

Design and Technology Progression Document

D&T Progression in knowledge and skills

Curriculum Intent

Our high-quality design and technology curriculum is inspiring, rigorous, and practical. The curriculum is planned in a way that children design and make products that solve real and relevant problems within a variety of contexts. Children are encouraged to consider their own and others' needs, wants, and values when designing and making. They will acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, computing, and art. Pupils will learn to take risks, becoming resourceful, innovative, and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. Our intention is that our curriculum for design and technology encourages children to learn how to make an essential contribution to the creativity, culture, wealth, and wellbeing of the nation.

Implementation

- We will develop children's curiosity using their five senses, our children will be given many opportunities to explore the five strands of design and technology, mechanisms, structures, textiles, cooking and nutrition.
- Our projects address the six principles of design and technology, **user, purpose, functionality, design decisions, innovation**, and authenticity.
- We develop children's understanding of design and technology through high quality teaching and carefully thought-out sequences of lessons. The lessons build children's knowledge in a sequential way towards a clear end point.
- We encourage children to think and behave as a designer and maker taking part in investigating and evaluating activities (IEAs) of existing products, focussing on practical tasks (FPT) to develop new skills, and taking part in designing, making, and evaluating assignments (DMEA).
- We challenge children to present their conclusions in the most appropriate way and to use subject specific vocabulary linked to the five key strands of design and technology mechanisms, structures, textiles, cooking and nutrition.
- We will use the basic principles of a healthy and varied diet to prepare dishes and understand where food comes from and recognise our own food culture within a diverse society
- Through our Eco Schools award children will develop their social responsibility about how food production and our food choices can impact on the environment.

Substantive and Disciplinary Knowledge in Design and Technology

Substantive knowledge in design and technology is based on the knowledge of four key elements of the process of design (design, make, evaluate and technical knowledge). All 4 elements will be taught from Reception to Year 2 and vocabulary is taught explicitly and will be deliberately practised and applied through the 4 key elements.

Design: Know how to design a product that is purposeful, functional and appealing to a specific group.

Make: Know how to cut, join and finish a range of increasingly complex materials, ranging from paper to wood.

Evaluate: Know how to investigate, evaluate and analyse a range of existing products and their own designs based on a specific design criteria. In addition to this, children will know key individuals have helped to shape the world in which we live in.

Technical: Know how to apply their knowledge of specific materials to meet the criteria listed above in the design, make and evaluate stages.

Disciplinary knowledge in this process of enabling children to use their substantive knowledge of products and materials around them to make links between different areas of the curriculum. They can use their knowledge and understanding to suggest how existing products may be improved with the advances in modern technology. Children will demonstrate that they have the cultural capital to become global citizens, following global themes and fundamental British Values, in an ever changing and technologically advancing world.

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National Curriculum outcomes	End of Early Years Foundation Stage	End of Key Stage 1
	<p>Being Imaginative and expressive ELG Creating with Materials <i>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function</i> <i>Share their creations, explaining the process they have used.</i></p>	<p><i>Through a variety of creative and practical activities, children have the knowledge, understanding and skills needed to engage in an iterative process of designing and making, working in a range of relevant contexts e.g., the home and school, gardens and playgrounds, the local community, industry and the wider environment]</i></p> <p>Design:</p> <ul style="list-style-type: none"> • <i>design purposeful, functional, appealing products for themselves and other users based on design criteria</i> • <i>generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology</i> <p>Make</p> <ul style="list-style-type: none"> • <i>select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]</i> • <i>select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</i> <p>Evaluate</p> <ul style="list-style-type: none"> • <i>explore and evaluate a range of existing products</i> • <i>evaluate their ideas and products against design criteria</i> <p>Technical knowledge</p> <ul style="list-style-type: none"> • <i>build structures, exploring how they can be made stronger, stiffer and more stable</i> • <i>explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</i>

