

Design Technology	Year 5	Year 6	Year 7	Year 8
Designing	Understanding contexts, users and purposes	Understanding contexts, users and purposes	Understanding contexts, users and purposes	Understanding contexts, users and purposes
	<p>I recognise my designs have to meet a range of different needs.</p> <p>I can work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</p> <p>I can explain how particular parts of my products work</p>	<p>I collect and use sources of information. I carry out research, using surveys, interviews, questionnaires and web-based resources.</p> <p>I identify the needs, wants, preferences and values of particular individuals and groups.</p> <p>I develop a simple design specification to guide my thinking.</p>	<p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • take creative risks when making design decisions <p>Year 7 - In early KS3 pupils should also:</p> <ul style="list-style-type: none"> • develop/use detailed design specifications to guide their thinking • use research to identify and understand user needs 	<p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • take creative risks when making design decisions <p>Year 8 In later KS3 pupils should also:</p> <ul style="list-style-type: none"> • use/develop design specifications that include a wider range of requirements. • understand how to react to design problems given to them.
	Generating, developing, modelling and communicating ideas	Generating, developing, modelling and communicating ideas	Generating, developing, modelling and communicating ideas	Generating, developing, modelling and communicating ideas
	<p>I generate ideas and recognise what my designs have to do.</p> <p>I have clear ideas when asked and use words, labelled sketches and models to share the details of my designs</p> <p>I share and clarify ideas through discussion</p> <p>I use computer-aided design to develop and communicate my ideas</p>	<p>I generate innovative ideas using information I have collected.</p> <p>I share alternative ideas using words, labelled sketches and models, showing that I am aware of limits.</p> <p>I make design decisions, taking account of constraints such as time, resources and cost.</p>	<p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations. • take creative risks when making design decisions. • combine ideas from a variety of sources. • use a variety of approaches, for example biomimicry and user-centred design, to generate creative ideas and avoid stereotypical responses. • develop and communicate design ideas using annotated sketches. 	<p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • use specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations. • take creative risks when making design decisions. • combine ideas from a variety of sources. • use a variety of approaches, for example biomimicry and user-centred design, to generate creative ideas and avoid stereotypical responses. • develop and communicate design ideas using annotated sketches.
Making	Planning	Planning	Planning	Planning
	<p>I make realistic plans for achieving my aims.</p> <p>I think ahead about the order of my work so I can make the right decisions.</p>	<p>I take users' views into account and produce step-by-step plans</p> <p>I produce appropriate lists of tools, equipment and materials that I need.</p>	<p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture. 	<p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • select appropriately from specialist tools, techniques, processes, equipment and machinery, including computer-aided manufacture.

	<p>I explain their choice of tools and equipment in relation to the skills and techniques I will be using</p> <p>I can explain my choice of materials and components according to functional properties and aesthetic qualities</p> <p>Practical skills and techniques</p> <p>I choose appropriate tools, equipment, materials, components and techniques.</p> <p>I use tools and equipment with some accuracy to cut and shape materials and to put together components.</p> <p>I follow procedures for health and safety</p> <p>I use a wider range of materials and components including construction materials and kits, mechanical components and electrical components</p>	<p>I explain my choice of materials according to functional and aesthetic qualities.</p> <p>Practical skills and techniques</p> <p>I select and work with a range of tools and equipment.</p> <p>I accurately measure, mark out, cut and shape materials and components</p> <p>I accurately assemble, join and combine materials and components.</p> <p>I work with a variety of materials and components with some accuracy, paying attention to quality of finish and to function.</p>	<ul style="list-style-type: none"> • select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness. • match and select suitable materials considering their fitness for purpose. <p>Practical skills and techniques</p> <p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and understand the process of risk assessment • use a wider, more complex range of materials, components and ingredients, taking into account their properties • be able to identify and use an increasing range of tools and equipment. • use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • apply a range of finishing techniques to a broad range of materials including textiles, metals, polymers and woods. • make use of specialist equipment to mark out materials • use a broad range of material joining techniques including mechanical fastenings, heat processes and adhesive. • investigate and develop skills in modifying the appearance of materials including textiles and other manufactured materials. 	<ul style="list-style-type: none"> • select appropriately from a wider, more complex range of materials, components and ingredients, taking into account their properties such as water resistance and stiffness. • match and select suitable materials considering their fitness for purpose. <p>Practical skills and techniques</p> <p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • follow procedures for safety and understand the process of risk assessment • use a wider, more complex range of materials, components and ingredients, taking into account their properties • be able to identify and use an increasing range of tools and equipment. • use a broad range of manufacturing techniques including handcraft skills and machinery to manufacture products precisely • apply a range of finishing techniques to a broad range of materials including textiles, metals, polymers and woods. • make use of specialist equipment to mark out materials • use a broad range of material joining techniques including mechanical fastenings, heat processes and adhesive. • investigate and develop skills in modifying the appearance of materials including textiles and other manufactured materials.
Evaluating	<p>Own ideas and products</p> <p>I recognise what I have done well whilst making and suggest things that I could do better.</p>	<p>Own ideas and products</p> <p>I reflect on my designs as I develop, whilst thinking about the way the product will be used.</p>	<p>Own ideas and existing products</p> <p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups. 	<p>Own ideas and existing products</p> <p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • test, evaluate and refine their ideas and products against a specification, considering the views of intended users and other interested groups.

