

Through a variety of practical and creative activities, all pupils will be taught the knowledge, understanding and skills needed to engage in an iterative progress of designing and making. They should work in a range of relevant contexts (for example the home, school, leisure, culture, enterprise, industry and the wider environment)

**At Key Stage One:**

**Design**

- Design purposeful, functional, appealing products for themselves and other users based on design criteria
- Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

**Make**

- Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

**Evaluate**

- Explore and evaluate a range of existing products
- Evaluate their ideas and products against design criteria
- Technical knowledge
- Build structures, exploring how they can be made stronger, stiffer and more stable
- Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

**Cooking and nutrition**

- Use the basic principles of a healthy and varied diet to prepare dishes
- Understand where food comes from.

**At Key Stage Two:**

**Design**

- 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
- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

**Make**

- Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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

**Evaluate**

- 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
- Understand how key events and individuals in design and technology have helped shape the world

**Technical knowledge**

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Apply their understanding of computing to program, monitor and control their products.

**Cooking and nutrition**

- Understand and apply the principles of a healthy and varied diet
- Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

The Key Stage One curriculum builds on the foundation work completed throughout Early Years. The following progression highlights 'expected' level for areas of the DT curriculum:

Physical Development	Expressive Art and DT	Understanding the World	Fine Motor Skills	Creating with Materials
<p><b>At EYFS:</b></p> <ul style="list-style-type: none"> <li>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</li> <li>• Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor</li> </ul>	<p><b>At EYFS:</b></p> <ul style="list-style-type: none"> <li>• Explore, use and refine a variety of artistic effects to express their ideas and feelings.</li> <li>• Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively, sharing ideas, resources and skills</li> </ul>	<p><b>At EYFS:</b></p> <ul style="list-style-type: none"> <li>• Progress towards a more fluent style of moving, with developing control and grace</li> <li>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently</li> <li>• Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor</li> </ul>	<p><b>At EYFS:</b></p> <ul style="list-style-type: none"> <li>• Use a range of small tools, including scissors, paintbrushes and cutlery.</li> </ul>	<p><b>At EYFS:</b></p> <ul style="list-style-type: none"> <li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. Share their creations, explaining the process they have used.</li> </ul>

Design Process			
	Across Key Stage 2	Lower Key Stage Two	Upper Key Stage Two
Understanding contexts, users and purposes.	<p>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>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>Pupils should also:</p> <ul style="list-style-type: none"> <li>• carry out research, using surveys, interviews, questionnaires and web-based resources identify the needs, wants, preferences and values of particular individuals and groups</li> <li>• develop a simple design specification to guide their thinking</li> </ul>
Generating, developing, modelling and communicating ideas.	<p>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>Pupils should also:</p> <ul style="list-style-type: none"> <li>• generate realistic ideas, focusing on the needs of the user</li> <li>• make design decisions that take account of the availability of resources</li> </ul>	<p>Pupils should also:</p> <ul style="list-style-type: none"> <li>• generate innovative ideas, drawing on research</li> <li>• make design decisions, taking account of constraints such as time, resources and cost</li> </ul>

	Across Key Stage 2	Lower Key Stage Two	Upper Key Stage Two
Planning	Pupils should: <ul style="list-style-type: none"> <li>• select tools and equipment suitable for the task</li> <li>• explain their choice of tools and equipment in relation to the skills and techniques they will be using</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>	Pupils should also: <ul style="list-style-type: none"> <li>• order the main stages of making</li> </ul>	Pupils should also: <ul style="list-style-type: none"> <li>• produce appropriate lists of tools, equipment and materials that they need</li> <li>• formulate step-by-step plans as a guide to making</li> </ul>
Practical skills and techniques	Pupils should: <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>	Pupils should also: <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>	Pupils should also: <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>• use techniques that involve a number of steps</li> <li>• demonstrate resourcefulness when tackling practical problems</li> </ul>
Own ideas and products	Pupils should: <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>	Pupils should also: <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>	Pupils should also: <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>• evaluate their ideas and products against their original design specification</li> </ul>
Existing products	Pupils should investigate and analyse: <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>	Pupils should also investigate and analyse: <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>	Pupils should also investigate and analyse: <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	Pupils should know: <ul style="list-style-type: none"> <li>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</li> </ul>		

Technical Knowledge			
	Across Key Stage 2	Lower Key Stage Two	Upper Key Stage Two
Making products work	<p>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>• that materials can be combined and mixed to create more useful characteristics</li> <li>• that mechanical and electrical systems have an input, process and output</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul>	<p>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>• that a single fabric shape can be used to make a 3D textiles product</li> <li>• that food ingredients can be fresh, pre-cooked and processed</li> </ul>	<p>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>• that a 3D textiles product can be made from a combination of fabric shapes</li> <li>• that a recipe can be adapted by adding or substituting one or more ingredients</li> </ul>

Cooking and Nutrition			
	Across Key Stage 2	Lower Key Stage Two	Upper Key Stage Two
Where food comes from	<p>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>	<ul style="list-style-type: none"> <li>•</li> </ul>	<p>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>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>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>Pupils should also know:</p> <ul style="list-style-type: none"> <li>• that recipes can be adapted to change the appearance, taste, texture and aroma</li> <li>• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ul>