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Substantive Knowledge	Key Concept	Nursery		Reception	Y1	Y2
		Birth-3	3–4-year-olds	5-year-olds	6-year-olds	7-year-olds
Designing	<i>Understanding contexts, users and purposes</i>	<p>I can manipulate and play with different materials and objects.</p> <p>Respond to language of 'build' and 'make.'</p>	<p>Explore different materials freely and use simple language to talk about what they are making.</p> <p>Use the language of designing and making, words e.g., 'build' 'building' and as well as evaluative and comparative language - 'long', 'short', 'light', 'heavy.'</p>	<p>Say what they are making and say which materials they are using.</p> <p>Use the language of designing and making, words e.g., 'join', 'build' and 'shape' as well as evaluative and comparative language - 'longer', 'shorter', 'lighter', 'heavier' and 'stronger'.</p>	<p>Talk about what products they are designing and making.</p> <p>Say whether their products are for themselves or other users.</p> <p>Say what their products are for.</p> <p>Say how their products will work.</p> <p>Say how they will make their products suitable for their intended users.</p> <p>Show some independence use simple design criteria to help develop their ideas</p>	<p>Explain what products they are designing and making and give reasons why.</p> <p>Say whether their products are for themselves or other users and why it will be suitable.</p> <p>Describe what their products are for and give detail.</p> <p>Say how they will make their products suitable for their intended users by explaining the purpose of the product.</p> <p>Independently use simple design criteria to help develop their ideas</p>
	Generating, developing, modelling and communicating ideas	<p>Manipulate and move and objects and materials.</p> <p>Use 3D and 2D structures to explore materials and/or to express ideas.</p> <p>Enjoy drawing freely</p>	<p>Explore arrangements of materials and objects talk show a design or idea through exploration.</p> <p>Explore various construction materials by joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces.</p> <p>Explore using a range of tools and know what</p>	<p>Say what simple ideas they have.</p> <p>Begin to draw ideas/simple designs and intentions or create retrospective drawing (Drawing of finished products).</p> <p>Select and name the tools needed to work the materials e.g., whole punch to make holes in paper.</p>	<p>Talk about ideas by drawing on their own experiences showing some independence.</p> <p>Research existing products to help come up with ideas. Communicate ideas by talking and drawing (<i>Pictures words and some IT skills</i>)</p> <p>Model and talk about ideas by exploring materials, components and construction kits and by</p>	<p>Explain own ideas by drawing on their own experiences with independence.</p> <p>Use knowledge of existing products to help come up with ideas. Explain ideas in detail (Pictures, words, models, and IT)</p> <p>Model and explain ideas by comparing and contrasting. materials, components and construction kits and by</p>

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			they are used for e.g., scissors cut paper. Explore create retrospective design (Drawing of finished products)	Can create content by drawing a picture/design on screen.	making templates and mock-ups	making templates and mock-up
VOCABULARY						
Designing		<i>Build, draw</i>	<i>Building, long, short, heavy, light, drawing</i>	<i>Join, longer, shorter, heavier, lighter, make, use, move</i>	<i>ideas, design, product, purpose, simple plan, making, pictures, words, develop, model, template, materials, user</i>	<i>Research, think, plan, choose, tools, reasons, describe, pictures, diagram/s, models, develop, function, appeal.</i>
Making	Planning	Use gestures or some words while making. Explore a range of tools e.g., playdough cutters, rolling pin, tweezers. Make alternative choices, e.g., Duplo/wooden bricks, apple/orange.	Explore materials and begin to say what they are making. Understand tools can be used for a purpose. e.g., scissors for cutting paper. With support select appropriate materials, resources, and tools. Begin to make choice from a range of materials.	Say what they want to make. Plan and say what processes that may be involved. Say and select what materials, resources, and tools they may need. Construct with a purpose in mind, using a variety of resources making adaptations while making.	Plan and talk about what they want to make by suggesting what to do next. Talk about and select from a range of tools and equipment, Select from a range of materials and components according to their characteristics beginning to talk about choices.	Plan and explain what they want to make by suggesting what to do next and give reasons why it fits the purpose of the project. Independently select from a range of tools and equipment, explaining their choices Select from a range of materials and components according to their characteristics explaining their choices.

