

Design and Technology Milestones

EYFS	KS1	KS2
<p>Children at the end of the Early Years Foundation Stage will have been exposed to a range of different simple tools and techniques, and developed the skills needed to use these safely and appropriately.</p> <p>Children will have had experience in experimenting with diverse materials, exploring texture, movement, feel and appearance. They will have learnt to select those which meet their interests and enquiries and develop their thinking.</p> <p>Children will know that materials can be manipulated for their intended use.</p> <p>Children will be able to construct their products purposefully, as well as express and communicate their discoveries and understanding.</p>	<p>When reached the end of Key Stage 1, children will have begun to build a repertoire of knowledge and skills within the different areas of the Design and Technology curriculum.</p> <p>They will be able to use design criteria to design purposeful, functional and appealing products for themselves and others. Children will have learnt to develop and communicate their ideas through discussion and drawings.</p> <p>Children will be able to select from and use a range of appropriate tools to perform practical tasks, as well as suitable materials and components according to their properties and characteristics. They will have explored methods of building structures and making them stronger, stiffer and more stable. Simple mechanisms will have been investigated and used within products.</p> <p>Children will have developed their understanding of the basic principles of a healthy and varied diet, as well as discovered where food comes from.</p> <p>They will also be able to explore and evaluate a range of existing products, as well as their own finished products against design criteria.</p>	<p>At the end of Key Stage 2, children will have participated in a variety of creative and practical activities which will have given them the knowledge, understanding and skills needed to engage with an iterative process of designing and making.</p> <p>Children will use research to develop specific design criteria to inform the design of innovative, functional and appealing products. These will be fit for purpose and aimed at intended individuals or groups. Designs will be developed and communicated through annotated sketches, exploded diagrams, models and prototypes.</p> <p>A wider range of tools and equipment will have been experimented by children, from which they will have selected and used to perform practical tasks. Similarly, children will have considered functional properties and aesthetic qualities when using a wider range of materials and components. These will have included construction materials, textiles and ingredients. Children will have applied their knowledge of how to strengthen, stiffen and reinforce complex structures, and know how to use mechanical and electrical systems in their products successfully.</p> <p>Knowledge of the principles of a healthy and varied diet will have been applied when preparing and cooking, using a range of cooking techniques. The children will also understand seasonality, including the actions required to obtain ingredients.</p> <p>Children will be able to investigate and analyse a variety of existing products, evaluate their own products against design criteria and consider the views of others, including their peers, in order to improve their work. Children will have developed a good understanding of how the shape of the world has been supported by key events and individuals.</p>

