



Design Technology Curriculum Overview



	Term 1		Term 2		Term 3		Term 4		Term 5		Term 6	
	A	B	A	B	A	B	A	B	A	B	A	B
Year 1/2					Food: A Balanced Diet	Mechanisms: Moving Story Book			Structures: Windmills	Textiles: Puppets		
Year 3/4					Textiles: Egyptian Collars	Food: Eating Seasonally			Mechanical Systems: Pneumatic Toys	Electrical Systems: Electric Poster		
Year 5/6					Mechanical Systems: Pop-Up Book	Food: What Could be Healthier?			Structures: Playgrounds	Electrical Systems: Steady Hand Game		

National Curriculum Subject Content												
Key Stage 1							Key Stage 2					
Pupils should be taught:							Pupils should be taught:					
Design:							Design:					
<ul style="list-style-type: none"> Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. 							<ul style="list-style-type: none"> Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer aided design. 					
Make:							<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining and finishing). Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. 					
Evaluate:							<ul style="list-style-type: none"> Select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining and finishing) accurately. Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities. 					
Technical Knowledge:							Evaluate:					
<ul style="list-style-type: none"> Build structures, exploring how they can be made stronger, stiffer and more stable. Explore and use mechanisms (e.g. levers, sliders, wheels and axles), in their products. 							<ul style="list-style-type: none"> Investigate and analyse a range of existing products. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. Understand how key events and individuals in design and technology have helped shape the world. 					
Cooking and Nutrition:												

<ul style="list-style-type: none"> • Use the basic principles of a healthy and varied diet to prepare dishes. • Understand where food comes from. 	<p>Technical Knowledge:</p> <ul style="list-style-type: none"> • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. • Understand and use mechanical systems in their products (e.g. gears, pulleys, cams, levers and linkages). • Understand and use electrical systems in their products (e.g. series circuits incorporating switches, bulbs, buzzers and motors). • Apply their knowledge of computing to programme, monitor and control their products. <p>Cooking and Nutrition:</p> <ul style="list-style-type: none"> • Understand and apply the principles of a healthy and varied diet. • Prepare and cook a variety or predominately savoury dishes using a range of cooking techniques. • Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.
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EYFS

Children in EYFS will be learning to:

- Return to and build on their previous learning, refining ideas and developing their ability to represent them.
- Create collaboratively, sharing ideas, resources and skills.

Progression of Knowledge

		Year 1/2	Year 3/4	Year 5/6
Structures	Technical	<ul style="list-style-type: none"> • To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together 		<ul style="list-style-type: none"> • To know that structures can be strengthened by manipulating materials and shapes.

	Additional	<ul style="list-style-type: none"> To know that a client is the person I am designing for. To know that design criteria is a list of points to ensure the product meets the clients' needs and wants. To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. To know that windmill turbines use wind to turn and make the machines work. To know that a windmill is a structure with sails that are moved by the wind. To know the three main parts of a windmill are the turbine, axle and structure. 		<ul style="list-style-type: none"> To understand what a 'footprint plan' is. To understand that in the real world, design can impact users in positive and negative ways. To know that a prototype is a cheap model to test a design idea
Mechanisms and Mechanical Systems	Technical	<ul style="list-style-type: none"> To know that a mechanism is the parts of an object that move together. To know that a slider mechanism moves an object from side to side. To know that a slider mechanism has a slider, slots, guides and an object. To know that bridges and guides are bits of card that purposefully restrict the movement of the slider 	<ul style="list-style-type: none"> To understand how pneumatic systems work. To understand that pneumatic systems can be used as part of a mechanism. To know that pneumatic systems operate by drawing in, releasing and compressing air. 	<ul style="list-style-type: none"> To know that mechanisms control movement. To understand that mechanisms can be used to change one kind of motion into another. To understand how to use sliders, pivots and folds to create paper-based mechanisms.
	Additional	<ul style="list-style-type: none"> To know that in Design and technology we call a plan a 'design'. 	<ul style="list-style-type: none"> To understand how sketches, drawings and diagrams can be used to communicate design ideas. To know that exploded-diagrams are used to show how different parts of a product fit together. To know that thumbnail sketches are small drawings to get ideas down on paper quickly. 	<ul style="list-style-type: none"> To know that a design brief is a description of what I am going to design and make. To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.
Electrical	Technical		<ul style="list-style-type: none"> To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit. 	<ul style="list-style-type: none"> To know that batteries contain acid, which can be dangerous if they leak. To know the names of the components in a basic series circuit, including a buzzer

