

# Design and Technology Curriculum Progression

Black text = National Curriculum 2014 statements derived either directly from the programmes of study for D&T (in bold) or provide an age-related interpretation (DT Association)

Red text = school curriculum statements which are additional to the programmes of study

	Research		Design and Make		Evaluate
Disciplinary Concept	<b>User</b> <i>Knowing who the product is for and researching their needs</i>	<b>Purpose</b> <i>Knowing what the product is for and researching its intended purpose</i>	<b>Design Decisions</b> <i>Combining your technical and practical knowledge with understanding of the user and purpose</i>	<b>Development &amp; Innovation</b> <i>Testing and refining of your design</i>	<b>Authenticity</b> <i>Evaluating the end-product against the design criteria</i>
EY		<ul style="list-style-type: none"> <li>•Say whether a product is fit for purpose, e.g. a castle for a giant</li> <li>•Give reasons why a product is fit for purpose, e.g. clothes for a teddy</li> <li>•Know why a familiar product is or isn't fit for purpose and how it could be improved, e.g. a bed for a doll</li> </ul>	<ul style="list-style-type: none"> <li>•Select appropriate resources and say what they are going to make</li> <li>•Plan what they want to make (e.g. verbal)</li> <li>•Draw a plan of what they want to make</li> </ul>	<ul style="list-style-type: none"> <li>•Noticing simple ways in which one product is better than another and begin to articulate why</li> <li>•Talk about how they changed their plan as they worked and why</li> </ul>	<ul style="list-style-type: none"> <li>•Identify what they like about their creation</li> <li>•Talk about something that could be improved</li> <li>•Talk about their creation and how they made it</li> </ul>
KS1	<ul style="list-style-type: none"> <li>•Say how to make their product suitable for their intended users</li> <li>•Say whether their products are for themselves or others</li> </ul>	<ul style="list-style-type: none"> <li>•Work within a range of contexts, e.g. imaginary, story-based, home, school, gardens, playgrounds, local community, industry &amp; wider environment</li> <li>•Explore what products are for</li> </ul>	<ul style="list-style-type: none"> <li>•Talk about their design ideas and what they are making</li> <li>•State what products they are designing and making</li> <li>•Use knowledge of existing products to help come up with ideas</li> <li>•Say how their products will work</li> </ul>	<ul style="list-style-type: none"> <li>•Generate ideas by drawing on their own experiences</li> <li>•Model ideas by exploring materials, components and construction kits and by making templates and mock-ups</li> <li>•Plan by suggesting what to do next</li> </ul>	<ul style="list-style-type: none"> <li>•Make simple judgements about their products and ideas against design criteria</li> <li>•Suggest how their products could be improved</li> </ul>