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<p>Making</p>	<p>Practical Skills and Techniques</p>	<p>Wash hands with support hands and then independently.</p> <p>Make simple models which express their ideas.</p> <p>Notices and becomes interested in the transformative effect of their action on materials and resources.</p> <p>Uses 3D and 2D structures to explore materials and/or to express ideas.</p>	<p>Begin to understand that washing hands is a way to keep ourselves safe.</p> <p>Build / construct with a wide range of objects and construction materials, joining pieces, stacking vertically and horizontally, balancing, making enclosures and creating spaces.</p> <p>Manipulate materials to achieve a planned effect.</p> <p>Select shapes appropriately: such as flat surfaces for building, a triangular prism for a roof.</p> <p>Join different materials and explore different textures.</p> <p>Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</p> <p>Begin to use simple tools and techniques to shape, assemble and join.</p>	<p>Say how to make an activity safe and hygienic.</p> <p>Replicate structures with materials / components.</p> <p>Uses own ideas to make models of increasing complexity, selecting blocks needed, solving problems and visualizing what they will build.</p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p> <p>Create collaboratively, sharing ideas, resources and skills.</p> <p>Use simple tools and techniques competently and appropriately.</p>	<p>Talk about and show some independence in following procedures for safety and hygiene.</p> <p>Show some independence in using a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components.</p> <p>Measure, mark out, cut and shape materials and components with support</p> <p>Assemble, join, and combine materials and components with support.</p> <p>Begin to use finishing techniques, including those from art and design to make products aesthetically pleasing.</p>	<p>Follow procedures for safety and hygiene and explain why this is important.</p> <p>Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components.</p> <p>Measure, mark out, cut and shape materials and Components with more independence</p> <p>Assemble, join and combine materials and components with more independence</p> <p>Use finishing techniques, including those from art and design to make products aesthetically pleasing.</p>
<p>VOCABULARY Making</p>		<p><i>Build, make</i></p>	<p><i>Building, drawing</i></p>	<p><i>Make, move, join, construct</i></p>	<p><i>Ideas, product, choose, resources, tools, explain,</i></p>	<p><i>Tools, materials, explain, components, different, same, measure, model •structure,</i></p>

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					<i>structure/models, strong/er, arrange, construction. Design, material, fabric, thread, shape, glue, cut, fold, sew, staple, join</i>	<i>movement, function, refine, mechanism, adhesive.</i>
Evaluating	<i>Own ideas and products</i>	Begins to understand the cause and effect of their actions, e.g., when squeezing dough or pressing a button on toy.	Notice changes in properties of media as they are transformed through becoming wet, dry, flaky, or fixed.	Talk about what is happening, helping them to think about cause and effect Express and communicate their discoveries and understanding. Talk about likes and dislikes linked to a product/design	Talk about their design ideas and what they have made Make simple judgements about their products and ideas against design criteria by: <ul style="list-style-type: none"> identifying one simple change that would improve their product. Talking about the success of their product 	Explain their design ideas, what they have made and how they have followed the design criteria justifying reasons why. Make simple judgements about their products and ideas against design criteria by: <ul style="list-style-type: none"> identifying more than 1 change that would improve their product. Explaining the success of their product
VOCABULARY Evaluating own ideas and products			<i>Like, don't like, better</i>	<i>Use, idea, improve.</i>	<i>Describe, explain, working well, not working well, evaluate, improve, design</i>	<i>Chosen materials, textiles, what went well, consider, how, Improvements</i>
	<i>Existing Products</i>	Investigate a range of interesting objects using senses as appropriate.	Explore existing products and begin to answer simple questions, <ul style="list-style-type: none"> What is it? What does it do? Who is it for? 	Investigate an explore existing products before designing/making a product. Answer simple questions about existing products. <ul style="list-style-type: none"> what is the product? who is it for? where would it be used? How do we use it? 	Talk about existing products before designing/making a product. Answering questions: <ul style="list-style-type: none"> What products are Who products are for What products are for Where products might be used Begin to talk about what they like and dislike about the existing products 	Explain and describe existing products before designing/making a product. Answering questions: <ul style="list-style-type: none"> What products are Who products are for What products are for Where products might be used How products work How products are used what materials products are made from when the product would be used what they like and dislike about existing products

