a given distance and support a load.</li> <li>• Building a wooden bridge structure.</li> <li>• Independently measuring and marking wood accurately.</li> <li>• Selecting appropriate tools and equipment for particular tasks.</li> <li>• Using the correct techniques to saws safely.</li> <li>• Identifying where a structure needs reinforcement and using card corners for support.</li> <li>• Explaining why selecting appropriating materials is an important part of the design process.</li> <li>• Understanding basic wood functional properties.</li> </ul>	<ul style="list-style-type: none"> <li>• Suggesting points for improvements for own bridges and those designed by others.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that properties are words that describe the form and function of materials.</li> <li>• To understand why material selection is important based on properties.</li> <li>• To understand the material (functional and aesthetic) properties of wood.</li> </ul>
Year 6	<ul style="list-style-type: none"> <li>• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Building a range of play apparatus structures drawing upon new and prior knowledge of structures.</li> <li>• Measuring, marking and cutting wood to create a range of structures.</li> <li>• Using a range of materials to reinforce and add decoration to structures.</li> </ul>	<ul style="list-style-type: none"> <li>• Improving a design plan based on peer evaluation.</li> <li>• Testing and adapting a design to improve it as it is developed.</li> <li>• Identifying what makes a successful structure.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that structures can be strengthened by manipulating materials and shapes.</li> </ul>

## Mechanisms

Skills	Design	Make	Evaluate	Technical
Year 1/2	<ul style="list-style-type: none"> <li>• Creating a class design criteria for a moving monster.</li> <li>• Designing a moving monster for a specific audience in accordance with a design criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• Making linkages using card for levers and split pins for pivots.</li> <li>• Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.</li> <li>• Cutting and assembling components neatly.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating own designs against design criteria.</li> <li>• Using peer feedback to modify a final design.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</li> <li>• To know that there is always an input and output in a mechanism.</li> <li>• To know that an input is the energy that is used to start something working.</li> <li>• To know that an output is the movement that happens as a result of the input.</li> <li>• To know that a lever is something that turns on a pivot.</li> <li>• To know that a linkage mechanism is made up of a series of levers.</li> </ul>
Year 3	<ul style="list-style-type: none"> <li>• Designing a shape that reduces air resistance.</li> <li>• Drawing a net to create a structure from.</li> </ul>	<ul style="list-style-type: none"> <li>• Measuring, marking, cutting and assembling with increasing accuracy.</li> <li>• Making a model based on a chosen design.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that all moving things have kinetic energy.</li> <li>• To understand that kinetic energy is the energy that something (object/person) has by being</li> </ul>

	<ul style="list-style-type: none"> <li>• Choosing shapes that increase or decrease speed as a result of air resistance.</li> <li>• Personalising a design.</li> </ul>			<p>in motion.</p> <ul style="list-style-type: none"> <li>• To know that air resistance is the level of drag on an object as it is forced through the air.</li> <li>• To understand that the shape of a moving object will affect how it moves due to air resistance.</li> </ul>
Year 5	<ul style="list-style-type: none"> <li>• Designing a pop-up book which uses a mixture of structures and mechanisms.</li> <li>• Naming each mechanism, input and output accurately.</li> <li>• Storyboarding ideas for a book.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a design brief to make a pop up book, neatly and with focus on accuracy.</li> <li>• Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</li> <li>• Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating the work of others and receiving feedback on own work.</li> <li>• Suggesting points for improvement</li> </ul>	<ul style="list-style-type: none"> <li>• To know that mechanisms control movement.</li> <li>• To understand that mechanisms can be used to change one kind of motion into another.</li> <li>• To understand how to use sliders, pivots and folds to create paper-based mechanisms.</li> </ul>

### Electrical Systems (KS2 Only)

Skills	Design	Make	Evaluate	Technical
Year 4	<ul style="list-style-type: none"> <li>• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• Making a torch with a working electrical circuit and switch.</li> <li>• Using appropriate equipment to cut and attach materials.</li> <li>• Assembling a torch according to the design and success criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating electrical products.</li> <li>• Testing and evaluating the success of a final product.</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that electrical conductors are materials which electricity can pass through.</li> <li>• To understand that electrical insulators are materials which electricity cannot pass through.</li> <li>• To know that a battery contains stored electricity that can be used to power products.</li> <li>• To know that an electrical circuit</li> </ul>

				must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.
Year 5	<ul style="list-style-type: none"> <li>Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product.</li> <li>Developing design criteria based on findings from investigating existing products.</li> <li>Developing design criteria that clarifies the target user</li> </ul>	<ul style="list-style-type: none"> <li>Altering a product's form and function by tinkering with its configuration.</li> <li>Making a functional series circuit, incorporating a motor.</li> <li>Constructing a product with consideration for the design criteria.</li> <li>Breaking down the construction process into steps so that others can make the product.</li> </ul>	<ul style="list-style-type: none"> <li>Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses.</li> <li>Determining which parts of a product affect its function and which parts affect its form.</li> <li>Analysing whether changes in configuration positively or negatively affect an existing product.</li> <li>Peer evaluating a set of instructions to build a product.</li> </ul>	<ul style="list-style-type: none"> <li>To know that series circuits only have one direction for the electricity to flow.</li> <li>To know when there is a break in a series circuit, all components turn off.</li> <li>To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin.</li> <li>To know a motorised product is one which uses a motor to function.</li> </ul>

