

KS2 progression of DT skills for expected level.

National curriculum statement	Year 3	Year 4	Year 5	Year 6
<p>Design</p> <p>♣ 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</p>	<p>I can disassemble and investigate everyday products to see how they are fit for purpose (e.g. Stone Age tools vs modern tools)</p> <p>Design with purpose: Use design criteria from the teacher to inform design.</p> <p>Make products, refining the design as work progresses</p>	<p>Children will come up with design criteria as a class first e.g. it must...</p> <p>Design with purpose: plans will take account of knowledge of a range of existing products, intended purpose and design criteria.</p> <p>Make products, refining the design as work progresses.</p>	<p>Design products with a clear user and purpose in mind – ensure you know what makes a product unique.</p> <p>Set own design criteria based on the above.</p> <p>Create a step by step plan of their design method.</p> <p>Designs will show alternatives and discuss why one is better than the other based on the intended purpose.</p> <p>Simple prototypes may be used to test ideas.</p>	<p>Plans will take account of multiple sources including IT sources and knowledge of how the parts function or through market research e.g. surveys/questionnaires.</p> <p>Set own design criteria based on the above.</p> <p>Designs will show alternatives and discuss why one is better than the other based on the intended purpose and user in mind and will take account of constraints e.g. time/resources/costs.</p> <p>Simple prototypes may be used to test ideas- designs will then need to be revisited and modified effectively.</p>
<p>♣ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p>	<p>Generate, develop, model and communicate their ideas through discussion and annotated sketches.</p> <p>Be able to communicate the main stages of making their product and the equipment or tools needed.</p>	<p>Generate, develop, model and communicate their ideas through discussion, annotated sketches and cross-sectional diagrams.</p>	<p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes or pattern pieces.</p>	<p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Designs will be detailed e.g. they will include measurements/ how bright something should be etc.</p> <p>Consider how their design could be marketed e.g. packaging/advertising.</p>

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<p>Make: Practical skills</p> <p>♣ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p>	<p>Children will be able to perform practical tasks with greater accuracy e.g. measuring out different parts/creating a template to use for consistency etc.</p> <p>Manipulate materials using a range of tools and equipment.</p> <p>Select appropriate tools and joining techniques.</p>	<ul style="list-style-type: none"> • Measure, cut and assemble materials with precision and be able to explain the process if asked. • Manipulate materials effectively and accurately using a range of tools and equipment. • Select appropriate joining techniques. They will be able to join materials both in permanent and temporary ways. • Select appropriate tools and joining techniques. 	<p>Building on skills from LKS2, also:</p> <p>Develop a range of practical skills to create products: children will create more complex templates to help them.</p> <p>Show an understanding of the qualities of materials to choose appropriate tools to cut and shape.</p>	<p>Building on skills from KS2, also:</p> <p>Develop a range of practical skills to create products: Children will create more complex templates to help them.</p> <p>Show an understanding of the qualities of materials to choose appropriate tools to cut and shape.</p> <p>Identify and begin to explore specialist tools, techniques and processes.</p>
<p>♣ 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</p>	<p>Children will choose appropriate materials for their functional properties and aesthetic qualities.</p> <p>Refine the finish with appropriate tools, e.g. varnishing/glazing.</p>	<p>Building on skills in year 3, Children will also focus on producing a product that is well-finished and fit for the function it is designed for.</p> <p>Refine the finish with appropriate tools, showing an awareness of audience e.g. varnishing/glazing.</p>	<p>Children will be able to identify and apply an appropriate finishing technique to ensure it is high-quality, using art skills where appropriate e.g. choosing to add paint/collage/embellishments and will be able to evaluate their successes and refine further if applicable.</p>	<p>Children will be able to identify and apply an appropriate finishing technique to ensure it is high-quality, using art skills where appropriate e.g. choosing to add paint/collage/embellishments or hiding joints etc. and will be able to evaluate their successes and refine further if applicable.</p>