		<ul style="list-style-type: none"> <li>•Use simple design criteria to help develop their ideas</li> <li>•Describe what their products are for</li> </ul>	<ul style="list-style-type: none"> <li>•Develop and communicate ideas by talking and drawing</li> </ul>		
<b>LKS2</b>	<ul style="list-style-type: none"> <li>•Gather information about the needs and wants of particular individuals and groups</li> <li>•Indicate the design features of their products that will appeal to the intended users</li> </ul>	<ul style="list-style-type: none"> <li>•Work confidently within a range of contexts, e.g. home, school, leisure, culture, enterprise, industry and wider environment</li> <li>•Describe the purpose of their products</li> <li>•Investigate &amp; analyse how well products have been designed and made, the materials chosen, &amp; construction methods used</li> </ul>	<ul style="list-style-type: none"> <li>•Generate realistic ideas, focusing on the needs of the user</li> <li>•Make design decisions that take into account the availability of resources</li> <li>•Develop their own design criteria and use these to inform their ideas</li> <li>•Explain how particular parts of the products work</li> </ul>	<ul style="list-style-type: none"> <li>•Order the main stages of making</li> <li>•Share and clarify ideas through discussion</li> <li>•Model ideas using prototypes and pattern pieces</li> <li>•Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> <li>•Use computer-aided design to develop and communicate their ideas</li> </ul>	<ul style="list-style-type: none"> <li>•Refer to their design criteria as they design and make</li> <li>•Use their design criteria to evaluate their completed products</li> <li>•Identify the strengths and areas of development in their ideas and products</li> <li>•Consider the views of others, including intended users, to improve their work</li> </ul>
<b>UKS2</b>	<ul style="list-style-type: none"> <li>•Indicate the design features of their products that will appeal to the intended users</li> <li>•Carry out research including surveys, interviews, questionnaires and values of particular individuals and groups</li> </ul>	<ul style="list-style-type: none"> <li>•Investigate &amp; analyse how well products work, achieve their purpose &amp; meet user wants &amp; needs</li> <li>•Investigate &amp; analyse who made the product, where it was designed made and whether it can be recycled or reused</li> </ul>	<ul style="list-style-type: none"> <li>•Develop a simple design specification to guide their thinking</li> <li>•Make design decisions, taking account of constraints such as time, resources and cost</li> <li>•Use techniques that involve a number of steps</li> <li>•Demonstrate resourcefulness when tackling practical problems</li> <li>•Explain how particular parts of the products work</li> </ul>	<ul style="list-style-type: none"> <li>•Share and clarify ideas through discussion</li> <li>•Model ideas using prototypes and pattern pieces</li> <li>•Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> <li>•Use computer-aided design to develop and communicate their ideas</li> <li>•Produce appropriate lists of tools, materials and equipment they need</li> <li>•Formulate step-by-step plans as a guide to making</li> <li>•Generate innovative ideas, drawing on research</li> </ul>	<ul style="list-style-type: none"> <li>•Identify the strengths and areas of development in their ideas and products</li> <li>•Consider the views of others, including intended users, to improve their work</li> <li>•Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>•Evaluate their ideas and products against their original design specification</li> </ul>

Structure & Function					Nutrition		Practical Knowledge	
Substantive Concepts	<b>Structure</b> <i>Structures are the arrangement of and relationships between the parts</i>	<b>Mechanisms</b> <i>The function of mechanisms is to make work easier or change direction of movement</i>	<b>Electronics</b> <i>Electrical circuits that enable function</i>	<b>Control Systems</b> <i>Control systems automate the function.</i>	<b>Source</b> <i>Knowledge of how and where food is produced</i>	<b>Diet</b> <i>Combining food for variety and balance.</i>	<b>Tools</b> <i>Tools alter a material to enable a function</i>	<b>Materials</b> <i>The properties of materials inform design decisions</i>
<b>EY</b>	<ul style="list-style-type: none"> <li>•Create structures by joining pieces, stacking vertically and horizontally, balancing, making enclosures &amp; creating spaces</li> <li>•Create structures using Lego, Duplo, wooden blocks etc.</li> </ul>	<ul style="list-style-type: none"> <li>•Show curiosity about how things work</li> </ul>				<ul style="list-style-type: none"> <li>•Identify healthy &amp; unhealthy food</li> </ul>	<ul style="list-style-type: none"> <li>•Handle equipment &amp; one hand tools (e.g. scissors) safely &amp; effectively</li> <li>•Select appropriate tools &amp; techniques needed to shape, assemble &amp; join materials safely</li> <li>•Cut, spread &amp; mix food</li> </ul>	<ul style="list-style-type: none"> <li>•Know different ways materials can be joined using glue, tape, split pins, staples, paper clips</li> <li>•Know that materials can be joined in different ways &amp; some are better than others</li> <li>•Experience different types of materials</li> </ul>
<b>KS1</b>	<ul style="list-style-type: none"> <li>•<b>Build structures, exploring how they can be made stronger, stiffer &amp; more stable</b></li> <li>•<b>Know that a 3D textiles product can be assembled from two identical fabric shapes</b></li> </ul>	<ul style="list-style-type: none"> <li>•<b>Explore &amp; use mechanisms (e.g. levers, slides, wheels &amp; axles) in their products</b></li> </ul>			<ul style="list-style-type: none"> <li>•Know that all food comes from plants or animals</li> <li>•Know that food has to be farmed, grown elsewhere or caught</li> </ul>	<ul style="list-style-type: none"> <li>•Know that everyone should eat at least 5 portions of fruit &amp; vegetables every day</li> <li>•<b>Know that food ingredients should be combined according to their sensory characteristics</b></li> </ul>	<ul style="list-style-type: none"> <li>•Know how to prepare simple dishes safely &amp; hygienically (without using a heat source)</li> <li>•Know how to use techniques such as cutting, peeling &amp; grating</li> <li>•Select from a range of tools &amp; equipment, <b>explaining choices</b></li> </ul>	<ul style="list-style-type: none"> <li>•Know about the simple working characteristics or materials &amp; components</li> <li>•Use a range of materials &amp; components, including construction materials &amp; kits, textiles, food ingredients &amp; mechanical components</li> </ul>

