



# Design Technology Overview

## STRIDE Curriculum



### Intent and Design – What are we trying to achieve?

Through our D&T curriculum we aim for pupils to have:

- creative, technical and practical expertise – this aim emphasises that to participate effectively in the world, pupils need a breadth of D&T-related expertise,
- A range of D&T-specific knowledge and skills
- The ability to scrutinize through critique, evaluation and testing
- A deep understanding of the principles of nutrition and how to cook and prepare food

Speaking We Speak with core vocabulary, confidence and care	Thinking We think deeply and widely using our head and our heart	Reading We read for knowledge and pleasure	Inspiring Attitudes Our learning behaviours are excellent	Determined Ambition We achieve our goals	Everyone We include and value everyone
<ul style="list-style-type: none"> <li>• Key vocabulary is highlighted for each learning journey, mapped for progression and explicitly taught so children can discuss their artwork using disciplinary vocabulary</li> <li>• Pupils are provided with sentence stems and oracy protocols to discuss, challenge and build on ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils analyse, critique and discuss their own work, their peers and the work of designers, chefs, engineers and manufacturers</li> <li>• Pupils consider the cultural, aesthetic and historical influence of design and technology</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils engage with texts about design and technology</li> <li>• Pupils use non-fiction texts to read for knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils demonstrate their Seagrave Steps (school values) in their D&amp;T work</li> <li>• Pupils understand that delayed gratification of the design process is a reward to strive for</li> </ul>	<ul style="list-style-type: none"> <li>• Pupils learn new skills across Food, mechanisms, structures, textiles and electrical systems</li> </ul>	<ul style="list-style-type: none"> <li>• Everyone has access to the D&amp;T National Curriculum.</li> <li>• Suitable learning opportunities for all, including a range of challenges</li> <li>• Adapted equipment will always be provided for pupils e.g. squeeze scissors/large handle paintbrush</li> <li>• Staff recognise each pupils' individual strengths and these are celebrated</li> </ul>



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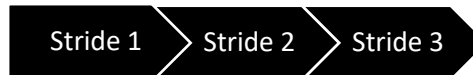
## Implementation – How will we arrange learning?

Design & Technology knowledge is led by a challenge design brief. At the beginning of a unit a challenge design brief is set as a learning destination. Teachers plan and explicitly teach the knowledge, skills and vocabulary in small STRIDEs that the pupils will take on their learning journey to the learning destination.

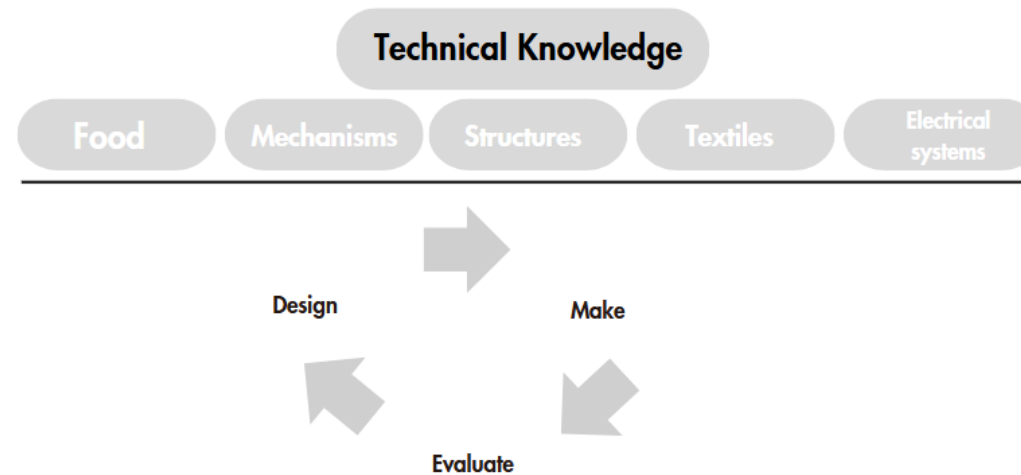
Challenge Design Brief set →



STRIDE learning journey →



Learning Destination



Each STRIDE Design and Technology learning journey starts with Technical Knowledge within the discipline of technology being explored, the design process of design, make, evaluate is used to apply and embed the knowledge and skills learnt. The school utilises the national scheme of work from the The Design and Technology Association.



