



Progression of Learning Objectives

“Design and Technology should be where mathematical brainboxes and science whizzkids turn their bright ideas into useful products.”

James Dyson

DT: Key Stage Two

National Curriculum

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts (for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment).

Design	Make	Evaluate	Technical Knowledge	Cooking and Nutrition
<p>When designing, pupils will be taught to - 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.</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p>	<p>When making, pupils will be taught to -Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>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.</p>	<p>When evaluating, pupils will be taught to - Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p>	<p>Pupils will be taught to - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <p>Understand and use mechanical systems in their products. For example, gears, pulleys, cams, levers and linkages.</p> <p>Understand and use electrical systems in their products. For example, series circuits incorporating switches, bulbs, buzzers and motors.</p> <p>Apply their understanding of computing to program, monitor and control their products.</p>	<p>Pupils will be taught to - Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</p>

DT Coverage: Key Stage Two

	Year 3	Year 4	Year 5	Year 6
Mechanical Systems	Moving Monsters	Electricity and circuits – own invention		Mechanism (Electric Motors and Pulleys)
Structures		Coastal/Living things Pop Up books	Kite Making	
Textiles	Puppets	Trainer Design	Christmas Stockings	Sewing and Textiles
Food Technology	Food Technology	Mediterranean diet		Food Preparation and Cooking

DT: Key Stage Two

Topics Include:

	Mechanical Systems	Structures	Textiles	Food Technology
Year 3	<p>Moving Monsters <u>Planning Process</u> With growing confidence generate ideas for an item, considering its purpose and the user/s.</p> <ul style="list-style-type: none"> • Start to order the main stages of making a product. • Identify a purpose and establish criteria for a successful product. • Understand how well products have been designed, made, what materials have been used and the construction technique. • Start to understand whether products can be recycled or reused • Know to make drawings with labels when designing. • When planning explain their choice of materials and components including function and aesthetics. • Put together a step-by-step plan which shows the order and also what equipment and tools they need <p><u>Selecting and working with tools</u></p> <ul style="list-style-type: none"> • Select a wider range of tools and techniques for making their product i.e textiles, mechanical components – syringes and tubing • Explain their choice of tools and equipment in relation to the skills and techniques they will be using. • Start to understand that mechanical systems have an input, process and output. 		<p>Puppets <u>Planning Process</u> With growing confidence generate ideas for an item, considering its purpose and the user/s.</p> <ul style="list-style-type: none"> • Start to order the main stages of making a product. • Identify a purpose and establish criteria for a successful product. • Understand how well products have been designed, made, what materials have been used and the construction technique. • Start to understand whether products can be recycled or reused • Know to make drawings with labels when designing. • When planning explain their choice of materials and components including function and aesthetics. • Put together a step-by-step plan which shows the order and also what equipment and tools they need <p><u>Selecting and working with tools</u></p> <ul style="list-style-type: none"> • Select a wider range of tools and techniques for making their product i.e textiles, mechanical components – syringes and tubing • Explain their choice of tools and equipment in relation to the skills and techniques they will be using. • Measure, mark out, cut, score and assemble components with more accuracy. <ul style="list-style-type: none"> • Start to work safely and accurately with a range of simple tools. • Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. 	<p>Food and Nutrition</p> <ul style="list-style-type: none"> • Start to know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world. • Understand how to prepare and cook a variety of dishes including experience of using a heat source. • Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. • Know how a healthy diet is made up from a variety and balance of different food and drink • Begin to know that to be active and healthy, food and drink are needed to provide energy for the body (and begin to distinguish healthy high energy foods) • Be able to identify foods which come from the UK and other countries in the world • Be able to measure ingredients accurately and understand why this is important <p>Food and Nutrition - Vocabulary Healthy eating Hygiene Ingredients Nutrition Diet</p>

