



Progression of concepts, knowledge and skills: Design and Technology

Overview of Concepts	Early Years	Key Stage 1	Key Stage 2
Developing and communicating ideas	Show an interest and talks about how things are made, using appropriate vocabulary and understands that tools can be used for a purpose.	Develops an awareness of how products are made and fit for purpose, drawing on own and others experiences. Identifies a purpose for what they intend to design and make by contributing towards a design brief.	Use research to develop a design criteria, making links with maths and science. Growing awareness of the process of how products are made and the cost.
Planning	Constructs with a purpose in mind.	Begin to develop designs through drawings, discussions and modelling	Develop designs through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Identifies strength and areas of improvement for own designs.
Working with tools, equipment, materials and components	Develops fine motor skills and uses tools to assemble, join and construct Uses a variety of resources and materials to manipulate, with purpose in mind	Recognise effective and safe ways to use tools and resources. Select and use appropriate finishing techniques.	Selects tools, components, materials and techniques confidently. Understands and uses more complex mechanical and electrical components for control products.
Evaluates process and products	Describes own products and those of others using developing vocabulary, and offers	Evaluates own and existing products against a criteria, recognising strengths and areas	Carries out appropriate tests of own and existing products, identifying strengths and areas for

	suggestions for adaptations where necessary Begins to give reasons for choices	of improvement.	improvement against a generated criteria. Evaluates process and products continually, adapting work where necessary.
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By the end of KS1 children will have:

Developed the following D&T concepts:	Developed the following skills:	Have gained the following knowledge:
<p>Developing and communicating ideas Develops an awareness of how products are made and fit for purpose, drawing on own and others experiences. Identifies a purpose for what they intend to design and make, by contributing towards a design brief.</p> <p>Planning Begin to develop designs through drawings, discussions and modelling</p> <p>Working with tool, equipment, materials and components Recognise effective and safe ways to use tools and resources. Select and use appropriate finishing techniques.</p> <p>Evaluating progress and products Evaluates own and existing products against a criteria, recognising strengths and areas of improvement.</p>	<p>Developing and communicating ideas Begin to draw on their own experience to help generate ideas and research conducted on criteria. Begin to understand the development of existing products: What they are for, how they work, materials used. Start to suggest ideas and explain what they are going to do.</p> <p>Understand how to identify a target group for what they intend to design and make based on a design criteria.</p> <p>Start to generate ideas by drawing on their own and other people's experiences.</p> <p>Identify a purpose for what they intend to design and make.</p>	<p>Technical knowledge Know what is meant by the terms: stronger, stiffer and more stable when referring to structures. Know how to build structures</p> <p>Cooking and Nutrition Know that germs can cause illness and can be spread by our hands and surfaces Know HOW to wash their hands Know HOW to clean the surfaces they are working on. Know how to stay safe when cutting</p> <p>Begin to understand that all food comes from plants or animals.</p> <p>Start to understand how to name and sort foods into the five groups in 'The Eat well plate'</p>

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Megan these are great- but there is quite a lot!!
Is it possible to reduce down? Or do you think not?
And can you just check through- some points are repeated. I have deleted some duplicates but my eyes are going squiffy now!