Design and Technology - Progression in Key Learning

Nursery	Begin to explore materials, tools and simple techniques. Children to use various construction materials to join, stack vertically and horizontally, balance, make enclosures and create spaces. Children to use tools for a purpose. Children to select materials from a limited range that will meet a simple design criterion e.g. shiny. Children to explore colours and textures. Children to share creations with peers and adults.	
Reception	Children to begin to safely use tools and materials to explore their interests and develop their thinking. Children to select materials from a wider range that will meet a simple design criterion. Children to experiment with colour, design, texture, form and function. Children to develop their own ideas through experimentation with diverse materials. Children to share their creations, beginning to explain the process they have used. Children to construct products purposefully. Begin to discuss what they like and do not like about products they have made and attempt to say why.	
	Yr 1	Yr 2
Vocabulary	Design, plan, evaluate, materials, tools, improve, names of ingredients (fruit), names of fabric, cut, join, shape	Design, plan, evaluate, construct, structure, mechanism, names of ingredients, axles, wheels, chassis, stable, secure, chopping board, grater, peel, healthy/unhealthy
Design	<p>Term 1A: Scarves – to look at existing scarves designed for different purposes.</p> <p>Term 2A: Moving picture – look at children’s books with moving pictures.</p> <p>Term 3B: Fruit salad – to taste fruit salads and evaluate fruits and flavours.</p> Children know who they are going to make their design for. Children begin to explain what they are making and name the materials they will be using. Children can select materials from a limited range that will meet a simple design criterion e.g. soft/rough/stretchy. Children begin to select and name the tools needed e.g. scissors/split pins. Children to use simple given design criteria including two criteria. Children to make a simple drawing of their design.	<p>Term 1B: Toy vehicle – toy cars, van, fire engines etc.</p> <p>Term 2B: Bug hotel – look around for existing micro habitats around school and ones you can buy for the garden or in park areas.</p> <p>Term 3B: Healthy snack (dips and dippers) – hummus, raita, salsa, carrots, cucumber, pitta etc.</p> Children will identify a purpose and intended users audience for what they intend to design and make. Children can explain what they are making and name the materials they will be using. Children can select materials from a larger range that will meet a simple design criterion e.g. damp/ crisp/ smooth. Children can select and name the tools needed e.g. scissors/knife. Children to use simple given design criteria including three or four criteria. Children will make a simple drawing of their design with a few labels.
Make <i>(apply technical knowledge including cooking and nutrition)</i>	Children begin to select tools and materials and use them safely (<i>e.g., scissors</i>). With help, children measure, mark out, cut and shape a range of materials (<i>cotton, felt, wool, net, hessian, velvet, lolly stick, cardboard, card/paper, fruit of choice, fruit juice</i>). With help, measure, mark, cut and shape using appropriate tools (<i>scissors, knives</i>) Children to begin to assemble, join and combine materials using a variety of temporary methods (<i>e.g., glue, sellotape, blu-tack, split pins</i>). Explore, investigate and use simple mechanisms (<i>flaps, sliders, levers</i>). Begin to use simple finishing techniques to improve the appearance of their product. Begin to recognise that everyone should eat five portions of fruit and vegetables a day.	Children begin to select tools and materials safely and use the correct vocabulary to name and describe their characteristics (<i>knives, scissors, grater, chopping board</i>). Children measure, score and cut with some accuracy (<i>rulers, scissors, knives</i>) Children to build confidence in assembling, joining and combining materials to make a product using a variety of temporary methods more independently (<i>PVA glue, sellotape, blu-tack, split pins, masking tape</i>). Explore and use simple mechanisms (<i>wheels and axles</i>) and know their movements. Children to begin to build structures, exploring how a free-standing structure can be made stronger, stiffer and more stable by adding more material or plugging gaps and holes. Use simple and appropriate finishing techniques to improve the appearance of their product. Children understand that everyone should eat five portions of fruit and vegetables a day. Children know that food has to be farmed or grown elsewhere, or caught. Name and sort foods into the five groups.

	<p>Know that all food comes from plants or animals. Children use appropriate fruit and vegetables and understand what a healthy meal is. Use basic food handling and hygienic practices (<i>hand cleaning, clean surface, chopping boards cleaned, tie hair back, no touching hair/face - if so, cleans hands immediately</i>). Children use appropriate tools for preparing food. Children begin to prepare simple dishes safely and hygienically without using a heat source. Children begin to use a simple chopping technique (bridge).</p>	<p>Children know hygiene and safety rules (<i>hand cleaning, clean surface, chopping boards cleaned, tie hair back, no touching hair/face - if so, cleans hands immediately</i>). Children select and use appropriate fruit and vegetables and understand what a healthy meal is. Children select and use appropriate tools for preparing food. Children can prepare simple dishes safely and hygienically without using a heat source. Children grow confidence in using a simple chopping technique (bridge) as well as peeling.</p>
Evaluate	<p>Children will explore a range of existing products and will draw on their own experiences to generate ideas. Children evaluate their product by discussing how well it works in relation to its purpose (<i>Scarf – to keep a teddy warm. Moving picture – to be attractive and entertaining for a child. Fruit salad – to eat during a party.</i>) Children to develop an understanding of what their word evaluate means. Children to make simple judgements of how their finished product met their design. Children talk about their products saying what they like and dislike, giving reasons for each. Children to identify one simple change they would make to their product.</p>	<p>Children will investigate a range of existing products and will develop their ideas through discussion. Children to discuss how well it works in relation to its purpose. Children evaluate their product against their design criteria. (<i>Toy vehicle – functional and appealing for a reception child. Bug hotel – micro habitat. Healthy snack (dips and dippers) – for a healthy snack during lunch.</i>) Children to identify how well their product works in comparison to their design idea. Children to identify a strength and weakness of their product through discussion and asking questions. Children discuss the changes they might make to improve their design next time. Children to identify how their product could be improved through a few simple changes.</p>

