

D&T CURRICULUM MAP

Rationale for our curriculum

Our D&T curriculum is planned as a 5 year journey across Layston First School. Using creativity and imagination, our pupils will design and make products that solve real and relevant problems within a variety of contexts, considering their own and other's needs, wants and values. Our pupils will acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, computing and art. They will learn how to be resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they will develop a critical understanding of its impact on daily life and the wider world. By the end of Y4, through a variety of creative and practical activities, our pupils will have been taught the knowledge, understanding and skills needed to engage in the process of designing and making. They will have worked in a range of relevant contexts, for example, the home, and school, gardens, and playgrounds, the local community, industry and the wider curriculum. We will further develop D&T skills within our Forest School curriculum. Our Christian values of Creation and Stewardship, Community, Courage and Resilience, Thankfulness, run through our curriculum.



Curriculum Aims: At Layston we aim:

- To provide opportunities for all the children to design and make quality products.
- To explore food and cooking techniques along with healthy eating and environmental issues within food production.
- To develop design and making skills, knowledge and understanding to the best of each child's ability; using and selecting a range of tool, materials and components.
- To become creative problem solvers as individuals and members of a team.
- To develop an ability to criticise constructively and evaluate their own products and those of others.
- To help the children develop an understanding of the ways people in the past and present have used design to meet their needs.
- To reflect on and evaluate such techniques, its uses and effects.

At Layston D&T projects focus on:

User	Purpose	Functionality	Design decisions	Innovation	Authenticity
Pupils should have a clear idea of who they are designing and making products for, considering their needs, wants, values, interests and preferences. The intended users could be themselves or others, an imaginary or story-based character, a client, a consumer or specific target group.	Pupils should be able to clearly communicate the purpose of the products they are designing and making. Each product they create should be designed to perform one or more defined tasks. Pupils' products should be evaluated through use.	Pupils should design and make products that work/function effectively in order to fulfil users' needs, wants and purposes.	Pupils need opportunities to make their own design decisions. Making design decisions allows pupils to demonstrate their creative, technical and practical expertise, and draw on learning from other subjects. Through making design decisions pupils decide on the form their product will take, how their product will work, what task or tasks it will perform and who the product will be for.	When designing and making, pupils need some scope to be original with their thinking. Projects that encourage innovation lead to a range of design ideas and products being developed and are characterised by engaging open-ended starting points for learning	Pupils should design and make products that are believable, real and meaningful to themselves and others. Design and technology is a practical subject.

Children are competent in the D&T skills needed to:

Key stage 1

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

Key stage 2

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

DT Projects			
	Autumn	Spring	Summer
Reception	<p>Continuous provision – junk modelling, cards, playdough, role play, construction toys and woodwork</p> <p>Fixed and moving joints - Links to EYFS Toys unit</p> <p>Projects on a page</p> <p>To make a Christmas decoration using recycled plastic</p> <p>Pupils begin to safely use and explore a hinge, a slider and a wheel.</p> <p>Pupil begin to use a range of tools to join materials - a paper fastener, string, wool, ribbon, paper clips, sellotape and elastic bands.</p> <p>Pupils begin to explore constructing buildings, position resources both vertically and horizontally.</p>	<p>Baking with an adult – links to Gingerbread man story, snack time</p> <p>Continuous provision – junk modelling, cards, playdough, role play, construction toys and woodwork</p> <p>Bridge building – links to Three Billy Goats Gruff story.</p> <p>Expressive arts and design:</p> <p>Pupils begin exploring and using a range of construction kits - Duplo, Lego, Kapla to create buildings and models.</p> <p>Pupils safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Pupils use what they have learnt about media and materials in original ways, thinking about uses and purposes.</p> <p>Pupils represent their own ideas, thoughts and feelings through design and technology plans.</p> <p>Pupils can make enclosed spaces and shapes such as walls, tunnels, and houses, build horizontally and tessellate basic shapes.</p> <p>Pupils begin to build structures vertically by stacking, exploring how they can be made more stable and how they can be connected.</p>	<p>Baking with an adult, snack time</p> <p>Fruit smoothie – link to tasting exotic fruit & Handa's Surprise</p> <p>Continuous provision – junk modelling, cards, playdough, role play, construction toys and woodwork</p> <p>Links to Teddy Bears picnic Projects on a Page EYFS</p> <p>Snack time, baking with adult</p> <p>Pupils can begin to develop a food vocabulary using taste, smell, texture and feel.</p> <p>Pupils can begin to work safely and show basic hygiene awareness, e.g., washing hands.</p> <p>Pupils can stir, spread, knead and shape a range of food and ingredients.</p> <p>Pupils can measure and weigh food items, non-standard measures, e.g., spoons, cups.</p> <p>Pupils Explore and use media and materials such as Binca or felt.</p> <p>Pupils safely use and explore a variety of materials, tools and techniques; threading and using a needle with support.</p> <p>Pupils represent their own ideas, thoughts and feelings through design and technology</p>
Vocab	<p>Slide</p> <p>Make</p> <p>Fix</p> <p>Cut</p> <p>Push</p> <p>Pull</p> <p>Wheels</p> <p>Turn</p> <p>Hinge</p>	<p>Build</p> <p>Construct</p> <p>Join</p> <p>Cut</p> <p>Bridge</p> <p>Balance</p> <p>Strong /stronger /strongest</p> <p>Tall/taller/tallest</p> <p>Wide/wider/widest</p> <p>High/higher/highest</p> <p>Short/shorter/shortest</p> <p>Long, longer, longest</p> <p>large, larger, largest, small, smaller, smallest, more than, less than, few/many, high/low, top/bottom, same/different, similar, next to, under, in between, area, space, pattern, shape, symmetrical, sorting, grading, balancing.</p>	<p>Healthy</p> <p>Wash</p> <p>Clean</p> <p>Hygiene</p> <p>Fruit names</p> <p>Snack</p> <p>Stir</p> <p>Spread</p> <p>Shape</p> <p>Spoons, cups, knife, bowl</p> <p>Knead</p> <p>Fabric</p> <p>Join</p> <p>Thread</p> <p>Needle</p>
End points	<p>Early Learning Goals</p> <p><i>Communication and language</i> - follow instructions involving several ideas or actions.</p> <p><i>Personal, social and emotional development</i> - are confident to try new activities, and say why they like some activities more than others; say when they do or don't need help.</p> <p><i>Physical development</i> - handle equipment and tools effectively, including pencils for writing.</p> <p><i>Understanding the world</i> - select and use technology for particular purposes.</p> <p><i>Expressive arts and design</i> - safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; represent their own ideas, thoughts and feelings through design and technology.</p>		