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VOCABULARY Evaluating existing products			<i>What, who, where</i>	<i>Why, when, how</i>	<i>User, product, purpose, design, evaluate,</i>	<i>User, product, purpose, design Function, materials</i>
Technical Knowledge <i>Making products work</i>	Mechanisms: Sliders and Levers	Manipulate a range of paper and card.	Explore and use real sliders and levers in books and cards. Explore cutting and joining paper and card using glue and masking tape.	Explore and talk about use real sliders and levers in books and cards. Explore paper and card to make simple flaps and hinges. Experience simple cutting, shaping, and joining skills using scissors, glue, paper fasteners and masking tape.	Talk about the simple working characteristics of the simple mechanism and movement of a slider and lever. Talk about the different mechanisms producing different types of movement. Know and use technical vocabulary relevant to the project with some support.	Explain the simple working characteristics of the simple mechanism and movement of a slider and lever. Describe the different mechanisms that produce different types of movement. Know and use technical vocabulary relevant to the project with independence.
VOCABULARY Mechanisms: Sliders and Levers		<i>Paper,</i>	<i>Card, join, up, down.</i>	<i>Flap, slider, lever, push, pull, forwards, backwards, masking tape</i>	<i>pivot, slot, bridge/guide slider, left, right, in, out, straight, curve</i>	
Technical Knowledge <i>Making products work</i>	Wheels and Axels		Explore vehicles with moving wheels using construction kits. Explore moving vehicles through play.	Explore and talk about vehicles with moving wheels using construction kits. Explore and talk about moving vehicles through play.	Talk about and use wheels, axles and axle holders. Talk about the simple working characteristics of the simple mechanism and movement wheels and axels Know and use technical vocabulary relevant to the project with some support.	Explain the difference between fixed and freely moving axles. Explain the simple working characteristics of the simple mechanism and movement wheels and axels Know and use technical vocabulary relevant to the project with some support
VOCABULARY Mechanisms: Wheels and Axels		<i>Car, Move</i>	<i>Wheel, Moving Mobilo</i>	<i>Vehicle, Body, Brio</i>	<i>axle, axle holder, chassis, cab assembling, cutting, joining shaping, finishing, fixed, free, mechanism, names of tools, equipment and materials used</i>	

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						<i>design, make, evaluate, purpose, user, criteria, functional</i>	
Technical Knowledge <i>Making products work</i>	Free Standing Structures	Explore blocks by carrying and stacking.	Explore construction kits and blocks to build, towers, walls (stacking) bridge shapes, enclosures, patterns and symmetry, I can name structures, using name relating to the function of the building. Explore cutting and joining paper and card using glue and masking tape.	Build and talk about structures made from construction kits, reclaimed materials and block play building (<i>Representation of real structures.</i>) Explore building free standing structures that are stable and strong using construction kits, reclaimed materials, and blocks. Explore simple cutting, shaping, and joining skills using scissors, glue, paper fasteners and masking tape.	Talk about the simple characteristics of materials. Talk about how to make freestanding structures, stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project with some support.	Describe the simple characteristics of materials. Describe how to make freestanding structures, stronger, stiffer and more stable. Know and use technical vocabulary relevant to the project with independence.	
		VOCABULARY Free Standing Structures	<i>Build, up</i>	<i>cut, wall, tower, strong. circle, triangle, square rectangle</i>	<i>fold, join, fix weak, cuboid, cube, cylinder</i>	<i>structure, framework, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved. metal, wood, plastic design, make, evaluate, user, purpose, ideas, design criteria, product, function</i>	
Technical Knowledge	Preparing Fruit and Vegetables		Explore common fruit and vegetables, undertaking sensory activities using senses as appropriate. <ul style="list-style-type: none"> • Tasting • Smelling • Touching • Looking 	Explore and name common fruit and vegetables, undertaking sensory activities using senses as appropriate.	Know and talk about that food ingredients should be combined according to their sensory characteristics Know and use technical vocabulary relevant to the project with some support.	Know and explain how food ingredients should be combined according to their sensory characteristics Know and use technical vocabulary relevant to the project with independence.	

