DALE HALL PRIMARY SCHOOL

DESIGN TECHNOLOGY SKILLS PROGRESSION OVERVIEW

Key Stage 1 National Curriculum Expectations	Key Stage 2 National Curriculum Expectations
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 and understand where food comes from.	**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.

Aims

The national curriculum for Design Technology aims to ensure that all pupils:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- 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.
- Critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook

Intent

At Dale Hall we intend to build a Design Technology curriculum which is inspiring, rigorous, and practical. We want our children to use creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We intend for all children to acquire appropriate subject knowledge, skills and understanding as set out in the National Curriculum. It is our aim to create strong cross curricular links with other subjects, such as Mathematics, Science, Computing, and Art. We want Design and Technology to prepare our children, to give them the opportunities, responsibilities, and experiences they need to be successful in later life.

Implementation

At Dale Hall we follow the progression framework from the Design & Technology Association through the 'Projects on a Page' scheme of work. The 'Projects on a Page' scheme provides CPD to ensure teachers feel confident and supported with the skills and knowledge they are teaching. Planning is progressive and skills are built on throughout the key stages to ensure children have a deeper understanding of concepts and techniques. Our planning is skills based which allows teachers to plan in response to the children's interests and individual needs, it welcomes pupil voice and supports innovative thinking. Relevant training such as Level 2 food safety training is provided for members of staff delivering lessons in food and nutrition. Through our teaching, we intend to inspire pupils and practitioners to develop a love of Design and Technology and see how it has helped shaped the ever-evolving technological world they live in.

Impact

Children will have clear enjoyment and confidence in Design and Technology that they will then apply to other areas of the curriculum. Through carefully planned and implemented learning activities pupils will develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. They will gain a firm foundation of knowledge and skills to see them equipped to take on further learning.

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. This document explains how the skills taught across EYFS feed into the D&T national curriculum. This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for Design Technology within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters to match the programme of study for Design Technology.

Reception	**Physical development** ▪ Progress towards a more fluent style of moving, with developing control and grace. ▪ Develop their small motor skills so that they can use a range of tools competently, safely and confidently. ▪ Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. **Expressive arts and design** ▪ Explore, use and refine a variety of artistic effects to express their ideas and feelings. ▪ Return to and build on their previous learning, refining ideas and developing their ability to represent them. ▪ Create collaboratively, sharing ideas, resources and skills.
ELG	**Physical development: Fine motor skills** ▪ Use a range of small tools, including scissors, paintbrushes and cutlery. **Being imaginative and expressive: Creating with materials** ▪ 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.

Progression map for KS1 & KS2

KS1 Designing	
Understanding contexts, users and purposes	**Across KS1 pupils should:** ▪ Work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment ▪ State what products they are designing and making ▪ Say whether their products are for themselves or other users ▪ Describe what their products are for ▪ Say how their products will work ▪ Say how they will make their products suitable for their intended users ▪ Use simple design criteria to help develop their ideas
Generating, developing, modelling and communicating ideas	**Across KS1 pupils should:** ▪ 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 and drawing ▪ Model ideas by exploring materials, components and construction kits and by making templates and mock- ups ▪ Use information and communication technology, where appropriate, to develop and communicate their ideas

KS1 Making	
Planning	**Across KS1 pupils should:** ▪ Plan by suggesting what to do next ▪ Select from a range of tools and equipment, explaining their choices ▪ Select from a range of materials and components according to their characteristics
Practical skills and techniques	**Across KS1 pupils should:** ▪ Follow procedures for safety and hygiene ▪ Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components ▪ Measure, mark out, cut and shape materials and components ▪ Assemble, join and combine materials and components ▪ Use finishing techniques, including those from art and design

KS1 Evaluating	
Own ideas and products	**Across KS1 pupils should:** ▪ Talk about their design ideas and what they are making ▪ Make simple judgements about their products and ideas against design criteria ▪ Suggest how their products could be improved

Existing products	**Across KS1 pupils should explore:** ▪ What products are ▪ Who products are for ▪ What products are for ▪ How products work ▪ How products are used ▪ Where products might be used ▪ What materials products are made from ▪ What they like and dislike about products

KS1 **Technical knowledge**	
Making products work	**Across KS1 pupils should know:** ▪ About the simple working characteristics of materials and components ▪ About the movement of simple mechanisms such as levers, sliders, wheels and axles ▪ How freestanding structures can be made stronger, stiffer and more stable ▪ That a 3-D textiles product can be assembled from two identical fabric shapes ▪ That food ingredients should be combined according to their sensory characteristics ▪ The correct technical vocabulary for the projects they are undertaking

KS1 Cooking and Nutrition	
Where food comes from	**Across KS1 pupils should know:** ▪ That all food comes from plants or animals ▪ That food has to be farmed, grown elsewhere (e.g. home) or caught
Food preparation, cooking and nutrition	**Across KS1 pupils should know:** ▪ How to name and sort foods into the five groups in the Eatwell Guide ▪ That everyone should eat at least five portions of fruit and vegetables every day ▪ How to prepare simple dishes safely and hygienically, without using a heat source ▪ How to use techniques such as cutting, peeling and grating

KS2 Designing	
Understanding contexts, users and purposes	**Across KS2 pupils should:** ▪ Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment ▪ Describe the purpose of their products ▪ Indicate the design features of their products that will appeal to intended users ▪ Explain how particular parts of their products work

