

# DT Progression



## Intent

DT aims to develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. DT aims to build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users. In DT children are given the opportunity to critique, evaluate and test their ideas and products and the work of others. In DT children are given the opportunity to understand and apply the principles of nutrition and learn how to cook. Children will use topic specific vocabulary (appendix 2) to support their researching, planning, making and evaluating. We follow the curriculum set out of by DATA (the design and technology association). Further details of which can be found here [www.data.org.uk/for-education/primary/](http://www.data.org.uk/for-education/primary/)

## Implementation

In foundation stage, design technology skills are introduced through the specific areas of Expressive Art and Design and Physical Development. Children are encouraged to use simple tools and techniques competently and appropriately, select appropriate resources and adapt work where necessary. Children are also encouraged to shape, assemble and join materials they are using. This learning is delivered through adult lead carpet sessions and also during continuous provision, enhanced provision and challenges, where children develop their own lines of enquiry. Adults 'Look, Listen, Note' children's comments and then plan accordingly, using the Development Matters objectives, to further develop their knowledge and understanding.

In key stage 1, children design purposeful, functional, appealing products for themselves and other users based on design criteria. They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Children also evaluate their ideas and products against design criteria

In key stage 2, children are taught to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. Children 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. They also evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

The yearly overview, for each pod, ensures that design technology skills are taught throughout each topic with it sometimes being the lead subject.

## Impact

The impact of teaching DT will be seen across the school with an increase in the profile of DT. Whole school engagement will be improved through a range of exciting projects that the children can share with others. Not only will these projects help to stimulate a love for DT across students and staff, they will ensure children have the foundations needed to build on these skills in the future.

### Level expected at the end of EYFS

Expressive arts and design (exploring and using media and materials)

- Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Physical Development (moving and handling)

- Children handle equipment and tools effectively, including pencils for writing

Expressive arts and design (being imaginative)

- Children use whatever they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.

### Key Stage One National Curriculum Expectations

**Design** - Pupils should be taught to:

- 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** - Pupils should be taught to:

- 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** - Pupils should be taught to:

- explore and evaluate a range of existing products;

evaluate their ideas and products against design criteria.

**Technical Knowledge** - Pupils should be taught to:

- build structures, exploring how they can be made stronger, stiffer and more stable;

### Key Stage Two National Curriculum Expectations

#### Design

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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

Pupils should be taught to:

- 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

Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet;

		<ul style="list-style-type: none"> <li>explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</li> </ul> <p><b>Cooking and Nutrition</b> - Pupils should be taught to:</p> <ul style="list-style-type: none"> <li>use the basic principles of a healthy and varied diet to prepare dishes;</li> <li>understand where food comes from.</li> </ul>	<ul style="list-style-type: none"> <li>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;</li> <li>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> </ul>	
	<b>EYFS</b>	<b>Key Stage One</b>	<b>Lower Key Stage 2</b>	<b>Upper Key Stage 2</b>
<b>Designing</b>	work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment	Across KS1 pupils should: <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>	Across LKS2 pupils should: <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> In early KS2 pupils should also: <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>	Across UKS2 pupils should: <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> In late KS2 pupils should also: <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>develop a simple design specification to guide their thinking</li> </ul>
<b>Understanding contexts, users and purposes</b>	<ul style="list-style-type: none"> <li>say whether their products are for themselves or other users</li> <li>describe what their products are for</li> </ul>			
<b>Generating, developing, modelling and communicating ideas</b>	Know that ideas are the 1 <sup>st</sup> step in the modelling process. Know that a product can be made from a plan.	Across KS1 pupils should: <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>	Across LKS2 pupils should: <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> In early KS2 pupils should also: <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>	Across UKS2 pupils should: <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> In late KS2 pupils should also: <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>
<b>Making</b>	Know primarily through their own experiences that tools and materials can be safely used to make things.	Across KS1 pupils should: <ul style="list-style-type: none"> <li>plan by suggesting what to do next</li> <li>select from a range of tools and equipment, explaining their choices</li> <li>select from a range of materials and components according to their characteristics</li> </ul>	Across KS2 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> In early KS2 pupils should also: <ul style="list-style-type: none"> <li>order the main stages of making</li> </ul>	Across KS2 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> In late KS2 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>
<b>Planning</b>				
<b>Practical skills and techniques</b>		Across KS1 pupils should: <ul style="list-style-type: none"> <li>follow procedures for safety and hygiene</li> </ul>	Across LKS2 pupils should: <ul style="list-style-type: none"> <li>follow procedures for safety and hygiene</li> </ul>	Across UKS2 pupils should: <ul style="list-style-type: none"> <li>follow procedures for safety and hygiene</li> </ul>

		<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <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 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>• use techniques that involve a number of steps</li> <li>• demonstrate resourcefulness when tackling practical problems</li> </ul>
<b>Evaluating</b>	Know that an evaluation is a judgement.	<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>• suggest how their products could be improved</li> </ul>	<p>Across LKS2 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>Across UKS2 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 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>• evaluate their ideas and products against their original design specification</li> </ul>
<b>Own ideas and products</b>		<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 LKS2 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>Across UKS2 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 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>
<b>Existing products</b>				
<b>Key events and individuals</b>	Not a requirement in EYFS	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 groundbreaking product</li> </ul>	
<b>Technical knowledge - Making products work</b>		<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>• that a 3-D textiles product can be assembled from two identical fabric shapes</li> <li>• that food ingredients should be combined according to their sensory characteristics</li> <li>• the correct technical vocabulary for the projects they are undertaking</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>• 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>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> </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>• 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>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>• 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>

			<ul style="list-style-type: none"> <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>	
<b>Cooking and nutrition</b>	Know that there are healthy and Unhealthy foods.	Across KS1 pupils should know: <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>	Across KS2 pupils should know: <ul style="list-style-type: none"> <li>• that a recipe can be adapted a by adding or substituting one or more ingredients</li> <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>	Across KS2 pupils should know: <ul style="list-style-type: none"> <li>• that a recipe can be adapted a by adding or substituting one or more ingredients</li> <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>
<b>Where food comes from</b>				
<b>Food preparation, cooking and nutrition</b>	Know that there are lots of different foods.	Across KS1 pupils should know: <ul style="list-style-type: none"> <li>• how to name and sort foods into the five groups in the 'Eatwell Guide'</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>	Across KS2 pupils should know: <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 Guide</li> <li>• that to be active and healthy, food and drink are needed to provide energy for the body</li> </ul>	Across KS2 pupils should know: <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 late KS2 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>