

Design Technology progression framework

		N	R	Y1	Y2	Y3	Y4	Y5	Y6
DATA Projects				Structures – freestanding structures Mechanisms – wheels and axles	Textiles – templates and joining techniques Food – preparing fruit and vegetables Mechanisms – Sliders and levers	Mechanical systems – Levers and linkages Mechanical systems – pneumatics Structures – shell structures using CAD	Food – Healthy and varied diet Textiles – 2D shape to 3D product Electrical Systems – simple circuits and switches	Mechanical systems - cams Textiles – combining different fabric types Structures - frame structures	Food – celebrating culture and seasonality Electrical systems – more complex switches and circuits Mechanical systems - pulleys or gears
Designing	Understanding contexts, users and purposes	Begin to develop complex stories using small world equipment like animal sets, dolls and dolls houses, etc. Explore different materials freely, to develop their ideas about how to use them and what to make. Develop their own ideas and then decide which materials to use to express them.	Create collaboratively, sharing ideas, resources and skills.	Work within a range of contexts, such as imaginary, story-based, home, school and gardens. State what products they are designing and making Say whether their products are for themselves or other users Describe what their products are for	Work confidently within a range of contexts, such as: playgrounds, local community, industry and the wider environment. Say how they will make their products suitable for their intended users. Say how their products will work Use simple design criteria to help develop their ideas	Work confidently within a range of contexts, such as: leisure and culture. Describe the purpose of their products. Explain how particular parts of their products work. Gather information about the needs and wants of particular individuals and groups.	Work confidently within a range of contexts, such as: Enterprise, industry and the wider environment. Indicate the design features of their products that will appeal to intended users. Develop their own design criteria and use these to inform their ideas.	Carry out research, using surveys, interviews, questionnaires and web-based resources. Indicate the design features of their products that will appeal to intended users. Develop a simple design specification to guide their thinking	Create and carry out surveys and questionnaires to provide the information necessary. Identify the needs, wants, preferences and values of particular individuals and groups Create mood boards to based on the research
	Generating, developing, modelling and communicating ideas			Generate ideas by drawing on their own experiences. Use knowledge of existing products to help come up with ideas. Develop and communicate ideas by talking. Model ideas by exploring materials, components and construction kits.	Generate ideas, focusing on the needs of the user. Model ideas by making templates and mock-ups. Use information and communication technology, where appropriate, to develop and communicate their ideas Develop and communicate ideas by talking and drawing.	Share and clarify ideas through discussion with an adult. Model their ideas using pattern pieces Use annotated sketches to develop and communicate their ideas. Use computer-aided design to develop and communicate their ideas.	Model their ideas using prototypes. Use cross-sectional drawings and exploded diagrams to develop and communicate their ideas. Generate realistic ideas, focusing on the needs of the user. Make design decisions that take account of the availability of resources.	Share and clarify ideas using the design specification. Model their ideas using prototypes and pattern pieces. Use computer-aided design to develop and communicate their ideas Generate ideas, drawing on research	Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas. Generate innovative ideas, drawing on research. Make design decisions, taking account of constraints such as time, resources and cost.

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Making	Planning	<p>Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</p> <p>Take part in simple pretend play, using an object to represent something else even though they are not similar.</p>	<p>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</p>	<p>Plan by suggesting what to do next.</p> <p>Select from a limited range of tools and equipment explaining their choices.</p> <p>Select from a range of materials and components according to their characteristics.</p>	<p>Plan by suggesting what to do next.</p> <p>Select from a range of tools and equipment explaining their choices.</p> <p>Select from a range of materials and components according to their characteristics.</p>	<p>Order the main stages of making.</p> <p>Select tools and equipment suitable for cutting, shaping and joining paper and card.</p> <p>Select materials and components suitable for the task.</p>	<p>Explain their choice of tools and equipment in relation to the skills they will be using.</p> <p>Explain their choice of materials and components according to functional and aesthetic properties.</p> <p>Plan the main stages of making.</p>	<p>Select tools and equipment suitable for the task.</p> <p>Explain their choice of tools and equipment in relation to the skills and techniques they will be using.</p> <p>Select materials and components suitable for the task</p> <p>Explain their choice of materials and components according to functional properties and aesthetic qualities</p>	<p>All of Y5 PLUS Produce appropriate lists of tools, equipment and materials that they need.</p> <p>Formulate step-by-step plans as a guide to making.</p>
	Practical skills and techniques	<p>Join different materials and explore different textures.</p>		<p>Follow procedures for safety and hygiene</p> <p>Use a range of materials and components, including construction materials and mechanical components</p> <p>Measure, mark out, cut and materials and components.</p> <p>Use finishing techniques.</p>	<p>Follow procedures for safety and hygiene</p> <p>Use a range of materials and components, including: textiles, food ingredients and mechanical components.</p> <p>Measure, mark out, cut and shape materials and components</p> <p>Assemble, join and combine materials and components</p> <p>Use finishing techniques, including those from art and design</p>	<p>Use a wider range of materials and components than KS1, including construction materials and mechanical components.</p> <p>Measure, mark out, cut and shape materials and components with some accuracy.</p> <p>Apply a range of finishing techniques, including those from art and design, with some accuracy</p>	<p>Follow procedures for safety and hygiene</p> <p>Use a wider range of materials and components than KS1, including electrical components.</p> <p>Assemble, join and combine materials and components with some accuracy.</p>	<p>Accurately measure, mark out, cut and shape materials and components</p> <p>Demonstrate resourcefulness when tackling practical problems</p>	<p>Accurately assemble, join and combine materials and components</p> <p>Accurately apply a range of finishing techniques, including those from art and design.</p> <p>Use techniques that involve a number of steps</p>

