

EYFS

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function

KS1 -

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage on 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).

When designing and making, pupils should be taught to:

Design

- 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

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms (for example, levers, sliders, wheels and axles) in their products.

Cooking and nutrition

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from

KS2

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

When designing and making, pupils should be taught to:

Design

- 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

- select from and use a wider range of tools and equipment to perform practical tasks [for example, 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

Evaluate

- 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

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products

Cooking and nutrition

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly 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

DT Long Term Overview

Reception	Autumn Term 1	Spring Term 1	Summer Term 1
	<p style="text-align: center;"><u>Construction</u></p> <p>Design and make a bridge for the Gingerbread Man to cross the river <i>(shaping and joining)</i></p> <p>Design and make a boat for the Gingerbread Man <i>(shaping and joining)</i></p> <p style="text-align: center;"><u>Textiles</u></p> <p>Designing and sewing a Gingerbread Man <i>(joining and finishing)</i></p> <p style="text-align: center;"><u>Food</u></p> <p>Make and decorate a Gingerbread Man <i>(choosing ingredients)</i></p>	<p style="text-align: center;"><u>Construction</u></p> <p>Design and make a London Bus using junk modelling materials <i>(cutting, shaping, joining and finishing)</i></p> <p>Design, make and evaluate a picture frame for Mother's Day <i>(cutting, shaping, joining and finishing)</i></p>	<p style="text-align: center;"><u>Construction</u></p> <p>Design, make and evaluate a bear enclosure using modelling clay and natural materials <i>(shaping and joining)</i></p> <p style="text-align: center;"><u>Building structures</u></p> <p>Design, make and evaluate a bear shelter <i>(shaping and joining)</i></p>
	Autumn Term 2	Spring Term 2	Summer Term 2
	<p style="text-align: center;"><u>Construction</u></p> <p>Design and make a musical instrument using junk modelling materials <i>(cutting, shaping, joining and finishing)</i></p>		<p style="text-align: center;"><u>Food</u></p> <p>Plan, make and evaluate a vegetable kebab <i>(Healthy diet & where food comes from)</i></p>
Year 1	Autumn Term 1	Spring Term 1	Summer Term 1
	<p style="text-align: center;"><u>Food -</u></p> <p>Plan, make and evaluate a sandwich for a journey to the South Pole <i>(healthy diet & where food comes from)</i></p>	<p style="text-align: center;"><u>Construction -</u></p> <p>Design and make a puppet <i>(cutting, shaping, joining and finishing)</i></p>	

	<p><i>Autumn Term 2</i></p> <p><u>Building Structures</u> Design and build a cage for Nibbles <i>(exploring how they can be made stronger, stiffer and more stable)</i></p>	<p><i>Spring Term 2</i></p>	<p><i>Summer Term 2</i></p> <p><u>Building Structures</u> Design, make and evaluate a boat that will float <i>(exploring how they can be made stronger, stiffer and more stable) (evaluate against a set criteria)</i></p>
<i>Year 2</i>	<p><i>Autumn Term 1</i></p>	<p><i>Spring Term 1</i></p>	<p><i>Summer Term 1</i></p>
	<p><i>Autumn Term 2</i></p> <p><u>Food -</u> Plan, food for an owl <i>(choosing ingredients)</i> <u>Construction -</u> Plan, make and evaluate a bird feeder from recycled materials <i>(investigate similar products, use range of materials, how product meets needs of the user)</i></p>	<p><i>Spring Term 2</i></p> <p><u>Textiles</u> Designing and sewing a heraldic shield <i>(cutting, shaping, joining and finishing)</i></p>	<p><i>Summer Term 2</i></p> <p><u>Mechanisms</u> Making a pulley system for a boat lift <i>(levers and slides)</i></p>
<i>Year 3</i>	<p><i>Autumn Term 1</i></p>	<p><i>Spring Term 1</i></p>	<p><i>Summer Term 1</i></p> <p><u>Building Structures</u> Design, make and evaluate a bridge <i>(exploring how they can be made stronger, stiffer and more stable) (evaluate against a set criteria)</i></p>
	<p><i>Autumn Term 2</i></p> <p><u>Construction</u> Design and make a snow scene in a box lid <i>(cutting, shaping, joining and finishing)</i></p>	<p><i>Spring Term 2</i></p> <p><u>Textiles</u> Create a hanging felt design sewing <i>(cutting, shaping, joining and finishing)</i></p>	<p><i>Summer Term 2</i></p>