<p>Year 1 Skills</p>	<p>Design and make a moving toy History off the Page Projects on a Page: Freestanding structures – design, make and evaluate equipment for a playground Links to Geography unit Designing <ul style="list-style-type: none"> • Generate ideas based on simple design criteria and their own experiences, explaining what they could make. Look at and discuss examples. Sketch out some ideas • Develop, model and communicate their ideas through talking, mock-ups and drawings. Making <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, skills and techniques, explaining their choices. • Select new and reclaimed materials and construction kits to build their structures. First attempt at creating structure. • Use simple finishing techniques suitable for the structure they are creating. Evaluating <ul style="list-style-type: none"> • Explore a range of existing freestanding structures in the school and local environment • Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria. Create finished product. Technical knowledge and understanding <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. </p>	<p>Projects on a Page: Mechanisms Sliders and levers – Whole class moving book (frog lily pad...) Links to Science and English units Designing <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 drawings and mock-ups with card and paper. Making <ul style="list-style-type: none"> • Plan by suggesting what to do next. • Select and use tools, explaining their choices, to cut, shape and join paper and card. • Use simple finishing techniques suitable for the product they are creating. Evaluating <ul style="list-style-type: none"> • Explore a range of existing books and everyday products that use simple sliders and levers. • Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria. Technical knowledge and understanding <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 project. </p>	<p>Projects on a Page: Food: Preparing fruit and vegetables Fruit kebab, Fruit smoothie/Fruit kebab 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 investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings. Making <ul style="list-style-type: none"> • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. Evaluating <ul style="list-style-type: none"> • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. Technical knowledge and understanding <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>
<p>Vocab</p>	<p>cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, wide, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	<p>slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, side to side, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>	<p>Seasonal fruit names and ingredients – Names of equipment and utensils – knife, bowl, skewer, chopping board, peeler Sensory vocabulary e.g. soft, juicy, sweet, smooth, sharp, skin, seed, pip, core, slicing, peeling, cutting, chopping, Healthy diet, hygiene design, make, evaluate</p>
<p>End points</p>	<p>Pupils can build a freestanding structure, and say how they can be made stronger, stiffer and more stable. Pupils can use techniques (folding card in different ways, making the base wider) and use tools (scissors, masking tape and glue) to join components together. Pupils can make templates and mock ups of their ideas in card and paper.</p>	<p>Pupils can explore and use mechanisms [levers, sliders], in their products, understanding types of movement & some technical vocabulary. Pupils begin to develop their ideas through mock ups of their ideas in card and paper. Pupils can use scissors, glue, tape, card levers and split pins with increasing care and accuracy to assemble, join and combine materials together.</p>	<p>Pupils can identify and select from a range of fruit and vegetables and discuss how they are healthy and describe the colour, texture and taste. Pupils can identify 3 basic hygiene and safety facts (eg. the importance of washing hands & cleaning surfaces). With support pupils can cut, chop, peel and grate safely with increasing accuracy.</p>

<p>Year 2</p>	<p>Projects on a Page: Mechanisms Wheels and axles Designing</p> <ul style="list-style-type: none"> • Generate initial ideas and simple design criteria through talking and using own experiences. • Develop and communicate ideas through drawings and mock-ups. <p>Making</p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to practise cutting and joining to allow movement and finishing. • Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics. <p>Evaluating</p> <ul style="list-style-type: none"> • Explore and evaluate a range of products with wheels and axles. <p>Technical knowledge and understanding</p> <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. 	<p>Projects on a Page: Preparing fruit and vegetables Vegetable salad. Links to science healthy eating. Designing</p> <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 investigating a variety of fruit and vegetables. • Communicate these ideas through talk and drawings. <p>Making</p> <ul style="list-style-type: none"> • Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely. • Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product. <p>Evaluating</p> <ul style="list-style-type: none"> • Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences. • Evaluate ideas and finished products against design criteria, including intended user and purpose. <p>Technical knowledge and understanding</p> <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>Projects on a Page: Textiles - Templates and joining techniques Design and make a glove puppet: Designing</p> <ul style="list-style-type: none"> • Design a functional and appealing product for a chosen user and purpose based on simple design criteria. • Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology. <p>Making</p> <ul style="list-style-type: none"> • Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing. • Select from and use textiles according to their characteristics. <p>Evaluating</p> <ul style="list-style-type: none"> • Explore and evaluate a range of existing textile products relevant to the project being undertaken. • Evaluate their ideas throughout and their final products against original design criteria. <p>Technical knowledge and understanding</p> <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; running stitch, glue, over stitch, stapling. • Explore different finishing techniques using painting, fabric crayons, stitching, sequins, buttons and ribbons. • Know and use technical vocabulary relevant to the project.
<p>Vocab</p>	<p>Vehicle, wheel, axle, axle holder, chassis, body, cab assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools, equipment and materials used, evaluate, fixings, techniques, first attempt, rethink</p>	<p>Seasonal 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, chopping, squeezing Healthy balanced diet, ingredients, seasons</p>	<p>joining and finishing techniques, sew, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function. Fabric Join Thread Needle running stitch cross stitch</p>
<p>End points</p>	<p>Pupils can assemble, join and combine some materials. Pupils can design and make a moving toy with wheels. Pupils can identify the difference between fixed and free moving axels.</p>	<p>Pupils know how to prepare simple dishes safely and hygienically without a heat source, name and sort foods into groups; Pupils know that everyone should eat at least five portions of fruit and vegetables a day. Pupils can use simple utensils and equipment safely to e.g. peel, cut, slice, squeeze, grate and chop.</p>	<p>Pupils demonstrate how to cut, shape and join fabric to make a simple product. Pupils use basic sewing techniques - running stich and cross stitch. Pupils can follow procedures for safety; measure, mark out, cut, shape, assemble, join, combine and finish a range of materials and components.</p>