							<ul style="list-style-type: none"> <li>• Assemble, join &amp; combine materials &amp; components</li> <li>• Measure, mark out, cut &amp; shape materials &amp; components</li> <li>• Follow procedures for safety &amp; hygiene</li> </ul>	<ul style="list-style-type: none"> <li>• Use finishing techniques including those from Art &amp; Design</li> <li>• Select from a range of materials &amp; components according to their characteristics</li> </ul>
<b>LKS2</b>	<ul style="list-style-type: none"> <li>• Know how to make strong, stiff shell structures</li> <li>• <b>Know that a single fabric shape can be used to make a 3D textiles product</b></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Understand &amp; use mechanical systems in their products (e.g. levers, cams &amp; linkages)</b></li> <li>• Know how some mechanical systems (levers, linkages, pneumatics) create movement</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Notice the impact of using an electrical system in their products (e.g. series circuits incorporating switches, bulbs, buzzers &amp; motors)</b></li> </ul>	<ul style="list-style-type: none"> <li>• Know that mechanical and electrical systems have an input, process &amp; output</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Know that food ingredients can be fresh, pre-cooked and processed</b></li> <li>• Know that food is grown (e.g. tomatoes, wheat, potatoes), reared (e.g. pigs, chickens &amp; cattle) and caught (e.g. fish) in the UK, Europe &amp; wider world</li> <li>• Know how food is processed into ingredients that can be eaten or used in cooking</li> </ul>	<ul style="list-style-type: none"> <li>• Know that a healthy diet is made up of a variety and balance of different food and drink</li> <li>• Know that to be active &amp; healthy, food and drink are needed to provide energy for the body</li> <li>• Know how to hygienically prepare and cook a variety of predominantly savoury dishes, including the use of a heat source</li> <li>• Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading &amp; baking</li> </ul>	<ul style="list-style-type: none"> <li>• Measure, mark out, cut &amp; shape materials &amp; components with some accuracy</li> <li>• Assemble, join &amp; combine materials &amp; components with some accuracy</li> <li>• Follow procedures for safety &amp; hygiene</li> <li>• Select suitable tools &amp; equipment</li> <li>• <b>Explain their choice of tools &amp; equipment in relation to the skills &amp; techniques they will be using</b></li> </ul>	<ul style="list-style-type: none"> <li>• Apply a range of finishing techniques with some accuracy (including those from Art &amp; Design)</li> <li>• Know that materials have both functional qualities &amp; aesthetic qualities</li> <li>• <b>Know that materials can be combined and mixed to create more useful characteristics</b></li> <li>• Use a wider range of materials &amp; components than KS1, including construction kits, textiles, food ingredients, mechanical &amp; electrical components</li> </ul>

