



Design and Technology

Curriculum



Intent

Design and Technology at Maple is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Maple, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, computing and art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.



Implementation

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The children work in a range of relevant contexts (for example home, school, leisure, culture, enterprise, industry and the wider environment).

When designing and making, the children are 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 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
- understand and use electrical systems in their products
- apply their understanding of computing to program, monitor and control their products

Key skills and key knowledge for D and T have been mapped across the school to ensure progression between year groups using the 'Projects off the page' scheme. This also ensures that there is a context for the children's work in Design and Technology; that they learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons are also taught as a block so that children's learning is focused throughout each unit of work.



Impact

We ensure the children:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users and critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook. Children will design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child

Children learn how to take risks, becoming resourceful, innovative, enterprising 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. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.



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Curriculum Map

		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Autumn	<p>3D junk modelling and construction building - inside and outside areas - planning and adapting ideas</p> <p>Make nests for the owl babies</p> <p>Cooking: -Bread making -Fruit kebabs -Peppermint creams and fudge</p> <p><u>Key Skills</u> Suggest ideas about what they are going to do</p> <p>With help mark out, cut and shape a range of materials</p> <p>Use tools eg scissors and a hole punch safely</p> <p>Assemble with help</p> <p>Join and combine materials and</p>		<p>Mechanisms Wheels and Axles: Fire Engines</p> <p><u>Key Skills</u> Generate ideas by drawing on their own & other people's experiences. Develop their ideas through discussion, observation, drawing & modelling. Identify a purpose for what they intend to design & make.</p> <p>Identify simple design criteria.</p> <p>Make simple drawings & label parts.</p> <p>Begin to select tools & materials; use vocab to name & describe them.</p>	<p>Textiles - 2D shape to 3D product: Make a cushion</p> <p><u>Key Skills</u> Generate ideas for an item, considering its purpose and the user/s</p> <p>Identify a purpose and establish criteria for a successful product.</p> <p>Plan the order of their work before starting</p> <p>Explore, develop and communicate design proposals by modelling ideas</p> <p>Make drawings with labels when designing</p> <p>Select tools and techniques for</p>	<p>Lever and linkages-pop up card (linked to a theme, e.g. Christmas).</p> <p><u>Key Skills</u> Generate ideas, considering the purposes for which they are designing Make labelled drawings from different views showing specific features</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail</p> <p>Evaluate products and identify criteria that can be used for their own designs</p>	<p>Food: Biscuit making</p> <p><u>Key Skills</u> Generate ideas through brainstorming and identify a purpose for their product Draw up a specification for their design</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail</p> <p>Use results of investigations, information sources, including ICT when developing design ideas</p>	<p>Food: making Christmas cakes</p> <p><u>Key Skills</u> Generate ideas through brainstorming and identify a purpose for their product. Link to RE and celebratory food.</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes.</p> <p>Develop skills in using different tools and equipment safely and accurately Weigh and measure accurately. Apply the rules for basic food hygiene and other safe practices e.g. hazards relating to the use of ovens</p>