	Across LKS2 pupils should also: ▪ Gather information about the needs and wants of particular individuals and groups ▪ Develop their own design criteria and use these to inform their ideas	**Across UKS2 pupils should also:** ▪ Carry out research, using surveys, interviews, questionnaires and web-based resources ▪ Identify the needs, wants, preferences and values of particular individuals and groups ▪ Develop a simple design specification to guide their thinking
Generating, developing, modelling and communicating ideas	**Across KS2 pupils should:** ▪ Share and clarify ideas through discussion ▪ Model their ideas using prototypes and pattern pieces ▪ Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas ▪ Use computer-aided design to develop and communicate their ideas	
	Across LKS2 pupils should also: ▪ Generate realistic ideas, focusing on the needs of the user ▪ Make design decisions that take account of the availability of resources	**Across UKS2 pupils should also:** ▪ Generate innovative ideas, drawing on research ▪ Make design decisions, taking account of constraints such as time, resources and cost

KS2 Making	
Planning	**Across KS2 pupils should:** ▪ Select tools and equipment suitable for the task ▪ Explain their choice of tools and equipment in relation to the skills and techniques they will be using ▪ Select materials and components suitable for the task

<table>
<tr><td rowspan="2"></td><td colspan="2">▪ Explain their choice of materials and components according to functional properties and aesthetic qualities</td></tr>
<tr><td>Across LKS2 pupils should also:
▪ Order the main stages of making</td><td>Across UKS2 pupils should also:
▪ Produce appropriate lists of tools, equipment and materials that they need
▪ Formulate step-by-step plans as a guide to making</td></tr>
<tr><td rowspan="2">Practical skills and techniques</td><td colspan="2">Across KS2 pupils should:
▪ Follow procedures for safety and hygiene
▪ Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</td></tr>
<tr><td>Across LKS2 pupils should also:
▪ Measure, mark out, cut and shape materials and components with some accuracy
▪ Assemble, join and combine materials and components with some accuracy
▪ Apply a range of finishing techniques, including those from art and design, with some accuracy</td><td>Across UKS2 pupils should also:
▪ Accurately measure, mark out, cut and shape materials and components
▪ Accurately assemble, join and combine materials and components
▪ Accurately apply a range of finishing techniques, including those from art and design
▪ Use techniques that involve a number of steps
▪ Demonstrate resourcefulness when tackling practical problems</td></tr>
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<table>
<tr><th colspan="3">KS2
Evaluating</th></tr>
<tr><td rowspan="2">Own ideas and products</td><td colspan="2">Across KS2 pupils should:
▪ Identify the strengths and areas for development in their ideas and products
▪ Consider the views of others, including intended users, to improve their work</td></tr>
<tr><td>Across LKS2 pupils should also:
▪ refer to their design criteria as they design and make
▪ Use their design criteria to evaluate their completed products</td><td>Across UKS2 pupils should also:
▪ 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</td></tr>
<tr><td rowspan="2">Existing products</td><td colspan="2">Across KS2 pupils should:
▪ 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
▪ How well products meet user needs and wants</td></tr>
<tr><td>Across LKS2 pupils should also investigate and analyse:
▪ 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</td><td>Across UKS2 pupils should also:
▪ How much products cost to make
▪ How innovative products are
▪ How sustainable the materials in products are
▪ What impact products have beyond their intended purpose</td></tr>
</table>

Key events and individuals	**Across KS2 pupils should about:** ● inventors, designers, engineers, chefs and manufacturers who have developed groundbreaking products

KS2 **Technical knowledge**		
Making products work	**Across KS2 pupils should know:** ▪ How to use learning from science to help design and make products that work ▪ How to use learning from mathematics to help design and make products that work ▪ That materials have both functional properties and aesthetic qualities ▪ That materials can be combined and mixed to create more useful characteristics ▪ That mechanical and electrical systems have an input, process and output ▪ The correct technical vocabulary for the projects they are undertaking	
	Across LKS2 pupils should know: ▪ How mechanical systems such as levers and linkages or pneumatic systems create movement ▪ How simple electrical circuits and components can be used to create functional products ▪ How to program a computer to control their products ▪ How to make strong, stiff shell structures ▪ That a single fabric shape can be used to make a 3D textiles product ▪ That food ingredients can be fresh, pre-cooked and processed	**Across LKS2 pupils should know:** ▪ How mechanical systems such as cams or pulleys or gears create movement ▪ How more complex electrical circuits and components can be used to create functional products ▪ How to program a computer to monitor changes in the environment and control their products ▪ How to reinforce and strengthen a 3D framework ▪ That a 3D textiles product can be made from a combination of fabric shapes ▪ That a recipe can be adapted by adding or substituting one or more ingredients

<table>
<tr><th colspan="3">KS2
Cooking and Nutrition</th></tr>
<tr><td rowspan="2">Where food comes from</td><td colspan="2">Across KS2 pupils should:
▪ That a recipe can be adapted a by adding or substituting one or more ingredients
▪ 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</td></tr>
<tr><td>Across LKS2 pupils should also:
● As stated above</td><td>Across UKS2 pupils should also:
▪ That seasons may affect the food available
▪ How food is processed into ingredients that can be eaten or used in cooking</td></tr>
<tr><td rowspan="2">Food preparation, cooking and nutrition</td><td colspan="2">Across KS2 pupils should:
▪ How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source
▪ How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</td></tr>
<tr><td>Across LKS2 pupils should also:
▪ That a healthy diet is made up from a variety and balance of different food and drink, as depicted in the Eatwell Guide
▪ That to be active and healthy, food and drink are needed to provide energy for the body</td><td>Across UKS2 pupils should also:
▪ That recipes can be adapted to change the appearance, taste, texture and aroma
▪ That different food and drink contain different substances – nutrients, water and fibre – that are needed for health</td></tr>
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Progression statements are taken from the D&T Association/D&T Expert Advisory Group Progression Framework