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Food		Mechanisms	Structures	Textiles	Electrical Systems KS2
Design Technology	Autumn		Spring		Summer
KS1 Year A	Wheels & Axles Tractors		Sock Puppets JD Character		Preparing Fruit and Vegetables Farm to fork
KS1 Year B	Preparing Fruit and Vegetables Smoothies		Sliders & Levers Oliver Jeffers animation		Free standing Structures Swings
LKS2 Year A	Shell Structures Egyptian Sarcophagus		Pneumatics F1 cars		2D shape to 3D product Anti-Pollution Mascot
LKS2 Year B	Levers & Linkages Moving Christmas Cards		Healthy & Varied Diet Olympian's Meal		Switches Emergency torch
UKS2 Year A	Combining different fabric shapes Fabric Advent Calendar		Frame structures Terrariums		Seasonality Picnic Scones
UKS2 Year B	Complex Switches 7 Circuits Spy alarm		Levers & Pulleys Fair ground ride		Culture Pizza



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### Design and Technology Progression Framework Key Stages 1 and 2

Designing	Key Stage 1	Key Stage 2
Understanding contexts, users and purposes	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> <li>state what products they are designing and making</li> <li>say whether their products are for themselves or other users</li> <li>describe what their products are for</li> <li>say how their products will work</li> <li>say how they will make their products suitable for their intended users</li> <li>use simple design criteria to help develop their ideas</li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>describe the purpose of their products</li> <li>indicate the design features of their products that will appeal to intended users</li> <li>explain how particular parts of their products work</li> </ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>gather information about the needs and wants of particular individuals and groups</li> <li>develop their own design criteria and use these to inform their ideas</li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>carry out research, using surveys, interviews, questionnaires and web-based resources</li> <li>identify the needs, wants, preferences and values of particular individuals and groups</li> <li><i>develop a simple design specification to guide their thinking</i></li> </ul>
Generating, developing, modelling and communicating ideas	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>generate ideas by drawing on their own experiences</li> <li>use knowledge of existing products to help come up with ideas</li> <li>develop and communicate ideas by talking and drawing</li> <li>model ideas by exploring materials, components and construction kits and by making templates and mock-ups</li> <li>use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>share and clarify ideas through discussion</li> <li>model their 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> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>generate realistic ideas, focusing on the needs of the user</li> <li><i>make design decisions that take account of the availability of resources</i></li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>generate innovative ideas, drawing on research</li> <li><i>make design decisions, taking account of constraints such as time, resources and cost</i></li> </ul>

Making		Key Stage 1	Key Stage 2
Planning		<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"><li>• <i>plan by suggesting what to do next</i></li><li>• select from a range of tools and equipment, <i>explaining their choices</i></li><li>• select from a range of materials and components according to their characteristics</li></ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"><li>• select tools and equipment suitable for the task</li><li>• <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i></li><li>• select materials and components suitable for the task</li><li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li></ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"><li>• <i>order the main stages of making</i></li></ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"><li>• <i>produce appropriate lists of tools, equipment and materials that they need</i></li><li>• <i>formulate step-by-step plans as a guide to making</i></li></ul>
Practical skills and techniques		<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"><li>• follow procedures for safety and hygiene</li><li>• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li><li>• measure, mark out, cut and shape materials and components</li><li>• assemble, join and combine materials and components</li><li>• use finishing techniques, including those from art and design</li></ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"><li>• follow procedures for safety and hygiene</li><li>• use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li></ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"><li>• measure, mark out, cut and shape materials and components with some accuracy</li><li>• assemble, join and combine materials and components with some accuracy</li><li>• apply a range of finishing techniques, including those from art and design, with some accuracy</li></ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"><li>• accurately measure, mark out, cut and shape materials and components</li><li>• accurately assemble, join and combine materials and components</li><li>• accurately apply a range of finishing techniques, including those from art and design</li><li>• <i>use techniques that involve a number of steps</i></li><li>• demonstrate resourcefulness when tackling practical problems</li></ul>