<ul style="list-style-type: none"> • Start to understand that mechanical systems such as pneumatics can create movement. • Measure, mark out, cut, score and assemble components with more accuracy. <ul style="list-style-type: none"> • Start to work safely and accurately with a range of simple tools. • Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work. • Use equipment safely • Attempt to make sure that their product looks attractive • Select the most appropriate tools and techniques to use for a given task • Try alternative ways of fixing something if the first attempt is not successful <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose • Suggest some improvements and say what was good and not so good about their original design <p>Moving Monster - Vocabulary Pneumatics Syringe Construction Prototype Investigate Evaluate Design</p>		<ul style="list-style-type: none"> • Start to measure, tape or pin, cut and join fabric with some accuracy. • Use equipment safely • Attempt to make sure that their product looks attractive • Make choices of material both for its appearance and qualities • Select the most appropriate tools and techniques to use for a given task • Work accurately to make cuts and holes – e.g. to measure and then use equipment to cut. • Try alternative ways of fixing something if the first attempt is not successful • Join fabrics using a running stitch. <p><u>Evaluating</u></p> <ul style="list-style-type: none"> • Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose • Suggest some improvements and say what was good and not so good about their original design. <p>Puppets - Vocabulary Prototype Investigate Evaluate Design Textiles Stitch</p>	
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Year 4	<p>Electricity and Circuits – Own Invention</p> <ul style="list-style-type: none"> • To research electrical devices • To evaluate the key designs of individuals in design and technology that have helped shape the world • To design and create an annotated sketch of an electrical device that serves a specific purpose and incorporate a series circuit based on research • To know how to reinforce and strengthen a 3D framework to support an electrical circuit • To measure, mark out, cut, score and assemble components with more accuracy • To select a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • To evaluate my own work and others against initial sketches and provide constructive feedback <p>Electricity and Circuits – Own Invention – Vocabulary</p> <p>Circuits Construction Prototype Investigate Design Evaluate Electrical device / equipment Framework Sketch Tools</p>	<p>Coastal/Living Things Pop Up books</p> <ul style="list-style-type: none"> • To research Pop-up books and devices • To analyse and investigate a range of existing Pop-up books and identify how they are constructed • To use research and develop design criteria to inform the design of an innovative, functional and appealing product that is fit for the purpose of a younger audience • To design and create ideas through discussion leading to the construction of a pop-up linkage prototype • To measure, mark out, cut, score and assemble components with more accuracy • To use a range of materials and components, including construction materials according to their functional properties and aesthetic qualities to create a pop-up book for a younger audience (Geography link – Coastal locations) • To select a range of tools and equipment to perform practical tasks [for example, cutting, joining and finishing], accurately • To understand and use mechanical systems in their products – levers and linkages • To evaluate my own work and others against initial sketches and provide constructive feedback <p>Coastal/Living Things Pop Up books – Vocabulary</p> <p>Lever Pop up Construction Investigate Evaluate Prototype Design Pop up book Linkage Pivot point Audience</p>	<p>Trainer Design</p> <ul style="list-style-type: none"> • To evaluate existing trainer designs • To sketch and label trainer designs paying attention to functionality and appeal • To carry out research about trainers • To check work against design criteria to ensure success • To evaluate one another’s trainer design work and provide constructive criticism • To improve the design of the trainer design in response to the views of others <p>Trainer Design – Vocabulary</p> <p>Construction Investigate Evaluate Design Functionality Superhero Catapult Superpower Trainer Appeal Aesthetic</p>	<p>Mediterranean Diet</p> <ul style="list-style-type: none"> • To research ingredients and dishes from other countries and cultures • To understand the role that food played in the Roman/Greek way of life • To use a range of practical equipment safely • To demonstrate key skills (bridge/claw, grating) when cooking • To produce dishes that are both functional and aesthetic • To understand and demonstrate both hand hygiene and body hygiene in the kitchen <p>Mediterranean diet – Vocabulary</p> <p>Diet Healthy eating Hygiene Ingredients Investigate Evaluate Nutrition Design Mediterranean Healthy</p>
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Year 5		<p>Kite Making</p> <ul style="list-style-type: none"> • To evaluate already made products, looking for strengths and areas to develop. • To develop a detailed design with accompanying labels. • To know the history of kites, in terms of when they were first used, how they have developed and some famous kite flyers. • To learn about different types of kites and their strengths and weaknesses. • To be able to join different materials together in a strong but light way. Understanding how to strengthen if necessary. • To attach materials together in both permanent and non-permanent ways. • To evaluate a finished product and comment on how things could be improved next time (relate this to the original design). <p>Kite Making – Vocabulary</p> <p>Tow point Line Bridle Spar Keel Sail Tail</p>	<p>Sewing</p> <ul style="list-style-type: none"> • To evaluate already made products, looking for strengths and areas to develop. • To develop a detailed design with accompanying labels. • To know the stories behind why Christmas stockings were first used and why the stories are different from one another. • To learn a number of different stitches and evaluate the strengths and weaknesses of these (running, back, cross and blanket). • To know which stitch is most appropriate for different parts of the stocking (joining the main part of the stocking, adding additional material, adding names, adding buttons/bells, etc.) • To evaluate a finished product and comment on how things could be improved next time (relate this to the original design). <p>Sewing – Vocabulary</p> <p>Pattern Template Running stitch Back stitch Cross stitch Blanket stitch Felt Thread Needle (eye)</p>	
Year 6	<p>Mechanism (electric motors and pulleys)</p> <ul style="list-style-type: none"> • Children will research existing products in order to generate their own ideas. • Children will understand how electrical systems, gears and pulleys can be used to create movement through focus practical tasks. • Children will create a range of designs linked to the design criteria. • Children will use annotated and exploded diagrams to present their final design. • Children will understand the importance of creating detailed step-by-step plans. • Children will use their knowledge of electrical systems, structures and 		<p>Sewing and Textiles</p> <ul style="list-style-type: none"> • Children will learn about the following fabrics: cotton, linen and wool. They will understand that each fabric has different purposes. • Children will learn about embroidery. • Children will learn about tapestry and research the Bayeux tapestry and the Holy Grail Tapestry. • Children will build on their experience of using back, running, blanket and cross-stitch. • Some children will develop their sewing skills further and learn some of the following stitches: chain, herringbone, French knot and buttonhole stitches. • Children will learn about Lucy Sparrow, who is an artist. She makes many creations with her 	<p>Food preparation and cooking</p> <p>Children will learn the following methods.</p> <p>Knife Skills</p> <ul style="list-style-type: none"> • Bridge cut (soft and hard foods) • Claw cut (soft and hard foods) • Fine Chopping and snipping of herbs <p><u>Baking Skills</u></p> <ul style="list-style-type: none"> • Sieving • Cracking/beating/separating eggs • Rubbing (using fingertips) fat into flour • Creaming fat and sugar • Folding flour in to mix • Dividing and pouring mixtures into containers • Mixing to form a dough (bread making), • kneading and shaping