						<ul style="list-style-type: none"> <li>• Know that materials can be combined &amp; mixed to create more useful characteristics</li> <li>• Know that materials have both functional &amp; aesthetic qualities</li> </ul>		<ul style="list-style-type: none"> <li>• Follow procedures for safety &amp; hygiene</li> </ul>
<b>UKS2</b>	<ul style="list-style-type: none"> <li>• Apply their understanding of how to strengthen, stiffen &amp; reinforce more complex structures</li> <li>• Know how to reinforce &amp; strengthen a 3D framework</li> <li>• Know that a 3D textiles product can be made from a combination of fabric shapes</li> </ul>	<ul style="list-style-type: none"> <li>• Understand &amp; use mechanical systems in their products (e.g. gears, pulleys)</li> <li>• Know how mechanical systems (cams, pulleys, gears) create movement</li> </ul>	<ul style="list-style-type: none"> <li>• Know how simple electrical circuits and components can be used to create functional products (e.g. series circuits incorporating push to make/break/hand made switches, bulbs, buzzers &amp; motors)</li> <li>• Know how more complex electrical circuits and components can be used to create functional products (e.g. series circuits incorporating push to make/break/hand made switches, bulbs, buzzers &amp; motors)</li> </ul>	<ul style="list-style-type: none"> <li>• Apply their understanding of computing to program, monitor and control their products</li> <li>Know how to program a computer to control their products</li> <li>• Know how to program a computer to monitor changes in the environment &amp; control their products</li> </ul>	<ul style="list-style-type: none"> <li>• Know that food is grown (e.g. tomatoes, wheat, potatoes), reared (e.g. pigs, chickens &amp; cattle) and caught (e.g. fish) in the UK, Europe &amp; wider world</li> <li>• Know that seasons may affect the food available</li> <li>• Know how food is processed into ingredients that can be eaten or used in cooking</li> </ul>	<ul style="list-style-type: none"> <li>• Know that a recipe can be adapted by adding or substituting one or more ingredients</li> <li>• Know that recipes can be adapted to change the appearance, taste, texture &amp; aroma</li> <li>• Know that different food and drink contain different substances (nutrients, water and fibre) that are needed for health</li> <li>• Know how to hygienically prepare and cook a variety of predominantly savoury dishes, including the use of a heat source</li> <li>• Know how to use a range of</li> </ul>	<ul style="list-style-type: none"> <li>• Follow procedures for safety &amp; hygiene</li> <li>• Use a wider range of materials &amp; components than KS1, including construction kits, textiles, food ingredients, mechanical &amp; electrical components</li> <li>• Select suitable tools &amp; equipment</li> <li>• Explain their choice of tools &amp; equipment in relation to the skills &amp; techniques they will be using</li> <li>• Accurately measure, mark out, cut &amp; shape materials &amp; components</li> <li>• Accurately assemble, join &amp;</li> </ul>	<ul style="list-style-type: none"> <li>• Use a wider range of materials &amp; components than KS1, including construction kits, textiles, food ingredients, mechanical &amp; electrical components</li> <li>• Follow procedures for safety &amp; hygiene</li> <li>• Select materials &amp; components suitable for the task</li> <li>• Explain their choice of materials &amp; components according to functional properties &amp; aesthetic qualities</li> <li>• Accurately apply a range of finishing techniques,</li> </ul>

						techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading & baking	combine materials & components <ul style="list-style-type: none"><li>•</li></ul>	including those from Art & Design
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<p style="text-align: center;"><b>Early</b></p> <p>First time or very early stages of encountering new knowledge and skills; the learner is at the earliest point of application. Links in learning are likely to be very limited because of underdeveloped schemas. The focus is for these learners to gain accuracy in new knowledge and skills. <i>For example, a child in EYFS first learning phonic code will be an 'early' learner, as will a Year 6 child who learns algebra for the very first time.</i></p>	<p style="text-align: center;"><b>Novice</b></p> <p>These learners have growing schemas and are becoming more fluent in their understanding and application of knowledge and skills.</p>	<p style="text-align: center;"><b>Growing Expertise</b></p> <p>These learners can/are beginning to apply learnt knowledge beyond the context in which it has been taught e.g. science to maths, and within components/concepts of a subject (e.g. links between cause and consequence or invasion between a Y5 and Y6 history unit). These learners are now more secure in their knowledge and skills and move from fluency to automaticity.</p>	
<p>Through deliberate and structured opportunities, early learners <b>experience and explore</b> the physical world around them. They benefit from explicit teaching of the technical and practical knowledge and associated vocabulary in small, iterative steps. They talk about what they <b>notice</b> in a variety of contexts so that they start to <b>notice</b> the intended purpose of things made and if they are helpful.</p>	<p>Novice learners require the essential knowledge, vocabulary and skills explicitly taught so that it is secure before moving on to new content. This is sequenced in small, iterative steps, with clear links explicitly made between new and prior knowledge. There are regular opportunities to acquire the technical knowledge and practice the practical knowledge through guided and independent practice. They <b>use this knowledge</b> to <b>respond to a given brief, noticing</b> the user, and the purpose when designing, making and evaluating simple products.</p>	<p>As children gain more technical and practical knowledge, they will be able to <b>use prior knowledge</b> to respond to and interrogate a brief. This will help <b>support and inform</b> their design decisions and the design, make and evaluate process, resulting in <b>increasingly sophisticated</b> products that are <b>controllable</b>.</p> <p>Learners with growing expertise can draw on knowledge of other curricula to support their final product (e.g. finishing techniques from art &amp; design and use of electronics from science).</p>	
<p><b>Research: user and purpose</b></p>			
EYFS	KS1	LKS2	UKS2
Exploring different products and users	<b>Designing for someone</b> through noticing the user and their needs and how these can differ	<b>Designing for someone</b> through beginning to make informed decisions about the purpose of a product based on the user	<b>Designing for someone</b> through using investigation to make more refined and informed choices about the design features of their products
<p><b>Design &amp; Make: Design Decisions</b></p>			
Exploring different resources and products and use this to help with their ideas	<b>Designing for some purpose</b> through noticing how different products are made and the different design ideas/decisions for their product	<b>Designing for some purpose</b> through making informed and realistic decisions about their product based on their own design criteria	<b>Designing for some purpose</b> through making more refined design criteria decisions for more complex products based on a number of factors
<p><b>Design &amp; Make: Development &amp; Innovation</b></p>			
Explore different products and notice simple ways one product is better than another	<b>Designing something through</b> exploring and noticing different products, materials and construction methods, using these to support develop their own ideas	<b>Designing something through</b> knowing a range of techniques to inform, develop and communicate their ideas	<b>Designing something through</b> selecting a greater range of approaches and techniques to develop and communicate increasingly complex and innovative ideas
<p><b>Evaluate: Authenticity</b></p>			
Notice simple ways their product is better than another	<b>Through the brief,</b> notice simple ways that their product meets or does not meet the design criteria	<b>Through the brief,</b> use the design criteria in a more informed way, as part of the design and make process, to identify strengths, weaknesses and refinements.	<b>Through the brief,</b> use the design criteria as an integral part of the design-make-evaluate process to critically evaluate their product's purpose

**Practical Knowledge: materials**

EYFS	KS1	LKS2	UKS2
Exploring and experiencing a range of resistant materials	Noticing the difference between materials and selecting them appropriately	Begin to make informed decisions about the best materials to use	Making more refined choices about materials based on their functional and aesthetic qualities
<b>Practical Knowledge: tools</b>			
Different tools do different jobs and handle simple tools safely	Safely and accurately use appropriate tools for different materials and purposes	Begin to make informed decisions about the best tools and techniques to use based on knowledge of materials	Making more refined choices about tools and techniques based on the intended function and knowledge of materials
<b>Structure and Function: structure</b>			
Explore different structures through assembling and disassembling	Making strong, stiff, stable structures	Reinforce structures making them stronger and stiffer.	Make complex strong, stable, stiff structures.
<b>Structure and Function: mechanisms</b>			
Exploring and experiencing a range of mechanisms	Explore and use basic mechanisms for a basic purpose (levers, sliders, wheels, axels)	Understand and use mechanical systems (cams, levers, linkages)	Understand and use more complex mechanical systems (gears and pulleys)
<b>Structure and Function: electronics</b>			
		Notice the impact of an electrical system	Understand and use electrical systems for a purpose
<b>Structure and Function: control systems</b>			
		<i>Notice that systems can be controlled by programming</i>	Apply understanding of programming to control systems
<b>Nutrition: source</b>			
Explore the origin of some foods	Notice that different foods are source in different parts of the world	Understand that we can grow, rear or catch food, which can be processed into other ingredients	Understand that seasons impact food production.
<b>Nutrition: diet</b>			
Explore, experience and identify some healthy foods	Notice how foods combine to make healthy and varied dishes.	Understand the healthy principles of a healthy and varied diet	Apply the principles of a healthy and varied diet