Evaluating	Key Stage 1	Key Stage 2
Own ideas and products	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>• talk about their design ideas and what they are making</li> <li>• make simple judgements about their products and ideas against design criteria</li> <li>• <i>suggest how their products could be improved</i></li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>• identify the strengths and areas for development in their ideas and products</li> <li>• consider the views of others, including intended users, to improve their work</li> </ul> <p>In early KS2 pupils should also:</p> <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> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>• <i>evaluate their ideas and products against their original design specification</i></li> </ul>
Existing products	<p>Across KS1 pupils should explore:</p> <ul style="list-style-type: none"> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for</li> <li>• how products work</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• what materials products are made from</li> <li>• what they like and dislike about products</li> </ul>	<p>Across KS2 pupils should investigate and analyse:</p> <ul style="list-style-type: none"> <li>• how well products have been designed</li> <li>• how well products have been made</li> <li>• why materials have been chosen</li> <li>• what methods of construction have been used</li> <li>• how well products work</li> <li>• how well products achieve their purposes</li> <li>• how well products meet user needs and wants</li> </ul> <p>In early KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> <li>• who designed and made the products</li> <li>• where products were designed and made</li> <li>• when products were designed and made</li> <li>• whether products can be recycled or reused</li> </ul> <p>In late KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> <li>• how much products cost to make</li> <li>• how innovative products are</li> <li>• how sustainable the materials in products are</li> <li>• what impact products have beyond their intended purpose</li> </ul>
Key events and individuals	Not a requirement in KS1	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</li> </ul>

Technical knowledge		Key Stage 1	Key Stage 2
Making products work		<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> <li>• about the simple working characteristics of materials and components</li> <li>• about the movement of simple mechanisms such as levers, sliders, wheels and axles</li> <li>• how freestanding structures can be made stronger, stiffer and more stable</li> <li>• <i>that a 3-D textiles product can be assembled from two identical fabric shapes</i></li> <li>• <i>that food ingredients should be combined according to their sensory characteristics</i></li> <li>• <i>the correct technical vocabulary for the projects they are undertaking</i></li> </ul>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• how to use learning from science to help design and make products that work</li> <li>• how to use learning from mathematics to help design and make products that work</li> <li>• that materials have both functional properties and aesthetic qualities</li> <li>• <i>that materials can be combined and mixed to create more useful characteristics</i></li> <li>• that mechanical and electrical systems have an input, process and output</li> <li>• <i>the correct technical vocabulary for the projects they are undertaking</i></li> </ul> <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• how mechanical systems such as levers and linkages or pneumatic systems create movement</li> <li>• how simple electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to control their products</li> <li>• how to make strong, stiff shell structures</li> <li>• <i>that a single fabric shape can be used to make a 3D textiles product</i></li> <li>• <i>that food ingredients can be fresh, pre-cooked and processed</i></li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• how mechanical systems such as cams or pulleys or gears create movement</li> <li>• how more complex electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to monitor changes in the environment and control their products</li> <li>• how to reinforce and strengthen a 3D framework</li> <li>• <i>that a 3D textiles product can be made from a combination of fabric shapes</i></li> <li>• <i>that a recipe can be adapted by adding or substituting one or more ingredients</i></li> </ul>
Cooking and nutrition		Key Stage 1	Key Stage 2
Where food comes from		<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that food has to be farmed, grown elsewhere (e.g. home) or caught</li> </ul>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• 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</li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• that seasons may affect the food available</li> <li>• how food is processed into ingredients that can be eaten or used in cooking</li> </ul>
Food preparation, cooking and nutrition		<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> <li>• how to name and sort foods into the five groups in The eatwell plate</li> <li>• that everyone should eat at least five portions of fruit and vegetables every day</li> <li>• how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• how to use techniques such as cutting, peeling and grating</li> </ul>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</li> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul> <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate</li> <li>• that to be active and healthy, food and drink are needed to provide energy for the body</li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i></li> <li>• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ul>



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### Impact – how will we achieve our aims?

Work sample analysis	What do books show?
Lesson observations	What is the quality of teaching, learning and use of assessment in lessons? How good is questioning in lessons?
Surveys	What do teachers and families say about this subject?
Interviews	What do the children say about their learning in this subject? What do the staff say about teaching this subject?
Data analysis	What does the data tell us?
Coaching and Mentoring	What is the impact of coaching and mentoring? Support for colleagues in this subject?
Training	What is the impact of the training undertaken?
Learning Environment	How does the learning environment support learning in this subject area?