Design Technology

'Anyone developing new products and new technology needs one characteristic above all else: hope.'
– James Dyson

Subject Vision and Values

At the Nightingale Federation, children will use their creativity and imagination throughout the process of designing, making and evaluating products that solve real and relevant problems within a variety of contexts. Within this process they will consider their own and others' ideas. We value and encourage children's creativity as well as their skills of questioning and efficiency. Children will develop their creativity in technical and practical situations. Our teachers support the children's understanding of an increasingly technological world and provide a repertoire of knowledge and understanding to make high-quality pieces for a wide variety of uses. We motivate children to critique their work, evaluate and test to improve their ideas and products. Children will be taught to select and use appropriate tools safely and effectively to assist in making a product. Children will learn where a range of foods come from and develop an understanding of the basic principles of a healthy and varied diet in order to prepare meals in the future with a foundation of understanding regarding nutrition and a cooking ability. Children will be encouraged to consider the effectiveness of their designs and requirements of the product in all areas of Design Technology.

The aims and objectives of Design Technology are in line with the National Curriculum and enables children to: identify and investigate problems

- critique, evaluate and test their ideas and products and the work of others
- build and apply a repertoire of knowledge, understanding and planning skills in order to design and make high-quality prototypes and products for a wide range of users
- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- understand and apply the principles of nutrition, hygiene and learn how to cook

Intent

Design technology lessons are delivered as part of the curriculum offer and the objectives for these lessons are underpinned by the National Curriculum. Above all, children will become creatively inspired through this rigorous and practical subject, making links with other subjects such as art, computing, maths and science. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness. It is vital to nurture creativity, innovation and support safe, risk-taking through design and by exploring the designed world in which we live and work. This will allow all children to 'let their light shine'.

Implementation

To ensure high standards of teaching and learning in design technology, we implement a curriculum that is progressive throughout the whole school. 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.

In Early Years:

Children will experience opportunities to develop their creativity skills and techniques within the EYFS curriculum. There will be a focus on developing fine motor skills and learning how to plan, design and produce the finished project. Reception (and Nursery in the near future) will be, where appropriate, included in whole school projects, workshops, events and competitions associated with design technology. The most relevant early years outcomes for DT are taken from the following areas of their learning; Physical Development (PD), Understanding the World (UTW) and Expressive Arts and Design (EAD).

- PD: Fine motor skills – Use a range of small tools, including scissors, paint brushes and cutlery.
- PD: Fine motor skills – Begin to show accuracy and care when drawing.
- UTW: The natural world – Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

- EAD: Creating with materials –Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- EAD: Creating with materials – Share their creations, explaining the process they have used.
- EAD: Creating with materials – Make use of props and materials when role playing characters in narratives and stories.

In Key Stage One pupils are taught:

The knowledge, understanding and skills needed to engage in an iterative process of designing and making through a variety of creative and practical activities. They should work in a range of relevant contexts such as the home and school, gardens and playgrounds, the local community, industry and the wider environment.

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

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

Evaluate – To explore and evaluate a range of existing products. To evaluate their ideas and products against design criteria.

Technical Knowledge – To build structures, exploring how they can be made stronger, stiffer and more stable. To explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Cooking & Nutrition – Use the basic principles of a healthy and varied diet to prepare dishes.
- To understand where food comes from.

In Key Stage 2 pupils are taught to:

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 such as the home, school, leisure, culture, enterprise, industry and the wider environment.

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

Impact

By the end of their time at the Nightingale Federation, children will have accumulated knowledge and skills that supports them in all steps of the design technology cycle. They will develop their practical skillset by having experience of making products (including food), using a wide variety of materials and tools. They will also have a range of vocabulary to be able to evaluate both their own designs and that of others.

Spiritual Development

As a subject, the children are immersed in creativity, imagination and evaluation. Children have many rich opportunities to design and make with close links to other subjects to explore and question and reflect on their ideas deeply. Reflecting on real and relevant problems inspires the children to make change and can motivate many of their own wants, needs and values for current and future goals. Design and Technology provides the opportunity for appreciation of structure, beauty and inner or outer workings of products.