Design and Technology - Progression in Key Learning

	Year 3	Year 4	Year 5	Year 6
Vocabulary	Design criteria, cam, follower, dowel, names of fabrics, printing, pneumatic system, syringe, sew, running stitch, annotate	Running stitch, cross stitch, aesthetic, function, stiffen, strengthen, ingredients, recipe, bake, heat, hygienic	Sustainability, reinforce, human impact, criteria, self- evaluation, improve, modify, reared, caught, processed	Preferences, innovative, mechanical system, electrical system, design specification, peer-evaluation, seasonal
Design	<p>Term 1B: <i>In-flight toy – look at existing simple moving toys for infants.</i></p> <p>Term 2B: <i>T-shirt – look at T-shirt designs and explore running stitches.</i></p> <p>Term 3B: <i>Moving treasure chest – explore pneumatic systems using different sized syringes.</i></p> <p>Children will consider the purpose of products. Children will identify an intended user for their design and choose a design criterion from a variety of options. Children can explain why a product is suitable for a particular user.</p>	<p>Term 1A: <i>Cakes or biscuits – taste existing cakes and biscuits for flavour and texture and evaluate ingredients and whether they are healthy/unhealthy.</i></p> <p>Term 2A: <i>Egyptian collar – explore Egyptian collar designs looking closely at colours and patterns as well as recap running stitch.</i></p> <p>Term 3A: <i>Earthquake proof structure – explore different buildings looking closely at structures.</i></p> <p>Children will consider the purpose of products and the user.</p>	<p>Term 1B: <i>Greek salad – children to explore ingredients and flavours in Greek salad – think about textures and appearance.</i></p> <p>Term 2A: <i>Torch – existing torches to be investigated and evaluated.</i></p> <p>Term 3B: <i>Bridge – research types of bridges and their characteristics.</i></p> <p>Children to gather information about the needs and preferences of particular individuals and groups – intended users. Children will develop their own criteria and use these to inform their designs.</p>	<p>Term 1B: <i>Steady hand game – children to play and investigate existing steady hand games and compare each one.</i></p> <p>Term 2A: <i>Ferris wheel – children to look at Ferris wheel designs and shapes.</i></p> <p>Term 3B: <i>Food linked with holidays – children to explore various foods from different cultures – think about textures, appearance and aroma.</i></p> <p>Children will use research to develop their own design criteria for an innovative, functional and appealing product. Which is</p>