Year 4	Autumn Term 1	Spring Term 1	Summer Term 1
	Autumn Term 2	Spring Term 2	Summer Term 2
	<p><u>Food</u> Design, make and evaluate a Greek salad (healthy & varied diet) (seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed)</p>	<p><u>Construction</u> Design, make and evaluate a Roman shield (explore how to strengthen, stiffen and reinforce more complex structures) (evaluate ideas and products against own design criteria and consider views of others to improve work)</p>	<p><u>Structures</u> Design, make and evaluate a Rain forest shelter (explore how to strengthen, stiffen and reinforce more complex structures) (evaluate ideas and products against own design criteria and consider views of others to improve work)</p>
Year 5	Autumn Term 1	Spring Term 1	Summer Term 1
	<p><u>Evaluate</u> Understanding how individuals in design and technology have helped shape the world</p>	<p><u>Food</u> Design, make and evaluate superfood for a superhero - flapjack/granola (healthy & varied diet) (seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed)</p>	
	Autumn Term 2	Spring Term 2	Summer Term 2
		<p><u>Coding - Technical Knowledge</u> Design and make a moving space buggy using CAD - Purple Mash OR Design and make a moving space buggy (explore & use mechanisms using wheels & axis) (using computer aided design)</p>	

<i>Year 6</i>	<i>Autumn Term 1</i>	<i>Spring Term 1</i>	<i>Summer Term 1</i>
		<u>Food</u> Design, make and evaluate the perfect meal for a giant <i>(healthy & varied diet)</i> <i>(seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed)</i>	<u>Electrical Systems</u> Design and make a lamp for a diver <i>(series circuits incorporating switches, bulbs, buzzers and motors)</i>
	<i>Autumn Term 2</i>	<i>Spring Term 2</i>	<i>Summer Term 2</i>
	<u>Construction</u> Design, make and evaluate Shadow Puppets <i>(select materials, cut & finish)</i>		<u>Textiles</u> Designing and make own t-shirts <i>(cutting, shaping, joining and finishing)</i>

The Long Term Plan contains the programmes of study for KS1 and KS2 from the following:

- 1 Design
- 2 Make
- 3 Evaluate
- 4 Technical Knowledge
- 5 Cooking and Nutrition

YR follow the Early Learning Goals for EYFS in Expressive Arts and Design:

Exploring and using media and materials

Being Imaginative

Each year group will complete at least 3 DT projects per year. The timings are flexible to fit in with particular topics.

DT knowledge, skills and vocabulary



<i>EYFS</i>	<i>Characteristics of Effective Learning</i>	<i>Early Learning Goals</i>
	<p>Show curiosity about objects, events and people</p> <p>Questions why things happen</p> <p>Engage in open-ended activity</p> <p>Thinking of ideas</p> <p>Find ways to solve problems / find new ways to do things / test their ideas</p> <p>Use senses to explore the world around them</p> <p>Create simple representations of events, people and objects</p> <p>Planning, making decisions about how to approach a task, solve a problem and reach a goal</p> <p>Checking how well their activities are going</p> <p>Changing strategy as needed</p> <p>Reviewing how well the approach worked</p>	<p>Choose the resources they need for their chosen activities</p> <p>Handle equipment and tools effectively</p> <p>Children know the importance for good health of a healthy diet</p> <p>They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Children use what they have learnt about media and materials in original ways, thinking about uses and purposes.</p> <p>They represent their own ideas, thoughts and feelings through design and technology</p>

<i>Skills</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
Generating ideas - designing	<ul style="list-style-type: none"> • Design appealing products for a particular user based on simple design criteria. • Generate initial ideas and design criteria through own experiences. • Develop and communicate these ideas through talk and drawings and mock ups where relevant. 	<ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. • Develop, model and communicate their ideas through talking, mock-ups and drawings. 	<ul style="list-style-type: none"> • Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s. • Use annotated sketches, prototypes, final product sketches and pattern pieces; communication technology, such as web-based recipes, to develop and communicate ideas. 	<ul style="list-style-type: none"> • Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated 	<ul style="list-style-type: none"> • Generate innovative ideas through research including surveys, interviews and questionnaires and discussion with peers to develop a design brief and criteria for a design specification. • Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. • Develop and communicate ideas through discussion, annotated drawings, 	<ul style="list-style-type: none"> • Use research using surveys, interviews, questionnaires and web-based resources. To develop a design specification for a range of functional products. • Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost. • Generate and develop innovative ideas and share and clarify these through discussion. • Communicate ideas