	<p>I identify where evaluation has led to improvements.</p> <p>I consider the views of others, including users to make improvements.</p> <p>Existing products</p> <p>I investigate and analyse how well products have been designed and made</p> <p>I investigate why materials have been chosen and what methods of construction have been used</p> <p>I analyse how well products work, achieve their purposes and how well they meet user needs and wants.</p>	<p>I evaluate my ideas and products against my original design specification.</p> <p>I critically evaluate the quality of the design, manufacture and fitness for purpose of my products as I design and make.</p> <p>Existing products</p> <p>I investigate how much it costs to make products.</p> <p>I analyse how innovative products are and how sustainable their materials are.</p> <p>I investigate what impact products have beyond their intended purpose.</p> <p>I know about inventors, designers, engineers and manufacturers who have developed ground-breaking products.</p>	<ul style="list-style-type: none"> • evaluate their products against their original specification and identify ways of improving them. • actively involve others in the testing of their products. • investigate and analyse products that they are less familiar with using themselves. • know about an increasing range of designers, technologists and manufacturers and be able to relate their products to their own designing and making. 	<ul style="list-style-type: none"> • evaluate their products against their original specification and identify ways of improving them. • actively involve others in the testing of their products. • investigate and analyse products that they are less familiar with using themselves. • know about an increasing range of designers, technologists and manufacturers and be able to relate their products to their own designing and making.
Technical knowledge	<p>Making products work</p> <p>I identify what is working well and what could be improved.</p> <p>I know how to use learning from science and maths to help design and make products that work</p> <p>I know that materials have both functional properties and aesthetic qualities</p> <p>I know the correct technical vocabulary for the projects I am undertaking</p>	<p>Making products work</p> <p>I know how to reinforce and strengthen a 3D framework</p> <p>I know how mechanical systems such as cams or pulleys or gears create movement.</p> <p>I know how more complex electrical circuits and components can be used to create functional products</p> <p>I know how to program a computer to monitor changes in the environment and control a product.</p>	<p>Making products work</p> <p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • understand the properties of materials and how they need to be suitable for purpose. • how to classify materials by structure e.g. hard words, softwoods, ferrous and non-ferrous, thermoplastic and thermosetting plastics. • about the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal properties. • how to use simple electronic circuits incorporating inputs and outputs. 	<p>Making products work</p> <p>Across KS3 pupils should:</p> <ul style="list-style-type: none"> • understand the properties of materials and how they need to be suitable for purpose. • how to classify materials by structure e.g. hard words, softwoods, ferrous and non-ferrous, thermoplastic and thermosetting plastics. • about the physical properties of materials e.g. grain, brittleness, flexibility, elasticity, malleability and thermal properties. • how to use simple electronic circuits incorporating inputs and outputs.

			<ul style="list-style-type: none">• about textile fibre sources e.g. natural and synthetic and fabrics e.g. plain and woven• make use of sensors to detect movement.	<ul style="list-style-type: none">• about textile fibre sources e.g. natural and synthetic and fabrics e.g. plain and woven• make use of sensors to detect movement.
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