		<p>components together using a variety of temporary methods e.g. glues or masking tape</p> <p>Use basic food handling, hygienic practices and personal hygiene</p> <p>Use simple finishing techniques to improve the appearance of their product</p> <p>Evaluate their product by discussing how well it works in relation to the purpose</p> <p>Evaluate their products as they are developed, identifying strengths and possible changes they might make</p> <p>Evaluate their product by asking questions about what they have made and how they have gone about it.</p>		<p>Measure, cut & score with some accuracy.</p> <p>Use tools safely & appropriately. Assemble, join & combine materials in order to make a product.</p> <p>Choose & use appropriate finishing techniques. Evaluate against design criteria.</p> <p>Evaluate their products as they are developed, identifying strengths & possible changes they might make.</p> <p>Talk about their ideas, saying what they like & dislike about them.</p>	<p>making their product</p> <p>Measure, mark out, cut, score and assemble components with more accuracy</p> <p>Work safely and accurately with a range of simple tools</p> <p>Think about their ideas as they make progress and be willing change things if this helps them improve their work</p> <p>Measure, tape or pin, cut and join fabric with some accuracy.</p>	<p>Select appropriate tools and techniques for making their product.</p> <p>Join and combine materials and components accurately in temporary and permanent ways</p> <p>Evaluate their work both during and at the end of the assignment</p>	<p>Select appropriate materials, tools and techniques</p> <p>Use skills in using different tools and equipment safely and accurately</p> <p>Weigh and measure accurately (time, dry ingredients, liquids)</p> <p>Apply the rules for basic food hygiene and other safe practices e.g. <i>hazards relating to the use of ovens</i></p> <p>Evaluate a product against the original design specification</p> <p>Evaluate it personally and seek evaluation from others</p>	<p>Evaluate product and explore different ingredients.</p>
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	Spring	<p>3D junk modelling and construction building – inside and outside areas – planning and adapting ideas</p> <p>Forces-moving cars and wheels</p> <p>Building houses for the 3 little pigs</p> <p><u>Cooking</u> -Pancakes -Porridge -Decorating gingerbread men</p> <p>Suggest ideas about what they are going to do.</p> <p>Identify a target group for what they intend to design and make.</p> <p>Develop their design ideas applying findings from their earlier ideas. Make their design using some appropriate techniques -Assemble with help - join and combine</p>	<p>Food-fruit /veg salad</p> <p><u>Key Skills</u> Draw on their own experience to help generate ideas Suggest ideas and explain what they are going to do Identify a target group for what they intend to design and make.</p> <p>Select and use appropriate fruit and vegetables, processes and tools Use basic food handling, hygienic practices and personal hygiene</p> <p>Evaluate their products as they are developed, identifying strengths and possible changes they might make Evaluate their product by asking questions about what they have made and how they have gone about it</p>	<p>Food Preparing fruit and vegetables, including cooking: Vegetable soup</p> <p><u>Key Skills</u> Generate ideas by drawing on their own & other people's experiences.</p> <p>Develop their ideas through discussion & observation.</p> <p>Identify a purpose for what they intend to design & make.</p> <p>Identify simple design criteria.</p> <p>Make simple drawings & label parts.</p> <p>Begin to select tools & materials; use vocab to name & describe them.</p> <p>Use tools safely & appropriately.</p> <p>Assemble, join & combine materials</p>		<p>Circuits and switches -linked to Science. Hands free head lamp.</p> <p><u>Key Skills</u> Generate ideas, considering the purposes for which they are designing</p> <p>Make labelled drawings from different views showing specific features</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail</p> <p>Evaluate products and identify criteria that can be used for their own designs</p> <p>Select appropriate tools and techniques for making their product</p>	<p>Electrical systems STABS – Buzz it games with switches and circuits</p> <p><u>Key Skills</u> Generate ideas through brainstorming and identify a purpose for their product</p> <p>Draw up a specification for their design – Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail – Measure and mark out accurately</p> <p>Use skills in using different tools and equipment safely and accurately Evaluate a product against the original design specification Evaluate it personally and seek evaluation from others</p>	<p>Textiles – upcycling to make a bag</p> <p><u>Key Skills</u> Generate ideas through brainstorming and identify a purpose for their product -Draw up a specification for their design – Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail – Measure and mark out accurately Use skills in using different tools and equipment safely and accurately Evaluate a product against the original design spec. Evaluate the product.</p>
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		<p>materials and components together using a variety of temporary methods e.g. glues or masking tape</p> <p>Select and use appropriate fruit and vegetables, processes and tools</p> <p>Use basic food handling, hygienic practices and personal hygiene</p> <p>Evaluate their product by discussing how well it works in relation to the purpose</p> <p>Evaluate their products as they are developed, identifying strengths and possible changes they might make</p> <p>Evaluate their product by asking questions about what they have made and how they have gone about it</p>		<p>in order to make a product.</p> <p>Follow safe procedures for food safety & hygiene.</p> <p>Choose & use appropriate finishing techniques.</p> <p>Evaluate against design criteria.</p> <p>Evaluate their products as they are developed, identifying strengths & possible changes they might make.</p> <p>Talk about their ideas, saying what they like & dislike about them.</p>		<p>Join and combine materials and components accurately in temporary and permanent ways</p> <p>Evaluate their work both during and at the end of the assignment</p> <p>Evaluate their products carrying out appropriate tests.</p>		
