

DT Long Term Plan

What are the aims of our curriculum?

Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. We inspire children to use their 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 aim to, wherever possible, link work to other disciplines such as science, computing and art.

How will teachers deliver the curriculum?

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in a process of designing and making. Key skills and key knowledge for D and T have been mapped using the National Curriculum 2014 to ensure progression across the Key Stages.

National Curriculum: Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment.

KS1 Pupils should be taught to:

KS1 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

KS1 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

KS1 Evaluate, pupils should

explore and evaluate a range of existing products
evaluate their ideas and products against design criteria

KS1 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.

KS2 Pupils should be taught to

KS2 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

KS2 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

KS2 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

KS2 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

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

use the basic principles of a healthy and varied diet to prepare dishes

understand where food comes from.

Key stage 2

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

What are the intended outcomes for pupils?

Children will design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child. Children learn how to take risks, becoming resourceful, innovative, enterprising and capable.

Each unit of work taught should contain the 4 main principles:

1) Design: Conducting research, planning and discussing ideas

2) Make: Working with tools, equipment, materials and components to make quality products

3) Evaluate: Skills of Judgement and Evaluation towards processes and products used

4) Improve: Acquiring and applying knowledge to inform progress further

KS1 Year A

<p align="center">Term 1 Structure/construction/mechanisms Textiles</p>	<p align="center">Shade and Shelter</p> <p>Memorable Experience: Investigating shelters Innovate Challenge: Designing and building a play den This project teaches children about the purpose of shelters and their materials. They name and describe shelters and design and make shelter prototypes. Children then design and build a play den as a group and evaluate their completed product.</p>
<p align="center">Term 2 Structure/construction/mechanisms</p>	<p align="center">Taxi</p> <p>Memorable Experience: Investigating wheels, axles and chassis Innovate Challenge: Making a London taxi Mechanisms – wheels, axles and chassis This project teaches children about wheels, axles and chassis and how they work together to make a vehicle move.</p>
<p align="center">Term 3 Food</p>	<p align="center">Remarkable Recipes</p> <p>Memorable Experience: Exploring where food comes from Innovate Challenge: Making a new school meal This project teaches children about sources of food and tools used for food preparation. They also discover why some foods are cooked and learn to read a simple recipe. The children choose and make a new school meal that fulfils specific design criteria.</p>

KS1 Year B

<p align="center">Term 1 Food</p>	<p align="center">Chop, Slice and Mash</p> <p>Sources of food; Food preparation techniques; Hygiene rules; Designing and making salads and sandwiches Memorable Experience: Innovate Challenge: This project teaches children about sources of food and the preparatory skills of peeling, tearing, slicing, chopping, mashing and grating. They use this knowledge and techniques to design and make a supermarket sandwich according to specific design criteria.</p>	
<p align="center">Term 2 Textiles Mechanisms</p>	<p align="center">Cut Stitch and Join</p> <p>Everyday fabric products; Significant designer – Cath Kidston; Sewing patterns; Running stitch; Adding embellishments; Designing and making a bag tag Memorable Experience: Everyday fabric products Innovate Challenge: Designing and making a bag tag This project teaches children about fabric home products and the significant British brand Cath Kidston. They learn about sewing patterns and using a running stitch and embellishments before making a sewn bag tag.</p>	<p align="center">Push and Pull</p> <p>This project teaches children about levers, linkages and sliders. They then design and make greetings cards using these mechanisms.</p>
<p align="center">Term 3 Structure/construction Textiles</p>	<p align="center">Beach Hut</p> <p>Structures – strengthening and joining Memorable Experience: Investigating beach huts Innovate Challenge: Making a beach hut This project teaches children about making and strengthening structures, including different ways of joining materials.</p>	