<p>Year 3</p>	<p>Projects on a Page: Mechanisms – Levers and linkages Design and make a card for Christmas. Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and analyse books and, where available, other products with lever and linkage mechanisms. • Evaluate their own products and ideas against criteria and user needs, as they design and make. <p>Technical knowledge and understanding</p> <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. 	<p>Projects on a Page: Textiles 2-D shape to 3-D product – design and make a purse or a wallet Links to history topic Celts Designing</p> <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. • Produce annotated sketches, prototypes, final product sketches and pattern pieces. <p>Making</p> <ul style="list-style-type: none"> • Plan the main stages of making. • Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing. • Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate a range of 3-D textile products relevant to the project. • Test their product against the original design criteria and with the intended user. • Take into account others' views. • Understand how a key event/individual has influenced the development of the chosen product and/or fabric. <p>Technical knowledge and understanding</p> <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. 	<p>Projects on a Page: Food: healthy and varied diet Links to science Projects: Healthy and varied diet/ Rainbow salad pots/Eton Mess/Wraps/pitta pocket/ rolls Designing</p> <ul style="list-style-type: none"> • Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose. • Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Plan the main stages of a recipe, listing ingredients, utensils and equipment. • Select and use appropriate utensils and equipment to prepare and combine ingredients. • Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics. <p>Evaluating</p> <ul style="list-style-type: none"> • Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs. • Evaluate the ongoing work and the final product with reference to the design criteria and the views of others. <p>Technical knowledge and understanding</p> <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.
<p>Vocab</p>	<p>Mechanism, lever, linkage, pivot – fixed/loose, score, slot, bridge, paper fastener, assemble, guide system, input, process, output linear, rotary, oscillating, reciprocating user, purpose, function prototype, design criteria, innovative, appealing, design brief</p>	<p>joining and finishing techniques, sew, stitch – running/cross, seam, seam allowance, tools, fabrics (names of fabrics) and components, template, stiffen, template, pattern pieces, mark out, join, decorate, finish, features, suitable, quality mock-up, design brief, design criteria, make, evaluate, user, purpose, function, fastening, compartment, zip, button Join Thread Needle running stitch cross stitch, design, model, evaluate, pattern, prototype, annotated sketch, functional, innovative, investigate, label, drawing, aesthetics, function, pattern pieces</p>	<p>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 planning, design criteria, purpose, user, annotated sketch, sensory evaluations, recipe method</p>
<p>End points</p>	<p>Pupils start to understand that mechanical systems such as levers and linkages create movement. Pupils can distinguish between fixed and loose pivot. Pupils can measure, mark out, cut, score and assemble components with more accuracy when making, using tools safely.</p>	<p>Pupils can start to work safely and accurately with a range of simple tools to measure, tape or pin, cut, strengthen, stiffen, reinforce and join fabric with some accuracy. Pupils can sew using a range of different stitches. (running stich and cross stitch) I can design, make and evaluate a fabric design using a pattern and leave seam allowances.</p>	<p>Pupils can explain how a healthy diet equals variety and a balance of food and drinks. Pupils can plan the main stages of a recipe and select ingredients to make simple dishes. Pupils can evaluate their product using appropriate vocab: diet, texture, sweet, sour, hot, spicy.</p>

