



Hale CE Primary School

2024-2025

Design Technology Curriculum overview

	Autumn	Spring	Summer
Year 1	<p>Mechanisms In this unit, children will focus on sliders and levers. Children will explore and evaluate a collection of books and everyday products that have moving parts including those with levers and sliders. Following this, they will work towards designing and making their own moving picture book. STEM- Moving Pictures-Sliders and Levers.</p>	<p>Structures This unit will teach children how to design and build a chair for Little Bear in the story of Goldilocks. Children will learn about the style of different chairs, considering different materials and make their own models according to their design. To evaluate their work, they will test whether the chair will stand alone and hold Little Bear.</p>	<p>Preparing fruit and vegetables In this unit, children will examine a range of fruit and vegetables. The children will be provided with opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a fruit kebab and dip.</p>
Year 2	<p>Mechanisms In this unit, children will focus on wheels and axles. The children will have the opportunity to explore and evaluate a range of wheeled products such as toy vehicles and everyday objects. Children will be taught how to mark out, hold, cut and join materials and components correctly. Using a sample of materials and components, children will assemble some examples of wheel, axle and axle holder combinations. After distinguishing between fixed and freely moving axles, children will generate initial ideas and simple design criteria before making their own moving vehicle. They will evaluate their ideas and product against their design criteria. STEM- Roly Poly.</p>	<p>Textiles In this unit, children will learn to develop a product from the stimulus of a commercial idea. Children will investigate and evaluate fridge magnets. They will make drawings of existing products, stating the user and purpose. They will get the opportunity to conduct a simple survey of their class related to fridge magnets. Thinking of an image in layers, they will demonstrate techniques of cutting, joining and layering paper, they will create and use a template and develop simple line images. After making their product, they will evaluate their work against the intended purpose and the intended user and consider why an image might be popular. STEM- What should be stuck on your fridge?</p>	<p>Preparing fruit and vegetables In this unit, children will develop on skills taught in Year 1 in order to create a fruit jelly. The children will be able to consolidate their prior knowledge of fruit and vegetables by having further opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a fruit jelly. The children will have the opportunity to use a variety of tools to practise a range of food-processing skills such as cutting and grating.</p>
Year 3	<p>Mechanical systems In this unit, children will be introduced to pneumatics. The children will build on their prior learning from exploring simple mechanisms such as sliders and levels, and simple structures. They will investigate, analyse and evaluate familiar objects that use air to make them work. Building on their previous units of work, children will understand ways in which pneumatic systems can be used to operate levers. The children will develop a design brief considering the purpose and users of the product. They will design using annotated sketches and consider the main stages in making before assembling their product. After making their product, they will evaluate their work against the intended purpose and the intended user.</p>	<p>Textiles In this unit, children will have the opportunity to create a 3D product from a 2D shape. Children will investigate a range of textile products that a selection of stitches, joins, fabrics, finishing techniques, fastenings and purposes. Children will build on their prior knowledge of joining fabrics in simple ways, using simple patterns and templates for marking out, and evaluating a range of textile products. They will be given the opportunity to disassemble products to gain an understanding of 3D shape, patterns and seam allowances. They will design and make a pencil case whilst developing an understanding of back stitch, backward running stitch, over sew stitch, blanket stitch and running stitch. They will complete their products with possible fastenings such as buttons and Velcro. The children will evaluate their final product in relation to their design brief and criteria. The product should be tested by the intended user and for its purpose and others' views sought to help with identifying possible improvements.</p>	<p>Electrical systems In this unit, the children are challenged to make simple series circuits for steady hand games. Children will have the opportunity to discuss and investigate different examples of steady hand games. They will generate a range of ideas and design criteria that can be used to guide the development and evaluation of their products, including safety features. Children will build on their design skills by producing annotated sketches, cross-sectional and exploded diagrams. The children will select from and use tools and equipment to cut, shape, join and finish with some accuracy to prepare a suitable housing for the circuitry, assemble the circuit and produce a wand and maze layout for the game. They will learn about how simple circuits work and what is meant by the terms 'make' and 'break' when referring to the flow of current around a circuit. They will evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. STEM- Exciting electricity.</p>