	<p>Planning</p> <p>Begin to develop their ideas through talk and drawings.</p> <p>Begin to choose and identify the most appropriate materials or tools they might want to use.</p> <p>Begin to develop their design ideas through discussion, observation, drawing, modelling and labelling parts.</p> <p>Make templates and mock ups of their ideas in card and paper or using ICT.</p> <p>Working with tools, equipment, materials and components</p> <p>Begin to make their design using appropriate, learnt techniques.</p> <p>Begin to build structures, exploring how they can be made stronger, stiffer and more stable.</p> <p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>With help measure, mark out, cut and shape a range of materials.</p> <p>Explore using tools e.g. scissors and a hole punch safely.</p>	<p>Begin to understand that everyone should eat at least five portions of fruit and vegetables every day.</p> <p>Begin to describe the properties of the ingredients they are using</p> <p>Explain what it means to be hygienic?</p> <p>Materials</p> <p>Describe materials using appropriate vocabulary</p> <p>Know that different materials are good at doing different things- warmth, waterproof, etc.</p> <p>Know where to use glue, and how much, to fix pieces together.</p> <p>Make a product from textile by glueing.</p>
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	<p>Use scissors to cut straight and curved lines, fairly accurately</p> <p>Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape.</p> <p>Evaluating processes and products Start to evaluate their product by discussing how well it works in relation to the purpose (design criteria).</p> <p>When looking at existing products explain what they like and dislike about products and why.</p> <p>Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.</p> <p>Evaluate their work against their design criteria.</p> <p>Look at a range of existing products and explain what they like and dislike about products and why.</p> <p>Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.</p> <p>With confidence talk about their ideas, saying what they like and dislike about them.</p>	
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By the end of Lower KS2 children will have:		
Developed the following D&T concepts:	Developed the following skills:	Have gained the following knowledge:
<p>Developing and communicating ideas Use research to develop a design criteria, making links with maths and science. Growing awareness of the process of how products are made and the cost.</p> <p>Planning Develop designs through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Identifies strength and areas of improvement for own designs.</p> <p>Working with tool, equipment, materials and components Selects tools, components, materials and techniques confidently. Understands and uses more complex mechanical and electrical components</p>	<p>Developing and communicating ideas With growing confidence generate ideas for an item, considering its purpose and the user/s.</p> <p>Start to order the main stages of making a product. Identify a purpose and establish criteria for a successful product.</p> <p>Understand how well products have been designed, made, what materials have been used and the construction technique.</p> <p>Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p> <p>Start to understand whether products can be recycled or reused.</p>	<p>Cooking and nutrition Understand that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.</p> <p>Know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The Eat well plate' . Start to identify key foods in each of these five areas.</p> <p>Know that to be active and healthy, food and drink are needed to provide energy for the body.</p> <p>Materials: Measure carefully so as not to make mistakes.</p>

<p>for control products.</p> <p>Evaluating progress and products Carries out appropriate tests of own and existing products, identifying strengths and areas for improvement against a generated criteria. Evaluates process and products continually, adapting work where necessary.</p>	<p>Start to generate ideas, considering the purposes for which they are designing- link with Mathematics and Science.</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>Planning</p> <p>Know to make drawings with labels when designing. When planning, explain their choice of materials and components including function and aesthetics.</p> <p>Confidently make labelled drawings from different views showing specific features.</p> <p>When planning, consider the views of others, including intended users, to improve their work. inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products.</p> <p>Working with tools, equipment, materials and components</p> <p>Select a wide range of tools and techniques for making their product i.e. construction materials and kits, textiles, food ingredients, mechanical components and electrical components.</p> <p>Explain their choice of tools and equipment in relation to the skills and techniques they will be using.</p>	<p>Explain how to join materials in different ways. Know which materials to use to make a product strong Cut and make holes accurately. Add things to circuits to complete a design brief. Know how to devise templates.</p>
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	<p>Start to understand that mechanical and electrical systems have an input, process and output.</p> <p>Start to understand that mechanical systems such as levers and linkages or pneumatic systems create movement.</p> <p>Know how simple electrical circuits and components can be used to create functional products.</p> <p>Measure, mark out, cut, score and assemble components with more accuracy.</p> <p>Start to work safely and accurately with a range of simple tools.</p> <p>Start to think about their ideas as they make progress and be willing to change things if this helps them to improve their work.</p> <p>Start to measure, tape or pin, cut and join fabric with some accuracy.</p> <p>Select a wider range of tools and techniques for making their product safely.</p> <p>Know how to measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques.</p> <p>Start to join and combine materials and components accurately in temporary and permanent ways.</p>	
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	<p>Know how mechanical systems such as cams or pulleys or gears create movement.</p> <p>Understand how more complex electrical circuits and components can be used to create functional products.</p> <p>Continue to learn how to program a computer monitor, changes in the environment and control their products.</p> <p>Understand how to reinforce and strengthen a 3D framework. Now sew using a range of different stitches, to weave and knit.</p> <p>Demonstrate how to measure, tape or pin, cut and join fabric with some accuracy.</p> <p>Begin to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</p> <p>Evaluating processes and products Start to evaluate their product against original design criteria e.g. how well it meets its intended purpose.</p> <p>Begin to disassemble and evaluate familiar products and consider the views of others to improve them.</p> <p>Evaluate the key designs of individuals in design and technology has helped shape the world.</p> <p>Evaluate their products carrying out appropriate tests.</p>	
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	Identify the strengths and areas for development in their ideas and products.	
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By the end of Upper KS2 children will have:		
Developed the following D&T concepts:	Developed the following skills:	Have gained the following knowledge:
<p>Developing and communicating ideas Use research to develop a design criteria, making links with maths and science. Growing awareness of the process of how products are made and the cost.</p> <p>Planning Develop designs through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces. Identifies strength and areas of improvement for own designs.</p> <p>Working with tool, equipment, materials and components Selects tools, components, materials and techniques confidently. Understands and uses more complex mechanical and electrical components for control products.</p>	<p>Developing and communicating ideas Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.</p> <p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.</p> <p>Planning Draw up a specification for their design- link with Mathematics and Science. Plan the order of their work, choosing appropriate materials, tools and techniques.</p> <p>Know how much products cost to make, how sustainable and innovative they are and the impact products have beyond their intended purpose.</p>	<p>Cooking and nutrition Know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.</p> <p>Understand that seasons may affect the food available. Understand how food is processed into ingredients that can be eaten or used in cooking.</p> <p>As appropriate to topic, know where different food stuffs are mainly produced or grown and that we import some food.</p> <p>Know that different food and drink contain different substances – nutrients, water and fibre – that are needed for health.</p>

