Design Technology Curriculum

Design and technology should be the subject where mathematical brainboxes and science whizzkids turn their bright ideas into useful products.
James Dyson

At our school, we value the contribution that Design Technology makes to developing creative and evaluative pupils. Our Design Technology curriculum has been designed, sequenced and developed carefully to ensure that it meets the aims and objectives outlined in the National Curriculum. It provides regular opportunities for pupils to explore existing products, design their own products and then evaluate them.

The curriculum has a clear process for Design Technology units that enables pupils to develop the skills and knowledge needed to create their final product. It also supports teachers to break down learning into component parts. Each unit within the curriculum has a clear purpose and aim, so that a suitable design brief and criteria can be presented to pupils. These purposes can include designing, making and evaluating products for home, school, industry, gardens and the local community.

We ensure that pupils develop skills in working with a wide variety of materials, including, for eg, textiles, wood, card, ingredients and plastic. Alongside this, pupils are exposed to a wide range of tools that can complete important construction, joining or aesthetics tasks.

Throughout the curriculum, there are planned opportunities to develop understanding of mechanisms, stability, strength, cookery, sewing, levers, gears and pulleys and electric components. Our curriculum is mapped carefully from Nursery (where applicable) to Year 6 to ensure a progressive development of knowledge and skills.

Early Years Foundation Stage

Our Early Years Foundation Stage curriculum for Nursery and Reception provides opportunity to secure the essential skills and knowledge needed for learning in Key Stage One.

Pupils are taught that materials can be joined together to create a larger piece of work, through activities such as junk modelling. They are taught how to use essential tools, such as scissors, twigs, brushes and pencils, with control, so that they can make more precise products towards the end of Reception and into Key Stage One.

Pupils are taught about common simple materials and provided with opportunities to explore some of their basic features. Using this knowledge, pupils are taught to make appropriate selections, from a small range of materials, to complete a task.

The high levels of exploration in the curriculum enable pupils to develop creative thinking, whilst also becoming proficient in key elements for Design Technology, such as hand eye co-ordination and hand muscle strength.

Key Stage One

In Key Stage 1, pupils use the knowledge and skills developed in Early Years Foundation Stage to create more purposeful products that are based on a clear design criteria and brief. They are taught about simple mechanisms that allow pupils to build upon these in Key Stage 2. They learn about wheels, axles, levers, dials and sliders. This ensures that pupils have the prerequisite knowledge for gears, pulleys and levers in later year groups.

Pupils explore, design and create a cold food dish for example, fruit salad, using a variety of simple ingredients and food preparation tools. Pupils are taught to safely cut, peel and slice ingredients to create a final product. This unit lays the foundations for Key Stage 2, where they learn to create products by incorporating a wider range of ingredients that require cooking. They have the opportunity to learn how to join two or more pieces of textile together using a simple running stitch, which is built upon in Key Stage 2 with the cross stitch and ladder stitch.

Pupils will design and produce an attractive hand puppet that can be embellished with a variety of decorative features, such as attaching buttons for eyes. In Year 2, further opportunity is provided to revisit learning on axles and pupils create and design a garden windmill. They explore ways to make the prototype stable, strong and capable of supporting its own weight.

Lower Key Stage Two

In lower Key Stage 2, pupils expand their understanding of mechanisms further by exploring and developing products that use levers and pulleys. They explore how to join component parts together to create a stable and stiff product.

Pupils are taught how to create bread dough by mixing both dry and wet ingredients together. They prove their dough and use this to create previously designed food products.

Pupils are taught to build upon earlier tools used, with the introduction of utensils like graters, crushers and rolling pins. They are taught how to handle hot items carefully using products such as oven gloves. This allows pupils to work with further savoury, hot dishes in Key Stage 2.

Pupils are taught to build upon their learning on running stitch and use this knowledge to master cross stitch, producing a personalised book mark using binca and thread. They design and create two games during Year 4, one providing opportunity to develop and apply understanding of circuits from science and the other using knowledge of strength, stiffening and stability to create a multi-storey board game.

Pupils build on joining techniques from Key Stage 1 to create more complex and larger structures. They learn how to use and create a wider variety of joints, for example, flange, tab, slot and l-brace.

Upper Key Stage Two

In upper Key Stage 2, pupils further develop their understanding of mechanisms by exploring and creating products that use gears. They learn about how to reinforce their products to ensure that they are strong and stable.

Using knowledge and skills developed in lower Key Stage 2, pupils design and cook a seasonal soup. They use a full range of cooking appliances and utensils, including, blenders, hobs and crushers. Pupils blend ingredients to create a stock and decide what consistency their soup should be, considering how tools can help to achieve this.

Pupils begin to use woodwork skills to create a wooden birdhouse. They are taught to use clamps, saws and bench blocks to facilitate this construction safely, as well as use of stronger glues.

Pupils construct and programme their own robot so that it can complete simple tasks. They use their learning from programming units, in computing, to develop and debug efficient algorithms.

Building on the stitches learnt in previous year groups, pupils are taught to create a textiles product (memory cushion) using an invisible stitch (ladder / zigzag stitch). They explore a wider variety of textiles and consider the materials suitable for filling their cushion.