	<p>Children to begin to plan the order of their work. Children will explore and develop their design by modelling ideas and making sketches with labels.</p>	<p>Children will evaluate existing products and identify criteria that can be used for their own design. Children will develop a clear plan of how to use the appropriate tools and equipment. Children can plan the order of their work. Children will explore and develop their design by modelling ideas and making annotated sketches with precise labels.</p>	<p>Children will develop a detailed plan of how to use the appropriate tools and equipment. Children will develop a simple design specification to guide their thinking. Where possible, children to make a prototype/model during the design process. Children to create multiple designs of each stage within the process through detailed annotated sketches and exploded diagrams.</p>	<p>fit for purpose and meets the needs of intended users. Children to decide on what information needs to be gathered regarding the needs and preferences of particular individuals and groups – intended users. Children will develop their own criteria and use these to inform their designs. Children will develop a detailed plan of how to use the appropriate tools and equipment, suggesting alternatives if first attempts fail. Children will develop a simple design specification to guide their thinking as well as a detailed plan of the sequence of their work. Children to make a prototype/model during the design process. Children to create multiple designs of each stage within the process through detailed annotated sketches and exploded diagrams, which they can explain in a convincing way. Children to identify strengths and areas for development within their designs.</p>
<p>Make (<i>apply technical knowledge including cooking and nutrition</i>)</p>	<p>Children select tools and materials for their product with some independence (choose shape of cam, suitable fabrics, threads) based on its functional properties. Children will mark, measure, score and sew with some accuracy. Children work safely with a range of simple tools (cams, dowel, scissors, sewing tools). Children will measure, tape or pin and sew fabric with some accuracy. Children to sew on embellishments to their T-shirt using a running stitch. Children will make a product that uses pneumatic systems (syringes and gas) as well as mechanical systems (cams and followers). Children will choose finishing techniques that strengthen and improve the appearance of their product. Children will think about their ideas and be willing to make changes if this improves their work.</p>	<p>Children confidently select tools and techniques for making their product from a wider range of materials and components (suitable baking equipment, ingredients, threads, straws, modelling clay) based on functional properties and aesthetic qualities. Children will mark, measure, score and sew with increasing accuracy. Children will join and combine materials and components using permanent joining technique (stitching). Children will sew using a range of different stitching techniques (running stitch, cross stitch). Children measure, score, cut out and shape a range of materials using appropriate tools safely and accurately (rulers, scissors). Children will choose finishing techniques which improve the appearance of their product.</p>	<p>Children independently select materials, tools and techniques for their products (suitable ingredients for salad, chopping knife, grater, series circuits, switches, bulbs, wood) based on functional properties and aesthetic qualities. Children will confidently and accurately measure, score, cut out and shape materials using appropriate tools safely and accurately (rulers, scissors). Children will join with permanent joining techniques safely (hot glue gun). Children will understand and use electrical systems in their products (series circuits, switches, bulbs). With growing confidence, children will apply a range of finishing techniques, including those from learnt in Art, which will improve the appearance of their product.</p>	<p>Children confidently and independently select materials, tools and techniques for their products (suitable ingredients, kitchen tools e.g. knife/grater/peeler, series circuits, switches, buzzers, wood, saw) based on functional properties and aesthetic qualities. Children will confidently and accurately measure, score, cut out and shape materials using appropriate tools safely and accurately (ruler, saw, sand paper). Children to accurately assemble, join and combine materials and components to create working models (Ferris wheel) using permanent joining techniques safely and competently (wood, hot glue gun). Children will make a product that uses mechanical systems (gears or pulleys). Children will understand and use electrical systems in their products independently (series circuits, switches, buzzers).</p>