KS2 Year A

<p align="center">Term 1 Textiles</p>	<p align="center">Make Do and Mend</p> <p>Investigating clothing; Sewing – running stitch, whip stitch and blanket stitch; Repairing clothes; Making products from recycled materials</p> <p>Memorable Experience: Make Do and Mend campaign Innovate Challenge: Mrs Sew and Sew's challenge</p> <p>This project teaches children a range of simple sewing stitches, including ways of recycling and repurposing old clothes and materials.</p>
<p align="center">Term 2 Structure/construction/mechanisms</p>	<p align="center">Tomb Builders</p> <p>Simple and compound machines</p> <p>Memorable Experience: Identifying simple machines Innovate Challenge: Design simple machines</p> <p>This project teaches children about simple machines, including wheels, axles, inclined planes, pulleys and levers, exploring how they helped ancient builders to lift and move heavy loads</p>
<p align="center">Term 3 Food</p>	<p align="center">Eat the Seasons</p> <p>Cooking; Nutrition</p> <p>Memorable Experience: Seasonality Innovate Challenge: Seasonal soups</p> <p>This project teaches children about the meaning and benefits of seasonal eating, including food preparation and cooking techniques.</p>

KS2 Year B

<p align="center">Term 1 Structure/construction</p>	<p align="center">Greenhouses</p> <p>Memorable Experience: Innovate Challenge:</p> <p>This project teaches children about structures and frameworks. They make mini-greenhouse prototypes using strengthening, finishing and joining techniques.</p>
<p align="center">Term 2 Food</p>	<p align="center">Fresh Food Good Food</p> <p>Food preservation techniques; Exploring food packaging; Prototypes; Designing, making and packaging healthy snacks.</p> <p>Memorable Experience: Keeping food fresh Innovate Challenge: Designing and making a healthy packaged snack</p> <p>This project teaches children about food decay and preservation. They discover key inventions in food preservation and packaging, then make examples. The children prepare, package and evaluate a healthy snack.</p>
<p align="center">Term 3 Textiles</p>	<p align="center">Functional and Fancy Fabrics</p>

	This project teaches children about home fabric products and British textile designer William Morris. They use their learning to create printed and embellished fabrics.
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KS2 Year C

Term 1 Mechanisms	<p>Moving Mechanisms Memorable Experience: Exploring pneumatics Innovate Challenge: Designing and making a pneumatic prototype This project teaches children about pneumatic systems. They experiment with pneumatics before designing, making and evaluating a pneumatic machine that performs a useful function.</p>
Term 2 Structure/construction	<p style="text-align: center;">Engineers</p> <p>This project teaches children about engineers and remarkable structures. They identify features of bridges before completing a bridge-building engineering challenge.</p>
Term 3 Food	<p style="text-align: center;">Food For Life</p> <p>Memorable Experience: Exploring processed foods Innovate Challenge: Designing and making a healthy meal This project teaches children about processed food and healthy food choices. They make bread and pasta sauces and learn about the benefits of whole foods. They plan and make meals as part of a healthy daily menu, and evaluate their completed products.</p>

KS2 Year D

Term 1 Food	<p style="text-align: center;">Cook Well Eat Well</p> <p>Food groups; Eatwell guide; Methods of cooking; Cooking appliances; Hygiene rules; Making taco fillings Memorable Experience: Healthy balanced diets Innovate Challenge: Making a taco filling This project teaches children about food groups and the Eatwell guide. They learn about methods of cooking and explore these by cooking potatoes and ratatouille. The children choose and make a taco filling according to specific design criteria.</p>
Term 2 Mechanisms	<p style="text-align: center;">Making it Move</p> <p>Memorable Experience: Machines and mechanisms Innovate Challenge: Designing and making an automaton toy This project teaches children about cam mechanisms. They experiment with different shaped cams before designing, making and evaluating a child's automaton toy.</p>
Term 3 Structure/construction	<p style="text-align: center;">Architecture</p> <p>Memorable Experience: Architecture over time Innovate Challenge: Building design This project teaches children about how architectural style and technology has developed over time and then use this knowledge to design a building with specific features.</p>