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	Summer	<p>Grow our own vegetables, prepare and eat them</p> <p>Make minibeast puppets</p> <p>Clay minibeasts</p> <p>Make different landmarks</p> <p>Suggest ideas about what they are going to do</p> <p>Make their design using some appropriate techniques</p> <p>With help mark out, cut and shape a range of materials</p> <p>Use tools eg scissors and a hole punch safely</p> <p>Assemble with help join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape</p> <p>-Select and use appropriate fruit and vegetables, processes and tools</p> <p>Use basic food handling, hygienic</p>	<p>Mechanisms – Simple moving animals</p> <p><u>Key Skills</u></p> <p>Draw on their own experience to help generate ideas</p> <p>Suggest ideas and explain what they are going to do</p> <p>Identify a target group for what they intend to design and make</p> <p>Model their ideas in card and paper</p> <p>Make their design using appropriate techniques</p> <p>With help measure, mark out, cut and shape a range of materials</p> <p>Use tools eg scissors and a hole punch safely</p> <p>Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape</p> <p>Use simple finishing techniques to</p>	<p>Textiles</p> <p>Templates and joining:</p> <p>Making a glove puppet</p> <p><u>Key Skills</u></p> <p>Generate ideas by drawing on their own & other people's experiences.</p> <p>Develop their ideas through discussion, observation, drawing & modelling.</p> <p>Identify a purpose for what they intend to design & make.</p> <p>Identify simple design criteria.</p> <p>Make simple drawings & label parts.</p> <p>Begin to select tools & materials; use vocab to name & describe them.</p> <p>Measure, cut & score with some accuracy.</p>	<p>Food – healthy and varied diet</p> <p>Making sandwiches</p> <p><u>Key Skills</u></p> <p>Generate ideas for an item, considering its purpose and the user/s.</p> <p>Identify a purpose and establish criteria for a successful product.</p> <p>Plan the order of their work before starting</p> <p>Explore, develop and communicate design proposals by modelling ideas</p> <p>Make drawings with labels when designing</p> <p>Demonstrate hygienic food preparation and storage</p> <p>Use finishing techniques</p> <p>strengthen and improve the</p>	<p>Healthy eating</p> <p>-Making a toastie (link to PSHE and Science)</p> <p><u>Key Skills</u></p> <p>Generate ideas, considering the purposes for which they are designing</p> <p>Make labelled drawings from different views showing specific features</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail</p> <p>Evaluate products and identify criteria that can be used for their own designs</p> <p>Select appropriate tools and techniques for making their product</p>	<p>Frame Structures</p> <p>Make a kite</p> <p><u>Key Skills</u></p> <p>Generate ideas through brainstorming and identify a purpose for their product</p> <p>Draw up a specification for their design</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail</p> <p>Use results of investigations, information sources, including ICT when developing design ideas</p> <p>Select appropriate materials, tools and techniques</p> <p>Use skills in using different tools and</p>	<p>Pulleys and gears – fairground ride</p> <p><u>Key Skills</u></p> <p>Generate ideas through brainstorming and identify a purpose for their product</p> <p>Draw up a specification for their design</p> <p>Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail</p> <p>Use results of investigations, information sources, including ICT when developing design ideas</p> <p>Select appropriate materials, tools and techniques</p> <p>Use skills in using different tools and</p>
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		<p>practices and personal hygiene</p> <p>Evaluate their product by discussing how well it works in relation to the purpose</p> <p>Evaluate their products as they are developed, identifying strengths and possible changes they might make. Evaluate their product by asking questions about what they have made and how they have gone about it.</p> <p><u>Key Skills - EYO and ELGs</u></p> <p><u>30-50months (EMM)</u></p> <p>-Uses various construction materials.</p> <p>-Beginning to construct, stacking blocks vertically and horizontally, making enclosures -</p> <p>-Joins construction pieces together to build and balance.</p>	<p>improve the appearance of their product</p> <p>Evaluate their product by discussing how well it works in relation to the purpose</p> <p>Evaluate their product by asking questions about what they have made and how they have gone about it</p> <p><u>Freestanding structures-playground</u></p> <p><u>Key Skills</u></p> <p>Draw on their own experience to help generate ideas</p> <p>Suggest ideas and explain what they are going to do</p> <p>Identify a target group for what they intend to design and make</p> <p>Model their ideas in card and paper</p> <p>Make their design using appropriate techniques</p> <p>With help measure, mark out, cut and shape a range of materials</p>	<p>Use tools safely & appropriately.</p> <p>Assemble, join & combine materials in order to make a product.</p> <p>Cut, shape & join fabric to make a simple garment; Use basic sewing techniques.</p> <p>Choose & use appropriate finishing techniques.</p> <p>-Evaluate against design criteria.</p> <p>-Evaluate their products as they are developed, identifying strengths & possible changes they might make.</p> <p>-Talk about their ideas, saying what they like & dislike about them.</p>	<p>appearance of their product using a range of equipment including ICT</p> <p><u>Shell structures - making packing for the sandwiches</u></p> <p>Generate ideas for an item, considering its purpose and the user/s</p> <p>Identify a purpose and establish criteria for a successful product.</p> <p>Plan the order of their work before starting</p> <p>Explore, develop and communicate design proposals by modelling ideas</p> <p>Make drawings with labels when designing</p> <p>Use finishing techniques strengthen and improve the appearance of their</p>	<p>Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques</p> <p>Evaluate their work both during and at the end of the assignment</p> <p>Evaluate their products carrying out appropriate tests.</p>	<p>equipment safely and accurately</p> <p>Cut and join with accuracy to ensure a good-quality finish to the product</p> <p>Evaluate a product against the original design specification</p> <p>Evaluate it personally and seek evaluation from others</p>	<p>equipment safely and accurately</p> <p>Cut and join with accuracy to ensure a good-quality finish to the product</p> <p>Evaluate a product against the original design specification</p> <p>Evaluate it personally and seek evaluation from others</p>
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		<p>-Realises tools can be used for a purpose.</p> <p><u>40-60months (EMM)</u></p> <p>-Manipulates materials to achieve a planned effect.</p> <p>-Constructs with a purpose in mind, using a variety of resources.</p> <p>-Uses simple tools and techniques competently and appropriately.</p> <p>-Selects appropriate resources and adapts work where necessary.</p> <p>-Selects tools and techniques needed to shape, assemble and join materials they are using.</p> <p><u>ELG - EMM</u></p> <p>-They safely use and explore a variety of materials, tools and techniques.</p> <p>-They represent their own ideas, thoughts and feelings through design and technology.</p>	<p>Use tools eg scissors and a hole punch safely</p> <p>Assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape</p> <p>Use simple finishing techniques to improve the appearance of their product</p> <p>Evaluate their product by discussing how well it works in relation to the purpose</p> <p>Evaluate their products as they are developed, identifying strengths and possible changes they might make</p> <p>Evaluate their product by asking questions about what they have made and how they have gone about it</p>		product using a range of equipment including ICT			
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