Year 4	<p>Projects on a Page: Food: Healthy and varied diet/Savoury muffin/Bread/Pizza</p> <p>Designing</p> <ul style="list-style-type: none"> • Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. • Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. • Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • 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. <p>Evaluating</p> <ul style="list-style-type: none"> • Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams. • Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements. • Understand how key chefs have influenced eating habits to promote varied and healthy diets. <p>Technical knowledge and understanding</p> <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. 	<p>Projects on a Page: Design and make a night light Electrical Systems Simple circuits and switches (including programming and control). Links with science topic</p> <p>Designing</p> <ul style="list-style-type: none"> • Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups. • Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams. <p>Making</p> <ul style="list-style-type: none"> • Order the main stages of making. • Select from and use tools and equipment to cut, shape, join and finish with some accuracy. • Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and analyse a range of existing battery-powered products. • Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers. • Apply their understanding of computing to program and control their products. • Know and use technical vocabulary relevant to the project. 	<p>Projects on a Page: Structures: Design and make a cereal box. Links with maths topic 2D & 3D shape</p> <p>Designing</p> <ul style="list-style-type: none"> • Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and the functional and aesthetic purposes of the product. • Develop ideas through the analysis of existing shell structures and use computer-aided design to model and communicate ideas. <p>Making</p> <ul style="list-style-type: none"> • Plan the order of the main stages of making. • Select and use appropriate tools and software to measure, mark out, cut, score, shape and assemble with some accuracy. • Explain their choice of materials according to functional properties and aesthetic qualities. • Use computer-generated finishing techniques suitable for the product they are creating. <p>Evaluating</p> <ul style="list-style-type: none"> • Investigate and evaluate a range of shell structures including the materials, components and techniques that have been used. • Test and evaluate their own products against design criteria and the intended user and purpose. <p>Technical knowledge and understanding</p> <ul style="list-style-type: none"> • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Develop and use knowledge of how to construct strong, stiff shell structures. • Know and use technical vocabulary relevant to the project.
Vocab	<p>ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs</p> <p>fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source</p> <p>utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble</p> <p>design specification, innovative, research, evaluate, design brief</p>	<p>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</p> <p>user, purpose, function, prototype, design criteria, innovative, appealing, design brief</p>	<p>shell structure, three-dimensional (3-D) shape, net, cube, cuboid, prism, vertex, edge, face, length, width, breadth, capacity, marking out, scoring, shaping, tabs, adhesives - glue, tape, joining, assemble, accuracy, material, stiff, strong, reduce, reuse, recycle, corrugating, ribbing, laminating, font, lettering, text, graphics, decision, evaluating, design brief design criteria, innovative, prototype, control, program, system, input device, output device</p>
End points	<p>Pupils know how to prepare and cook a variety of dishes safely and hygienically with a heat source.</p> <p>Pupils know that food and drink are needed to provide energy for the body.</p> <p>Pupils understand ingredients can be fresh, pre-cooked or processed (dried) and can use techniques such as kneading, rubbing and mixing to combine ingredients together.</p>	<p>Pupils can use circuits incorporating switches and bulbs in their product.</p> <p>Pupils know how simple electrical circuits and components can be used to create functional products.</p> <p>Pupils design for a specific purpose.</p>	<p>Pupils know that materials have functional and aesthetic qualities and that systems have an input, process and output.</p> <p>Pupils can program a computer to control their products</p> <p>Pupils know how to make strong, stiff shell structure and use the correct technical vocabulary (in bold above).</p>