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			Understand that a knife is used to cut and prepare food.	Explore cutting soft fruit and vegetables using appropriate utensils.		
Cooking and Nutrition.	<i>Where Food Comes From</i>	Manipulate plants that can be eaten using senses where appropriate.	Explore where some plants come from. Explore plants in the garden that can be eaten.	Begin to understand that food is grown from a plant or comes from animals Begin to understand that to be farmed, grown elsewhere (home) or caught	Talk about how food comes from plants or animals. Talk about that food has to be farmed, grown elsewhere (home) or caught	Explain how food comes from plants or animals. Explain that food has to be farmed, grown elsewhere (home) or caught
Cooking and Nutrition.	<i>Food preparation, cooking and nutrition</i>	Manipulate and handle <i>foods</i> from 'The Eatwell plate' Try a wider range of foods with different tastes and textures.	<i>Explore foods from 'The Eatwell plate'</i> Make healthy choices about food and drink. Explore creating some healthy uncooked dishes such as fruit salad	Name and sort foods from 'The Eatwell plate' Name the different factors that support their overall health and wellbeing such as healthy eating Explore cutting soft fruit and vegetables using appropriate utensils to create a dish such as salad/fruit kebab	Talk about name and sort foods into the five groups in 'The Eatwell plate' Talk about how everyone should eat at least five portions of fruit and vegetables every day Talk about how to prepare simple dishes safely and hygienically, without using a heat source Talk about how to use techniques such as cutting, peeling and grating	Describe, name and sort foods into the five groups in 'The Eatwell plate' Explain why everyone should eat at least five portions of fruit and vegetables every day Explain how to prepare simple dishes safely and hygienically, without using a heat source Explain how to use techniques such as cutting, peeling and grating

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<p>VOCABULARY</p> <p>Food and nutrition</p> <p>Preparing Fruit and Vegetables</p> <p><i>Also see FOOD TECHNOLOGY - Tasting and Evaluating: Developing Vocabulary document</i></p>		<p><i>Carrot</i></p> <p><i>Orange</i></p> <p><i>Banana</i></p>	<p><i>Carrot stick</i></p> <p><i>Orange segment</i></p> <p><i>Slice of banana</i></p> <p><i>Grate</i></p> <p><i>Cut</i></p> <p><i>Peel</i></p> <p><i>Sweet</i></p> <p><i>Bitter</i></p> <p><i>Juicy</i></p>	<p><i>Fruit: Orange, red & green apple, kiwi, pineapple</i></p> <p><i>Vegetables: carrots, celery, cucumber, red & green peppers</i></p> <p><i>skin, pith, peel, seeds</i></p> <p><i>cut, grate, crunchy, delicious, sweet, sour, bitter, Chopping board, knife, peeler, grater</i></p> <p><i>Hygiene, Healthy</i></p>	<p><i>Fruit: orange, red & green apple, kiwi, pineapple</i></p> <p><i>Vegetables: carrots, celery, cucumber, red & green peppers</i></p> <p><i>Skin, pith, peel, seeds, flesh, core, pip</i></p> <p><i>Cut, grate, slicing, peeling, squeezing.</i></p> <p><i>Crunchy, delicious, sweet, bitter, sticky, smooth, sharp, crisp, sour, creamy, slimy, greasy</i></p> <p><i>Chopping board, knife, peeler, grater</i></p> <p><i>Hygiene Healthy, balanced diet</i></p> <p><i>Ingredients, planning, investigating, tasting, arranging.</i></p> <p><i>Popular, design, evaluate, criteria.</i></p> <p><i>Appearance, smell, taste, texture, hedonic description (feelings), attitudinal description (beliefs and values)</i></p>	
<p>Technical Knowledge</p> <p><i>Making products work</i></p>	<p>Templates and Joining techniques.</p>	<p>Manipulate and arrange different fabrics.</p>	<p>Explore different fabrics.</p> <p>Join fabrics using glue through collage.</p>	<p>Explore and begin to talk about different fabrics.</p> <p>Begin to cut and join 2 pieces of fabric together using glue or staples.</p>	<p>Talk about the simple characteristics of materials/fabrics.</p> <p>Talk about how 3-D textiles product can be assembled from two identical fabric shapes.</p> <p>Talk about how to join fabrics using the different techniques stitching and stapling.</p> <p>Talk about the different finishing techniques of painting, fabric crayons, stitching, sequins, buttons and ribbons.</p> <p>Know and use technical vocabulary relevant to the project with some support.</p>	<p>Describe the simple characteristics of materials/fabrics.</p> <p>Explain how 3-D textiles product can be assembled from two identical fabric shapes.</p> <p>Explain how to join fabrics using the different techniques running stitch, glue, over stitch, stapling. Explain the different finishing techniques of painting, fabric crayons, stitching, sequins, buttons and ribbons.</p> <p>Know and use technical vocabulary relevant to the project with independence.</p>

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VOCABULARY Templates and Joining techniques.	<i>Soft</i>	<i>Material, smooth, glue stick</i>	<i>Cut, join, fabric, stapler</i>	<i>Names of existing products, joining, and finishing techniques, 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</i>
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