	Autumn	Spring	Summer
Year 4	<p>Mechanical systems In this unit, the children will develop on prior mechanical units by focusing on levers and linkages. The children will investigate, analyse and evaluate books and cards that have a range of lever and linkage mechanisms. Children will generate a range of ideas and design criteria that will be used to guide the development and evaluation of their products. Using annotated sketches and prototypes, children will develop their design ideas. After considering the main stages, they will assemble high-quality products, drawing on their knowledge and skills. The children will evaluate their final product against the intended purpose and with the intended user, drawing on the design criteria previously agreed.</p>	<p>Structures In this unit, the children will build on their previous unit of free standing structures by focusing on bridge structures. They will design and build their own bridges, and test their designs to see how much weight they can hold. Using examples of different types of bridges and also different ways of creating their structures they will determine which designs are the most effective. The children will develop their understanding of stiffening and strengthening their structures by folding and shaping, corrugating, ribbing and laminating. They will use problem solving, perseverance, creativity, cooperation and spatial thinking. They will design and make their bridges thinking about the strengths and weakness of existing designs and evaluate their final structures. STEM- Bridge bonanza.</p>	<p>Electrical systems In this unit, children will develop on their prior learning by creating a nightlight through using simple programming and control. The children will discuss, investigate and disassemble relevant battery-powered products. The children will practise the use of a simple computer control program using an interface box, microcontroller or standalone control box to control output devices. Children will agree on a design criterion that can be used to guide the development and evaluation of the children's products, including safety features. Using annotated sketches, cross-sectional and exploded diagrams, children will design their nightlights. Children will write, test and debug programs that will control the electrical products they have made for a clearly defined purpose such as the bulb on the nightlight switching off after a period of time when the user has gone to sleep. The children will evaluate their ideas and products against their own design criteria and will identify the strengths and areas for improvement in their work.</p>
Year 5	<p>Electrical systems In this unit, the children will develop on prior electrical units by focusing on more complex switches and circuits to design and make a battery powered fan boat. Children will use research to develop a design specification for a functional product that's into account constraints such as time, resources and cost. Ideas will be communicated through annotated sketched and pictorial representations of electrical circuits. They will formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. After selecting and accurately assembling materials children will complete their functional product. After completion, children will test their product to demonstrate its effectiveness for the intended user and purpose.</p>	<p>Mechanical systems cams automata animals In this unit, children will be introduced to different types of movement including rotary, oscillating and reciprocating. They will be given the opportunity to make simple models of different cams after looking at toys which use the cam mechanism. Children will develop an authentic and meaningful design brief communicating their ideas through annotated sketched, indicating the design decisions made, including the location of the components, how they work as a system and the appearance and finishing techniques for the product. After completion, children will test their product to demonstrate its effectiveness for the intended user and purpose, taking into consideration the views of others before evaluating how their work could be improved.</p>	<p>Structures In this unit, the children will develop on prior structure units by focusing on frame structures to create a glider. They will explore forces and flight through a practical challenge, working in teams to investigate materials and then design, make and test their own gliders. They will research basic information about gliders including how they are launched and explore the science of flight, conducting investigations into the materials that they will be using to build the gliders. Using the materials they investigated they will build their gliders and test them to see if they fit the criteria set out in the original challenge. The children will critically evaluate their product against their design specification, intended use and purpose, identifying strengths and areas for development and communicate their findings to their peers. STEM- High Flyers: Building a glider with everyday materials.</p>