All Year Forest School Projects	Design and make a Forest School medallion/decoration	Design and make elder beads bracelet/elder pens	Design and make a journey stick	Design and make paper using wild flower and grass seeds	Design and make a shelter Design and make an insect home	Design and make a bird feeder
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D&T Skills Progression	
Developing, planning and communicating ideas	
YR	<p>Make their own creations using a wide range of different materials, fixings and tools that are freely available in continuous provision.</p> <p>Begin to draw on their own experience to help generate ideas to build and plan what they will use.</p> <p>Begin to develop their ideas through talk and drawings. Talk about what they want to make, how they will do it and what they think about it when finished.</p>
Year 1	<p>Begin to draw on their own experience to help generate ideas and research conducted on criteria.</p> <p>Begin to understand the development of existing products: What they are for, how they work, materials used.</p> <p>Start to suggest ideas and explain what they are going to do.</p> <p>Begin to develop their ideas through talk and drawings. Begin to make templates and mock ups of their ideas in card and paper or using ICT.</p>
Year 2	<p>Start to generate ideas by drawing on their own and other people's experiences.</p> <p>Begin to develop their design ideas through discussion, observation, drawing and modelling.</p> <p>Identify a purpose for what they intend to design and make.</p> <p>Develop their ideas through talk and drawings and label parts. Make templates and mock ups of their ideas in card and paper or using ICT.</p>
Year 3	<p>With growing independence generate ideas for an item, considering its purpose and the user/s.</p> <p>Start to order the main stages of making a product.</p> <p>Understand how well products have been designed, made, what materials have been used and the construction technique.</p> <p>Begin to understand whether products can be recycled or reused.</p> <p>Make drawings with labels when designing.</p> <p>Explain their choice of materials and components including function and aesthetics.</p>
Year 4	<p>Start to generate ideas, considering the purposes for which they are designing- begin to apply Mathematics and Science knowledge.</p> <p>Independently make labelled drawings from different views showing specific features.</p> <p>Plan how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail.</p> <p>Identify the strengths and areas for development in their ideas and products.</p> <p>Explain their choice of materials and components according to function and aesthetic.</p>

Working with tools, equipment, materials and components to make quality products	
YR	<p>Begin to build structures vertically by stacking and horizontally by attaching, exploring how they can be made more stable and how they can be connected. (e.g.: -Putting a road between or a bridge) Explore construction kits Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glue. Are taught to use tools such as scissors, hole punch, string, Sellotape, cutters.</p>
Year 1	<p>Begin to make their design using appropriate techniques. Begin to 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. With help measure, mark out, cut and shape a range of materials. Use tools e.g. scissors and a hole punch safely. Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape. Begin to use simple finishing techniques to improve the appearance of their product</p>
Year 2	<p>Begin to select tools and materials to make their design; use correct vocabulary to name and describe them. Build structures, exploring how they can be made stronger, stiffer and more stable. With help measure, cut and score with some accuracy. Learn to use hand tools safely and appropriately. Assemble, join and combine materials in order to make a product. Cut, shape and join fabric to make a simple product. Use basic sewing techniques. Start to choose and use appropriate finishing techniques based on own ideas</p>
Year 3	<p>Select a wider range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components. Explain their choice of tools and equipment in relation to the skills and techniques they will be using. Understand that mechanical systems such as levers and linkages create movement. Measure, mark out, cut, score and assemble components with more accuracy. Work safely, independently 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. Measure, tape or pin, cut and join fabric with some accuracy. Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches, to weave and knit.</p>
Year 4	<p>Select a wider range of tools and techniques for making their product safely. Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques accurately. Join and combine materials and components accurately in temporary and permanent ways. Use simple electrical circuits and components to create functional products. Understand that mechanical and electrical systems have an input, process and output. Understand how more complex electrical circuits and components can be used to create functional products. Continue to learn how to program a computer to monitor changes in the environment and control their products. Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</p>

Evaluating processes and products	
YR	Say what they have made, what they like about it and make changes as they go along.
Year 1	Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make. Begin to evaluate their finished product by discussing how well it works in relation to the purpose (design criteria). When looking at existing products explain what they like and dislike about products and why.
Year 2	Evaluate their work against their design criteria. Look at a range of existing products explain what they like and dislike about products and why. With confidence talk about their ideas, saying what they like and dislike about them.
Year 3	Evaluate their product against original design criteria and say how well it meets its intended purpose Begin to disassemble and evaluate familiar products and consider the views of others to improve them. Evaluate the key designs of individuals in design and technology has helped shape the world.
Year 4	Evaluate their products throughout the design and make process, carrying out appropriate tests. Be able to disassemble and evaluate familiar products and consider the views of others to improve them. Evaluate the key designs of individuals in design and technology has helped shape the world.