				sketches, cross-sectional and exploded diagrams.	exploded drawings and drawings from different views. and, where appropriate, computer-aided Design	through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.
Making	<ul style="list-style-type: none"> • Select and use simple utensils, tools and equipment to perform a job e.g. peel, cut, slice, squeeze, grate and chop safely; marking out, cutting, joining and finishing; cut, shape and join paper and card. • Select from a range of ingredients and materials according to their characteristics to create a chosen product. 	<ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, equipment, skills and techniques to perform practical tasks, explaining their choices. • Select new and materials, components, reclaimed materials and construction kits to build and create their products. • Use simple finishing techniques suitable for the products they are creating. 	<ul style="list-style-type: none"> • Plan the main stages of making. • Select from and use a range of appropriate utensils, tools and equipment with some accuracy related to their product. • Select from and use finishing techniques suitable for the product they are creating. 	<ul style="list-style-type: none"> • Order the main stages of making. • Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products. • Explain their choice of materials according to functional properties and aesthetic qualities. • Select from and use materials and components, including ingredients, construction and electrical components according to their function and properties. 	<ul style="list-style-type: none"> • Produce detailed lists of equipment and fabrics relevant to their tasks. • Write a step-by-step plan, including a list of resources required. • Select from and use, a range of appropriate utensils, tools and equipment accurately to measure and combine appropriate ingredients, materials and resources. 	<ul style="list-style-type: none"> • Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • Competently select from and use appropriate tools to accurately measure, mark, cut and assemble materials, and securely connect electrical components to produce reliable, functional products. • Use finishing and decorative techniques suitable for the product they are designing and making.
Evaluating	<ul style="list-style-type: none"> • Taste, explore and evaluate a range of products to determine the intended user's preferences for the product • Evaluate their ideas throughout and finished products against design criteria, including intended user and purpose. 	<ul style="list-style-type: none"> • Explore a range of existing products related to their design criteria. • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. 	<ul style="list-style-type: none"> • Investigate a range of 3-D textile products, ingredients and lever and linkage products relevant to their project. • Test their product against the original design criteria and with the intended user. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. 	<ul style="list-style-type: none"> • Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used. • Test and evaluate their own products against design criteria and the intended user and purpose. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. 	<ul style="list-style-type: none"> • Investigate and analyse products linked to their final product. • Compare the final product to the original design specification and record the evaluations. • Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work 	<ul style="list-style-type: none"> • Continually evaluate and modify the working features of the product to match the initial design specification. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. • Test the system to demonstrate its effectiveness for the intended user and purpose
Vocabulary	planning, investigating design, evaluate, make, user, purpose, ideas, product,	investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing	evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations	design decisions, functionality, authentic, user, purpose, design specification, design brief, innovative, research, evaluate, design criteria, annotate, evaluate, mock-up, prototype	function, innovative, design specification, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype

<i>Knowledge</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6</i>
Food	<ul style="list-style-type: none"> Understand where a range of fruit and vegetables come from e.g. farmed or grown at home. Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The eatwell plate</i>. Know and use technical and sensory vocabulary relevant to the project. 	<p>Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.</p> <ul style="list-style-type: none"> Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The eatwell plate</i>. Know and use technical and sensory vocabulary relevant to the project. 	<ul style="list-style-type: none"> Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately 	<ul style="list-style-type: none"> Know how to use appropriate equipment and utensils to prepare and combine food. Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. Know and use relevant technical and sensory vocabulary appropriately. 	<ul style="list-style-type: none"> Know how to use utensils and equipment including heat sources to prepare and cook food. Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary 	<ul style="list-style-type: none"> Know how to use utensils and equipment including heat sources to prepare and cook food Understand about seasonality in relation to food products and the source of different food products. Know and use relevant technical and sensory vocabulary.
Vocabulary	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients,	fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble	ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble
Structures	<ul style="list-style-type: none"> Know how to make freestanding structures stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project 		<ul style="list-style-type: none"> Develop and use knowledge of how to construct strong, stiff shell structures. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. Know and use technical vocabulary relevant to the project 		<ul style="list-style-type: none"> Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project 	
Vocabulary	cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder		shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision,		frame structure, stiffen, strengthen, reinforce, triangulation, stability, shape, join, temporary, permanent	

Textiles	<ul style="list-style-type: none"> • Understand how simple 3-D textile products are made, using a template to create two identical shapes. • Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling. • Explore different finishing techniques • Know and use technical vocabulary relevant to the project 		<ul style="list-style-type: none"> • Know how to strengthen, stiffen and reinforce existing fabrics. • Understand how to securely join two pieces of fabric together. • Understand the need for patterns and seam allowances. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Produce a 3-D textile product from a combination of accurately made pattern pieces, fabric shapes and different fabrics. • Understand how fabrics can be strengthened, stiffened and reinforced where appropriate. • Know and use technical vocabulary relevant to the project. 	
Vocabulary	joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish		fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance	seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces, name of textiles and fastenings used, pins, needles, thread, pinking shears, fastenings	
Mechanisms/ Mechanical systems	<ul style="list-style-type: none"> • Explore and use sliders and levers. • Understand that different mechanisms produce different types of movement. • Know and use technical vocabulary relevant to the 	<ul style="list-style-type: none"> • Explore and use wheels, axles and axle holders. • Distinguish between fixed and freely moving axles. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project 		<ul style="list-style-type: none"> • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Know and use technical vocabulary relevant to the project.
Vocabulary	slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener, join, pull, push, up, down, straight, curve, forwards, backwards	vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism names of tools, equipment and materials used	mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating		pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output
Electrical Systems			<ul style="list-style-type: none"> • Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Understand and use electrical systems in their products linked to science coverage. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project. 	
Vocabulary			series circuit, fault, connection, toggle switch, push-to-make switch, push-to-break switch, battery, battery holder, bulb, bulb holder, wire, insulator, conductor, crocodile clip, control, program, system, input device, output device	reed switch, toggle switch, push-to-make switch, push-to-break switch, light dependent resistor (LDR), tilt switch, light emitting diode (LED), bulb, bulb holder, battery, battery holder, USB cable, wire, insulator, conductor, crocodile clip control, program, system, input device, output device, series circuit, parallel circuit	