		<p>Children to explore methods which will strengthen, stiffen and reinforce their structures e.g. using modelling clay.</p> <p>Children know that a healthy diet is made up from a variety and balance of different food and drink.</p> <p>Children know that healthy food and drink are needed to provide energy for the body.</p> <p>Children know hygiene and safety rules (<i>hand cleaning, clean surface, chopping boards cleaned, tie hair back, no touching hair/face - if so, cleans hands immediately, correct storage of food</i>).</p> <p>Children select and use appropriate fruit and vegetables and understand what a healthy meal is.</p> <p>Children select and use appropriate tools for preparing food.</p> <p>Children can demonstrate hygienic food preparation.</p> <p>Children develop a range of baking techniques (e.g. mixing, spreading, kneading).</p> <p>Children begin to understand how to use a heat source to prepare food.</p>	<p>Children to explore methods which will strengthen, stiffen and reinforce more complex structures. Children to explore how the strength of structures can be affected by the shape used.</p> <p>Children to make appropriate changes to their design during their make process if necessary.</p> <p>Children begin to understand that food is grown, reared, caught and processed in the UK and the wider world.</p> <p>Understand how food is processed into ingredients that can be eaten or used in cooking.</p> <p>Children know hygiene and safety rules (<i>hand cleaning, clean surface, chopping boards cleaned, tie hair back, no touching hair/face - if so, cleans hands immediately, correct storage of food</i>).</p> <p>Children select and use appropriate ingredients.</p> <p>Understand and apply principles of a healthy and varied diet.</p> <p>Children select and use appropriate tools for preparing food.</p> <p>Children can demonstrate hygienic food preparation.</p> <p>Children can weigh and measure accurately.</p> <p>Children develop a range of chopping techniques (bridge, claw, fork secure).</p> <p>Understand that recipes can be adapted to change appearance, taste, texture and aroma.</p> <p>Children will explore food and drinks and develop understanding how they contain different nutrients that are needed for good health.</p>	<p>Children will independently choose and apply a range of finishing techniques, including those from learnt in Art, which will improve the appearance of their product.</p> <p>Children to explore methods which will strengthen, stiffen and reinforce more complex structures. Children to use knowledge of how the strength of structures can be affected by the shape used.</p> <p>Children to make appropriate modifications to their design during their make process if necessary, based on tests for durability.</p> <p>Children know that food is grown, reared, caught and processed in the UK and the wider world.</p> <p>Children understand seasonality and know that seasons may affect the food available.</p> <p>Children know hygiene and safety rules (<i>hand cleaning, clean surface, chopping boards cleaned, tie hair back, no touching hair/face - if so, cleans hands immediately, correct storage of food</i>).</p> <p>Children select and use appropriate ingredients which meet design criteria.</p> <p>Children will have a good understanding and can confidently apply the principles of a healthy and varied diet.</p> <p>Children select and use appropriate tools for preparing food.</p> <p>Children can demonstrate hygienic food preparation.</p> <p>Children can weigh and measure accurately.</p> <p>Children can use a range of chopping techniques (bridge, claw, fork secure).</p> <p>Children can adapt and refine recipes with healthy seasonal ingredients/ methods/ cooking times and temperatures, in order to change appearance, taste, texture and aroma.</p> <p>Children know how to use a heat source to prepare food.</p> <p>Children will know that food and drink contain different nutrients that are needed for good health.</p>
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Evaluate	<p>Children will investigate a range of existing products and will develop their ideas through observation and discussion.</p> <p>Children can evaluate their product against their chosen design criteria. (In-flight toy – for an infant to use on an aeroplane. T-shirt – to advertise Cadbury World. Moving treasure chest – for use during role play).</p> <p>Children to identify a strength and weakness of their product, and record their evaluations through self-assessment against each design criteria.</p> <p>Children to record changes they would make in future to improve their product.</p>	<p>Children will investigate a range of existing products and will develop their ideas through accurate observations and thorough discussion.</p> <p>Children can evaluate their product against their chosen design criteria. (Cakes and biscuits – to sell in the Rainforest Café. Egyptian collar – appearance and design. Earthquake proof structure – for strength and stiffness).</p> <p>Children to identify the product’s strengths and weaknesses, and record their evaluations through self-assessment against each design criteria.</p> <p>Children to carry out appropriate tests to evaluate their products.</p> <p>Children to consider the views of others to improve their product.</p> <p>Children to recognise and record changes needed to improve their product.</p> <p>Begin to explore how key events and individuals in design and technology have helped shape the world.</p>	<p>Children will evaluate existing products as well as use results from investigations and other information sources to develop their own ideas.</p> <p>Children can evaluate their product, focusing on use, functionality, appearance, (taste/texture, where appropriate) against specific chosen design criteria. (Greek salad – to be eaten as a side dish in a restaurant. Torch – a functional light source. Bridge – to create an appealing structure for display).</p> <p>Children to evaluate their product during the make process and once complete.</p> <p>Children to identify and discuss the product’s strengths and weaknesses, and record their evaluations through self-assessment against each design criteria.</p> <p>Children to conduct appropriate tests to make more robust evaluations and identification of key improvements needed.</p> <p>Where appropriate, children can explain the adaptations they have made to their design.</p> <p>Children to consider the views of others, including intended users, to improve their product.</p> <p>Develop understanding of how key events and individuals in design and technology have helped shape the world.</p>	<p>Children will independently evaluate existing products as well as use results from investigations and other information sources.</p> <p>Children can confidently evaluate their product, focusing on use, functionality, appearance, (taste/texture, where appropriate) against specific chosen design criteria, and give reasons for their evaluations. (Steady hand game – to work effectively and be played by children a particular age. Ferris wheel – to create an appealing, moving display ornament. Food linked with holidays – to be eaten on holiday).</p> <p>Children to evaluate their product several times during the make process and once complete.</p> <p>Children to identify, discuss and justify the product’s strengths and weaknesses, and record their evaluations through self-assessment against each design criteria.</p> <p>Children to conduct appropriate tests to make more robust evaluations and identification of key improvements needed, or alternative methods of construction.</p> <p>Where appropriate, children can explain in detail the adaptations they have made to their design and why.</p> <p>Children to consider the views of others, including intended users as well as their own, and drawing on final conclusions for their product in relation to design criteria.</p> <p>Children to record their evaluations using drawings with labels.</p> <p>Children to evaluate what impact their product may have beyond its intended purpose.</p> <p>Understand how key events and individuals in design and technology have helped shape the world.</p>