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<p>Evaluate</p> <p>♣ investigate and analyse a range of existing products</p>	<p>Self-assessment based on existing products- how their design meets the design criteria and how they could make it even better.</p>	<p>Suggest an alternative way that they could have created their design based on their knowledge of existing products and give a detailed response of which would be better and why.</p>	<p>Children will have a greater understanding of the parts and their function to a range of products related to what they're learning and will be able to evaluate their product accordingly.</p>	<p>Children will have a greater understanding of the parts and their function to a range of products related to what they're learning and will be able to evaluate their product accordingly.</p>
<p>♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p>	<p>Peer assess one area of improvement and go back to it to improve.</p>	<p>Identify what's gone well, what could be improved and how any evaluations during planning stages changed their design.</p>	<p>Children will be able to check their work as they develop it and modify as they go (e.g. after testing a prototype). They'll then be able to discuss this in detail, reflecting on any improvements that could be made, both on the appearance and functional ability of the product based on the original criteria.</p>	<p>Children will be able to check their work as they develop it and modify as they go (e.g. after testing a prototype). They'll then be able to discuss this in detail, reflecting on any improvements that could be made, both on the appearance and functional ability of the product based on the original criteria.</p> <p>Identify and understand the impact that their product could have on individuals, society and the environment.</p>
<p>Design throughout history</p> <p>♣ understand how key events and individuals in design and technology have helped shape the world</p>	<ul style="list-style-type: none"> Identify some of the great designers in all of the areas of study. Improve upon existing designs, giving reasons for choices. 	<ul style="list-style-type: none"> Identify some of the great designers in all of the areas of study. Improve upon existing designs, giving reasons for choices. 	<ul style="list-style-type: none"> Combine elements of design from a range of inspirational designers throughout history, giving reasons for their choices. 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. 	<ul style="list-style-type: none"> Combine elements of design from a range of inspirational designers throughout history, giving reasons for their choices. 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.

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<p>Technical knowledge ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures</p>	<p>Ensure children are doing this as standard after building a more complex structure.</p>	<p>Ensure children are doing this as standard after building a more complex structure.</p>	<p>Ensure children are doing this as standard after building a more complex structure.</p>	<p>Ensure children are doing this as standard after building a more complex structure.</p>
<p>♣ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</p>	<p>Children will have a basic understanding of each mechanical system mentioned (gears/pulleys/cams/leavers/linkages) Have resources that children can choose to use to get used to the systems in addition to planned activities.</p>	<p>Children will be able to use different mechanical systems in their products.</p>	<p>Based on Y5 Science curriculum objectives: recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Explore the effects and evaluate.</p>	<p>recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. Explore the effects and evaluate.</p>
<p>♣ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Strong links to statements from the Science curriculum- expanded on in each year group.</p>		<p>understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p> <p>Based on Y4 Science curriculum objectives: Within their products, design and use a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p>	<p>understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</p>	<p>More detailed designing of their products that goes into details encapsulating the Y6 Science requirements:</p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <ul style="list-style-type: none"> ♣ compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches ♣ use recognised symbols when representing a simple circuit in a diagram. [correct symbols used in plan for design].

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<p>♣ apply their understanding of computing to program, monitor and control their products.</p>	<p>Children are able to use a tablet linked to product to control (e.g. Lego technology)</p>	<p>Children are able to use a tablet linked to product to control. (e.g. Lego technology)</p>	<p>Children are able to use a tablet linked to product to control. (e.g. Lego technology)</p>	<p>Children are able to use a tablet linked to product to control. (e.g. Lego technology)</p>
<p>Cooking and nutrition: Practical skills</p>	<ul style="list-style-type: none"> • Prepare ingredients hygienically. • Follow a recipe. • Assemble or cook ingredients. • Describe how their combined ingredients come together. • Cut materials with precision 	<ul style="list-style-type: none"> • Prepare ingredients hygienically using appropriate utensils. • Follow a recipe. • Assemble or cook ingredients. • Think about what they can do to present their product in an interesting way. 	<ul style="list-style-type: none"> • Demonstrate a range of baking and cooking techniques. • Describe what to do to be hygienic and safe. • Present their product well. 	<ul style="list-style-type: none"> • Demonstrate a range of baking and cooking techniques. • Explain how their product should be stored, giving reasons.
<p>Vocabulary</p>	<p>Design Disassemble Designers Template Measurements annotated sketches functional properties and aesthetic qualities.</p> <p>Make: Tablet Bulb Electrical systems gears/pulleys/cams/leavers/linkages manipulate finishing techniques varnishing/glazing.</p>	<p>Design cross-sectional diagrams Make: electrical systems assemble mechanical systems series electrical circuit, cells, wires, switches buzzers.</p> <p>Evaluate: Alternative approach</p> <p>Cooking and nutrition: Utensils</p>	<p>Design Unique selling point exploded diagrams prototypes pattern pieces.</p> <p>Make: force</p> <p>Evaluate: functional ability</p> <p>Cooking and nutrition:</p> <ul style="list-style-type: none"> • Baking techniques • Cooking techniques 	<p>Design Market research Multiple sources Design constraints computer-aided design. Marketing Packaging Advertising</p> <p>Make: Able to identify specialist tools, techniques and processes.</p> <p>Evaluate: Variations Impact</p>

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	<p>Manipulate materials</p> <p>Evaluate: reinforce complex structures refine</p> <p>Cooking and nutrition: Precision Recipe</p>	<p>Presentation</p>		<p>Cooking and nutrition:</p> <ul style="list-style-type: none">• storage
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