<p>Evaluating progress and products Carries out appropriate tests of own and existing products, identifying strengths and areas for improvement against a generated criteria. Evaluates process and products continually, adapting work where necessary.</p>	<p>Working with tools, equipment, materials and components</p> <p>Accurately apply a range of finishing techniques, including those from art and design.</p> <p>Confidently select appropriate tools, materials, components and techniques and use them.</p> <p>Use tools safely and accurately.</p> <p>Assemble components to make working models.</p> <p>Aim to make and to achieve a quality product.</p> <p>With confidence; pin, sew and stitch materials together to create a product.</p> <p>Make modifications as they go along.</p> <p>Construct products using permanent joining techniques.</p> <p>Use more complex electrical circuits and components can be used to create functional products and program a computer to monitor changes in the environment and control their products.</p> <p>Know how to reinforce and strengthen a 3D framework.</p>	<p>Explain how their product should be stored with reasons</p> <p>Set out to grow their own products with a view to making a salad, taking account of time required to grow different foods</p> <p>Materials Know how their product could be sold and how to work to budget.</p> <p>Work precisely and accurately with budget in mind.</p> <p>Understand how mechanical systems such as cams or pulleys or gears create movement</p> <p>Understand that mechanical and electrical systems have an input, process and output.</p>
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	<p>Use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT.</p> <p>Evaluating processes and products Suggest 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>Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Evaluate their work both during and at the end of the assignment.</p> <p>Record their evaluations using drawings with labels.</p> <p>Evaluate against their original criteria and suggest ways that their product could be improved.</p> <p>Evaluate the key designs of individuals in design and technology has helped shape the world.</p>	
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Progression of Design and Technology Vocabulary

Vocabulary			
This specific vocabulary should be taught within the appropriate unit and previous learnt vocabulary be referenced to ensure children's understanding of these terms.			
EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
build, construct, materials, equipment, join, cut	investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	evaluating, design brief design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, label, annotated sketch	function/ functionality, innovative, design specification, authentic, design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, mock-up, prototype

Progression of Design and Technology Experiences

EYFS	KS1	Lower KS2	Upper KS2
<p>Parents visit and work alongside children, with careers/ skills in cooking, building, design, costume etc. Children use indoor and outdoor spaces and resources to create structures</p> <p>Children experience STEM activities that promote the 'doing' of technology, and that answers a question, e.g. using this material, could I build a tower that is taller than all of us?</p> <p>Children have free access to range of materials and equipment to design and construct purposeful 'makes' of their own choosing</p>	<p>Parents visit and work alongside children, with careers/ skills in cooking, building, design, costume etc. Take part in purposeful making, eg designing costumes for an event or for their end of term outcome</p> <p>Children experience STEM activities that promote the 'doing' of technology, and that answers a question, e.g. using this material, could I build a tower that is taller than all of us?</p>	<p>Parents with expertise to work alongside children, teaching a new skill in cooking and nutrition, which is linked to the wider community eg. local restaurants.</p> <p>Children take part in purposeful making, eg designing costumes for an event or for their end of term outcome</p> <p>Children experience STEM activities that promote the 'doing' of technology, and that solves increasingly complex problems.</p> <p>Children experience a paid expert to come in to support their topic learning within the technology they are focused on.</p>	<p>Parents with expertise to work alongside children, teaching a specific skill from the technological community. Children take part in purposeful making, eg designing costumes for an event or for their end of term outcome</p> <p>Children experience STEM activities that promote the 'doing' of technology, and that solves increasingly complex problems, which require continual self and peer reflection.</p> <p>Children can visit a gallery, museum, exhibition or event that supports or celebrates the technology they are learning.</p> <p>Use ICT programmes to support the design and/ or making of technology, including 3D modelling</p> <p>Use and experience electronics and robotics</p>