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Year 6	<p>Textiles</p> <p>In this unit, the children will develop on previous textile units by combining different fabric shapes to create a felt tablet case. Children will generate innovative ideas through research and develop a design brief and criteria for a design specification. They will explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Ideas will be communicated through talking, drawing, templates, mock-ups and prototypes. Designs will be developed to become purposeful, functional and appealing products that are fit for purpose for the intended user. Children will produce detailed lists of equipment and fabrics relevant to their tasks before formulating step-by-step plans. They will select from and use a range of tools and equipment to make products that are accurately assembled and well finished, working within the constraints of time, resources and cost. Final products will be evaluated referring back to the design brief and design specification and taking into account the views of others when identifying improvements.</p>	<p>Mechanical systems</p> <p>In this unit, the children will develop on previous mechanical units building on their knowledge of axles, axle holders and wheels that are fixed or free moving; their basic understanding of electrical circuits, simple switches and components and their experience of cutting and joining techniques with a range of materials including card, plastic and wood. They will generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources before developing a simple design specification to guide their thinking. Ideas will be communicated through discussion, annotated drawings, exploded drawings and drawings from different views. Children will produce detailed lists of tools, equipment and materials, formulate step-by-step plans and select from and use a range of tools and equipment to make a product that is accurately assembled and well finished. Final products will be evaluated referring back to the design brief and design specification and taking into account the views of others when identifying improvements.</p> <p>Mechanised car.</p>	<p>Electrical systems</p> <p>In this unit, the children will develop on previous electrical units. Children will develop a design specification for a functional product, thinking about the requirements of a light for a particular purpose in terms of, what it should look like and how it might work. They will investigate the performance and working of existing torches before designing their own, developing and communicating their ideas through discussion, annotated, sketched and pictorial representations of electrical circuits. They will competently formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. Children will independently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. Children will continually evaluate and modify the working features of the product and test the system to demonstrate its effectiveness for the intended user and purpose.</p> <p>STEM- What sort of light will work for you?</p>

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cooking and Nutrition – Food Week	<p>Preparing fruit and vegetables Fruit kebab and dip</p> <p>Children will examine a range of fruit and vegetables. The children will be provided with opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a fruit kebab and dip.</p>	<p>Preparing fruit and vegetables Fruit jelly</p> <p>Children will develop on skills taught in Year 1 in order to create a fruit jelly. The children will be able to consolidate their prior knowledge of fruit and vegetables by having further opportunities to handle, smell and taste fruit and vegetables before deciding which would be suitable for a fruit jelly. The children will have the opportunity to use a variety of tools to practise a range of food-processing skills such as cutting and grating.</p>	<p>Healthy and varied diet Pizza</p> <p>Children will build on knowledge learned in KS1 including preparing ingredients safely and hygienically and using equipment and utensils to prepare and combine ingredients. They will plan the main stages of their recipe, listing ingredients, utensils and equipment. Children will select from a range of ingredients and utensils to make their pizzas before evaluating their finished product.</p>	<p>Healthy and varied diet Savoury wraps</p> <p>Children will generate ideas through discussion to develop a design criteria including appearance, taste, texture and aroma or an appealing product. They will plan the main stages of their recipe, listing ingredients, utensils and equipment. Using annotated sketches children will develop and communicate their ideas. Children will select from a range of utensils and ingredients, thinking about sensory characteristics, to make their savoury wraps before evaluating their finished product.</p>	<p>Celebrating culture and seasonality Crepes</p> <p>Children will build on knowledge and skills learned in LKS2 including their understanding about food hygiene, nutrition, healthy eating and a varied diet. Ideas will be communicated through the use of words and annotated sketches. Children will write a step by-step recipe, select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients, make, decorate and present the food product appropriately for the intended user and evaluate the final product with reference back to the brief and specification.</p>	<p>Celebrating culture and seasonality Biscuits</p> <p>Ideas will be communicated through the use of words and annotated sketches. Children will: write a step-by-step recipe, including a list of ingredients, equipment and utensils; select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients; make, decorate and present the food product appropriately for the intended user and purpose and evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</p>