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Evaluating	Own ideas and products		Return to and build on their previous learning, refining ideas and developing their ability to represent them.	Talk about their design ideas and what they are making Suggest how their products could be improved	Make simple judgements about their products and ideas against design criteria Use a simple design criteria to suggest how their products could be improved	Identify the strengths and areas for development in their ideas and products. Refer to their design criteria as they design and make.	Consider the views of others, including intended users, to improve their work. Use their design criteria to evaluate their completed products.	Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make	Evaluate their ideas and products against their original design specification
	Existing products			Explore: What products are Who products are for What products are for How products work	Investigate: How products are used Where products might be used What materials products are made from What they like and dislike about products	Investigate and analyse: How well products have been designed How well products have been made Why materials have been chosen What methods of construction have been used How well products work How well products achieve their purposes	Investigate and analyse: How well products meet user needs and wants Who designed and made the products Where products were designed and made When products were designed and made Whether products can be recycled or reused	Investigate and analyse: How much products cost to make. How innovative products are.	Investigate and analyse: How sustainable the materials in products are. What impact products have beyond their intended purpose.
	Key events and individuals			Not a requirement in KS1	Not a requirement in KS1	Pupils should know about inventors and engineers, who have developed ground-breaking products. Look at – Mark Dean (IBM engineer) and Ada Lovelace (computer programmer).	Pupils should know about designers and inventors who have developed ground-breaking products. Look at William Morris (textile designer) and Mary Anderson (inventor of the windscreen wiper).	Pupils should know about: inventors and manufacturers who have developed ground-breaking products. Look at: Ole Kirk Christainson (Lego) and Gladys West (inventor of GPS)	Pupils should know about engineers and chefs who have developed ground-breaking products. Look at: Heston Blumenthal (chef) and Shirley Jackson (engineer – caller id and caller waiting).

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Technical Knowledge	Making products work			<p>Pupils should know: About the simple working characteristics of materials and components</p> <p>About the movement of simple mechanisms such as wheels and axles</p> <p>How freestanding structures can be made stronger, stiffer and more stable</p> <p>The correct technical vocabulary for the projects they are undertaking</p>	<p>Pupils should know: About the movement of simple mechanisms such as levers and sliders.</p> <p>That a 3-D textiles product can be assembled from two identical fabric shapes</p> <p>That food ingredients should be combined according to their sensory characteristics</p> <p>The correct technical vocabulary for the projects they are undertaking</p>	<p>Pupils should know: How to use learning from science to help design and make products that work</p> <p>How to use learning from mathematics to help design and make products that work</p> <p>That materials have both functional properties and aesthetic qualities</p> <p>How mechanical systems such as levers and linkages or pneumatic systems create movement</p> <p>How to make strong, stiff shell structures</p> <p>The correct technical vocabulary for the projects they are undertaking</p>	<p>Pupils should also know: How simple electrical circuits and components can be used to create functional products</p> <p>How to program a computer to control their products</p> <p>That a single fabric shape can be used to make a 3D textiles product</p> <p>That food ingredients can be fresh, pre-cooked and processed</p> <p>The correct technical vocabulary for the projects they are undertaking</p>	<p>Pupils should know: How mechanical systems such as cams create movement</p> <p>That materials can be combined and mixed to create more useful characteristics</p> <p>How to reinforce and strengthen a 3D framework</p> <p>That a 3D textiles product can be made from a combination of fabric shapes</p> <p>The correct technical vocabulary for the projects they are undertaking</p>	<p>Pupils should also know: How mechanical systems such as pulleys or gears create movement</p> <p>How more complex electrical circuits and components can be used to create functional products</p> <p>That mechanical and electrical systems have an input, process and output</p> <p>How to program a computer to monitor changes in the environment and control their products</p> <p>That a recipe can be adapted by adding or substituting one or more ingredients</p> <p>The correct technical vocabulary for the projects they are undertaking</p>
				<p>Pupils should know: That all food comes from plants or animals</p> <p>That food has to be farmed, grown elsewhere (e.g. home) or caught</p>		<p>Pupils should know: That a recipe can be adapted a by adding or substituting one or more ingredients</p> <p>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>Pupils should also know: that seasons may affect the food available</p> <p>How food is processed into ingredients that can be eaten or used in cooking</p>	

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	Food preparation, cooking and nutrition				<p>Pupils should know: How to name and sort foods into the five groups in the Eatwell Guide</p> <p>That everyone should eat at least five portions of fruit and vegetables every day</p> <p>How to prepare simple dishes safely and hygienically, without using a heat source</p> <p>How to use techniques such as cutting, peeling and grating</p>		<p>Pupils should know: How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</p> <p>How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p> <p>That a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell Guide</p> <p>That to be active and healthy, food and drink are needed to provide energy for the body</p>		<p>Pupils should also know:</p> <p>That recipes can be adapted to change the appearance, taste, texture and aroma.</p> <p>That different food and drink contain different substances – nutrients, water and fibre – that are needed for health</p>
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