		<ul style="list-style-type: none"> • To understand common features of an electric product (switch, battery or plug, dials, buttons etc.). • To list examples of common electric products (kettle, remote control etc.). • To understand that an electric product uses an electrical system to work (function). • To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits. 	
Additional		<ul style="list-style-type: none"> • To understand the importance and purpose of information design. • To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached). 	<ul style="list-style-type: none"> • To know that 'form' means the shape and appearance of an object. • To know the difference between 'form' and 'function'. • To understand that 'fit for purpose' means that a product works how it should and is easy to use. • To know that form over purpose means that a product looks good but does not work very well. • To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind. • To understand the diagram perspectives 'top view', 'side view' and 'back'

Cooking and Nutrition Technical	<ul style="list-style-type: none"> To know that 'diet' means the food and drink that a person or animal usually eats. To understand what makes a balanced diet. To know where to find the nutritional information on packaging. To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar. To understand that I should eat a range of different foods from each food group, and roughly how much of each food group. To know that nutrients are substances in food that all living things need to make energy, grow and develop. To know that 'ingredients' means the items in a mixture or recipe. To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy. To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars' 	<ul style="list-style-type: none"> To know that not all fruits and vegetables can be grown in the UK. To know that climate affects food growth. To know that vegetables and fruit grow in certain seasons. To know that cooking instructions are known as a 'recipe'. To know that imported food is food which has been brought into the country. To know that exported food is food which has been sent to another country.. To understand that imported foods travel from far away and this can negatively impact the environment. To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. To know safety rules for using, storing and cleaning a knife safely. To know that similar coloured fruits and vegetables often have similar nutritional benefits. 	<ul style="list-style-type: none"> To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. To know that I can adapt a recipe to make it healthier by substituting ingredients. To know that I can use a nutritional calculator to see how healthy a food option is. To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects
Textiles	<ul style="list-style-type: none"> To know that 'joining technique' means connecting two pieces of material together. To know that there are various temporary methods of joining fabric by using staples, glue or pins. To understand that different techniques for joining materials can be used for different purposes. To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. To know that drawing a design idea is useful to see how an idea will look. 	<ul style="list-style-type: none"> To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. To know that when two edges of fabric have been joined together it is called a seam. To know that it is important to leave space on the fabric for the seam. To understand that some products are turned inside out after sewing so the stitching is hidden 	

Progression of Skills

		Year 1/2	Year 3/4	Year 5/6
Structures	Design	<ul style="list-style-type: none"> Learning the importance of a clear design criteria. Including individual preferences and requirements in a design 		<ul style="list-style-type: none"> Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
	Make	<ul style="list-style-type: none"> Making stable structures from card, tape and glue . Learning how to turn 2D nets into 3D structures. Following instructions to cut and assemble the supporting structure of a windmill. Making functioning turbines and axles which are assembled into a main supporting structure 		<ul style="list-style-type: none"> Building a range of play apparatus structures drawing upon new and prior knowledge of structures. Measuring, marking and cutting wood to create a range of structures. Using a range of materials to reinforce and add decoration to structures
	Evaluate	<ul style="list-style-type: none"> Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't Suggest points for improvements. 		<ul style="list-style-type: none"> Improving a design plan based on peer evaluation. Testing and adapting a design to improve it as it is developed. Identifying what makes a successful structure.
Mechanisms and Mechanical Systems	Design	<ul style="list-style-type: none"> Explaining how to adapt mechanisms, using bridges or guides to control the movement. Designing a moving story book for a given audience 	<ul style="list-style-type: none"> Designing a toy which uses a pneumatic system. Developing design criteria from a design brief. Generating ideas using thumbnail sketches and exploded diagrams. Learning that different types of drawings are used in design to explain ideas clearly. 	<ul style="list-style-type: none"> Designing a pop-up book which uses a mixture of structures and mechanisms. Naming each mechanism, input and output accurately. Storyboarding ideas for a book
	Make	<ul style="list-style-type: none"> Following a design to create moving models that use levers and sliders. 	<ul style="list-style-type: none"> Creating a pneumatic system to create a desired motion. Building secure housing for a pneumatic system. 	<ul style="list-style-type: none"> Following a design brief to make a pop up book, neatly and with focus on accuracy. Making mechanisms and/or structures using sliders, pivots and folds to