<p>mechanical systems to enable their product to function.</p> <ul style="list-style-type: none"> • Children will learn to select the most suitable materials, measure accurately and be able to select and use a range of tools correctly and safely. • Children will critically evaluate their products functionality and against the design criteria, offering solutions and changes to improve their work. • To make a moving fairground ride: <ol style="list-style-type: none"> 1. Measure and marking skills 2. Select and use appropriate tools 3. Strengthening skills 4. Joining skills 5. To evaluate and improve through the making process 6. Finishing skills linked to art and design 7. Show awareness of safe practice <p>Mechanism (electric motors and pulleys) – Vocabulary</p> <p>Circuit Series circuit Parallel circuit Cell Switch Motor Voltage Mechanism Framework Rotation Gears Cogs Driver Drive belt Follower Idle gear Pulley Drive shaft Spindle Carousel</p>		<p>sewing skills and the children will be exposed to some of her work.</p> <ul style="list-style-type: none"> • Children will combine their knowledge and skills of sewing and textiles to create a final article, which will be linked and themed with their geography topic: Mountains and the lakes. <p>Sewing and Textiles – Vocabulary</p> <p>Cotton Wool Linen Embroidery Running stitch Back stitch Chain stitch Tapestry</p>	<ul style="list-style-type: none"> • Handling and rolling pastry • Glazing and brushing pastry <p><u>Measuring Skills</u></p> <ul style="list-style-type: none"> • Measuring with cups and spoons • Using scales(balancing/resetting/setting to 0 and adding measures) • Use jugs to measure liquids. • Children will learn how to measure using a range of units and be able to convert units when necessary. <p><u>More Skills</u></p> <ul style="list-style-type: none"> • Tearing (salad) • Arranging ingredients/toppings • Spreading (spoon or knife) • Scooping (melon) • Mashing (fork and masher) • Crushing/peeling/chopping garlic • Beating ingredients together • Shaping mixtures (burgers/fishcakes) • Making and using bread crumbing • Garnishing and decorating • Using the hob (under adult supervision) • Children will review the importance of a balanced diet (prior learning). • Children will review the importance of different nutrients (prior learning). • Children will learn about current issue such as the obesity crisis. • Children will debate current topics such as sugar tax (pros and cons). <p>Food Preparation and Cooking – Vocabulary</p>
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***Year 6 Fiver Challenge**

- To research existing products online
- To test existing products
- To carry out surveys to find a suitable product
- To design and plan my products based on the target audience
- To select appropriate materials and tools to use in order to make my product
- To evaluate and carry out product control to ensure quality of product
- To use advertising to promote my product