## Cooking and Nutrition

Skills	Design	Make	Evaluate	Knowledge
EYFS	<ul style="list-style-type: none"> <li>Designing a soup recipe as a class.</li> <li>Designing soup packaging.</li> </ul>	<ul style="list-style-type: none"> <li>Chopping plasticine safely.</li> <li>Chopping vegetables with support.</li> </ul>	<ul style="list-style-type: none"> <li>Tasting the soup and giving opinions.</li> <li>Describing some of the following when tasting food: look, feel, smell and taste.</li> <li>Choosing their favourite packaging design and explaining why.</li> </ul>	<ul style="list-style-type: none"> <li>To know that soup is ingredients (usually vegetables and liquid) blended together.</li> <li>To know that vegetables are grown.</li> <li>To recognise and name some common vegetables.</li> <li>To know that different vegetables taste different.</li> <li>To know that eating vegetables is good for us.</li> <li>To discuss why different packages might be used for different foods.</li> </ul>
Year 1/2	<ul style="list-style-type: none"> <li>Designing smoothie carton</li> </ul>	<ul style="list-style-type: none"> <li>Chopping fruit and vegetables safely to make a smoothie.</li> </ul>	<ul style="list-style-type: none"> <li>Tasting and evaluating different food combinations.</li> <li>Describing appearance,</li> </ul>	<ul style="list-style-type: none"> <li>To know that a blender is a machine which mixes ingredients together into a smooth</li> </ul>

	packaging by-hand. • Learning where and how fruits and vegetables grow.	Juicing fruits safely to make a smoothie. • Identifying if a food is a fruit.	smell and taste. • Suggesting information to be included on packaging. • Comparing their own smoothie with someone else's.	liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables is any edible part of a plant.
Year 3	• Describing how climate affects where foods grow.	• Identifying seasonal ingredients from the UK. • Following the instructions within a recipe. • Tasting seasonal ingredients. • Peeling foods by hand or with a peeler. • Cutting ingredients safely. • Choosing ingredients based on a design brief.	• Describing the texture and flavour of ingredients. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment.	• To know that seasonal means foods that grow in a given season in a given country. • To know some seasonal foods that grow in the UK and what season they grow in. • To know that eating seasonal foods can have a positive impact on the environment. • To know how to describe the flavour and texture of foods. • To know how to cut a peel safely. • To know that the appearance of food is as important as taste. • To know that similar coloured fruits and vegetables often have similar nutritional benefits.
Year 4	• Designing a biscuit within a given budget. • Conducting market research.	• Following a baking recipe. • Understanding safety and hygiene rules. • Adapting a recipe.	• Evaluating an adapted recipe. • Evaluating and comparing a range of products. • Suggesting modifications.	• To know that the amount of an ingredient in a recipe is known as the 'quantity.' • To know that safety and hygiene are important when cooking. • To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping. • To know the importance of budgeting while planning ingredients for a recipe. • To know that products often have a target audience.
Year 5	• Researching existing recipes. • Suggesting alternative ingredients. •	• Writing an alternative recipe. • Understanding cross-contamination. • Using preparation skills. • Making a developed recipe.	• Explaining the farm to fork process. • Analysing nutritional content.	• To know that beef comes from cows reared on farms. • To know that recipes can be adapted to suit nutritional needs and dietary requirements. • To know that nutritional information is found on food packaging. • To know that coloured chopping boards can



	Designing a jar label			prevent cross-contamination. • To know that food packaging serves many purposes.
Year 6	<ul style="list-style-type: none"> <li>• Writing a recipe, explaining the key steps, method and ingredients. • Including facts and drawings from research undertaken.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a recipe, including using the correct quantities of each ingredient. • Adapting a recipe based on research. • Working to a given timescale. • Working safely and hygienically with independence.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating a recipe, considering: taste, smell, texture and origin of the food group. • Taste testing and scoring final products. • Suggesting and writing up points of improvements in productions. • Evaluating health and safety in production to minimise cross contamination.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that 'flavour' is how a food or drink tastes. • To know that many countries have 'national dishes' which are recipes associated with that country. • To know that 'processed food' means food that has been put through multiple changes in a factory. • To understand that it is important to wash fruit and vegetables before eating to remove any dirt and insecticides. • To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).</li> </ul>

<u>Textiles</u>				
Skills	Design	Make	Evaluate	Knowledge
EYFS	<p>Discussing what a good design needs. • Designing a simple pattern with paper. • Designing a bookmark. • Choosing from available materials.</p>	<ul style="list-style-type: none"> <li>• Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials. • Using a prepared needle and wool to practise threading.</li> </ul>	<ul style="list-style-type: none"> <li>• Reflecting on a finished product and comparing to their design.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that a design is a way of planning our idea before we start. • To know that threading is putting one material through an object.</li> </ul>
Year 6	<ul style="list-style-type: none"> <li>• Designing a waistcoat in accordance to a</li> </ul>	<ul style="list-style-type: none"> <li>• Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric</li> </ul>	<ul style="list-style-type: none"> <li>• Reflecting on their work continually throughout the</li> </ul>	<ul style="list-style-type: none"> <li>• To understand that it is important to design clothing with the client/ target customer in mind. • To know that using a template (or</li> </ul>

	<p>specification linked to set of design criteria. • Annotating designs, to explain their decisions.</p>	<p>without creases or bulges. • Marking and cutting fabric accurately, in accordance with their design. • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a waistcoat, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches.</p>	<p>design, make and evaluate process.</p>	<p>clothing pattern) helps to accurately mark out a design on fabric. • To understand the importance of consistently sized stitches</p>
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