		<ul style="list-style-type: none"> Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. Selecting materials due to their functional and aesthetic characteristics. Manipulating materials to create different effects by cutting, creasing, folding and weaving. 	<ul style="list-style-type: none"> produce movement. Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.
Evaluate	<ul style="list-style-type: none"> Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. Reviewing the success of a product by testing it with its intended audience 	<ul style="list-style-type: none"> Using the views of others to improve designs. Testing and modifying the outcome, suggesting improvements. Understanding the purpose of exploded-diagrams through the eyes of a designer and their client. 	<ul style="list-style-type: none"> Evaluating the work of others and receiving feedback on own work. Applying points of improvement to their toys. Describing changes they would make/do if they were to do the project again.
Electrical Systems	Design	<ul style="list-style-type: none"> Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas. Generate a final design for the electric poster with consideration to the client's needs and design criteria. Design an electric poster that fits the requirements of a given brief. Plan the positioning of the bulb (circuit component) and its purpose 	<ul style="list-style-type: none"> Designing a steady hand game - identifying and naming the components required. Drawing a design from three different perspectives. Generating ideas through sketching and discussion. Modelling ideas through prototypes. Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'
	Make	<ul style="list-style-type: none"> Create a final design for the electric poster. 	<ul style="list-style-type: none"> Constructing a stable base for a game.

		<ul style="list-style-type: none"> Mount the poster onto corrugated card to improve its strength and allow it to withstand the weight of the circuit on the rear. Measure and mark materials out using a template or ruler. Fit an electrical component (bulb). Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge). 	<ul style="list-style-type: none"> Accurately cutting, folding and assembling a net. Decorating the base of the game to a high quality finish. Making and testing a circuit. Incorporating a circuit into a base 	
	Evaluate	<ul style="list-style-type: none"> Learning to give and accept constructive criticism on own work and the work of others. Testing the success of initial ideas against the design criteria and justifying opinions. Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs. 	<ul style="list-style-type: none"> Testing own and others finished games, identifying what went well and making suggestions for improvement. Gathering images and information about existing children's toys. Analysing a selection of existing children's toys 	
Cooking and Nutrition	Design	<ul style="list-style-type: none"> Designing a healthy wrap based on a food combination which works well together 	<ul style="list-style-type: none"> Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish 	<ul style="list-style-type: none"> Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. Writing an amended method for a recipe to incorporate the relevant changes to ingredients. Designing appealing packaging to reflect a recipe
	Make	<ul style="list-style-type: none"> Slicing food safely using the bridge or claw grip. Constructing a wrap that meets a design brief 	<ul style="list-style-type: none"> Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. Following the instructions within a recipe. 	<ul style="list-style-type: none"> Cutting and preparing vegetables safely. Using equipment safely, including knives, hot pans and hobs. Knowing how to avoid cross-contamination. Following a step by step method carefully to make a recipe
	Evaluate	<ul style="list-style-type: none"> Describing the taste, texture and smell of fruit and vegetables. Taste testing food combinations and final products. 	<ul style="list-style-type: none"> Establishing and using design criteria to help test and review dishes. Describing the benefits of seasonal fruits and vegetables and the impact on the environment. 	<ul style="list-style-type: none"> Identifying the nutritional differences between different products and recipes. Identifying and describing healthy benefits of food groups

		<ul style="list-style-type: none"> Describing the information that should be included on a label. Evaluating which grip was most effective 	<ul style="list-style-type: none"> Suggesting points for improvement when making a seasonal tart. 	
	Design	<ul style="list-style-type: none"> Using a template to create a design for a puppet. 	<ul style="list-style-type: none"> Designing and making a template from an existing cushion and applying individual design criteria 	
	Make	<ul style="list-style-type: none"> Cutting fabric neatly with scissors. Using joining methods to decorate a puppet. Sequencing the steps taken during construction. 	<ul style="list-style-type: none"> Following design criteria to create an Egyptian collar. Selecting and cutting fabrics with ease using fabric scissors. Threading needles with greater independence. Tying knots with greater independence. Sewing cross stitch to join fabric. Decorating fabric using appliquéd. Completing design ideas with embellishing on the collars based on design ideas. 	
	Evaluate	<ul style="list-style-type: none"> Reflecting on a finished product, explaining likes and dislikes 	<ul style="list-style-type: none"> Evaluating an end product and thinking of other ways in which to create similar items 	