Design Technology: Intent, Implementation, Impact

Intent

At North Clifton Primary School, we believe that Design Technology should provide children with a real life context for learning. We want to allow children to aspire to be more through creating opportunities for them in the wider world. Through the DT curriculum, children should be inspired by engineers, designers, chefs and architects to enable them to create a range of structures, mechanisms, textiles, electrical systems and food products with a real life purpose. We believe DT should be an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively, demonstrating resilience to solve problems both as individuals and as members of a team. We encourage 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 curriculum areas such as mathematics, science, engineering, computing and art. Children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.

Implementation

Through a variety of creative and practical activities, we teach the knowledge, understanding and skills needed to engage in an iterative process of designing and making. The children design and create products that consider function, purpose and aesthetics.

When designing and making, the children are taught to:

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 diagrams, prototypes, pattern pieces and computer-aided design.
- Create own design criteria based on research, previous knowledge and experiences.

Make

- Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing, as well as chopping and slicing) accurately.
- Select from and use a wider range of materials, ingredients and components, including construction materials, textiles and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.

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.

Develop, Use and Apply Technical Knowledge

- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

- Understand and use mechanical systems in their products.

- Understand and use electrical systems in their products.

- Apply their understanding of computing to program, monitor and control their products

- Understand some of the ways that food can be processed and the effect of different cooking practices (including baking and grilling).

A progression documenting key knowledge for DT has been mapped across the school to ensure progression between year groups. The context for the children's work in Design Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons are linked to our topic and taught as a block so that children's learning is focused throughout each unit of work.

Each new unit of work begins with a recap of the previous related knowledge from previous years. This helps children to retrieve what they have learnt in the earlier sequence of the programme of study, and ensures that new knowledge is taught in the context of previous learning to promote a shift in long term memory. Key vocabulary for the new topic is also introduced as part of this 'unit introduction' and children are given a knowledge organiser containing key vocabulary. This provides definitions and accompanying visuals for each word to ensure accessibility to all. This approach also means that children are able to understand the new vocabulary when it is used in teaching and learning activities and apply it themselves when they approach their work.

Within all lessons, teachers plan a phase of progressive questioning which extends to and promotes the higher order thinking of all learners. Questions initially focus on the recall or retrieval of knowledge. Questions then extend to promote application of the knowledge in a new situation and are designed to promote analytical thinking, such as examining something specific. In Design Technology, an example of this level of questioning might ask children to consider how a mechanical system (such as gears and pulleys) might speed up, slow down or change the direction of movement. The questions that teachers ask within the same lesson phase, then focus on the children's own work and how they might change or create an outcome and justify a choice they have made which is based on their evaluation.

Our DT curriculum is based around 4 core stands – Materials/ structures, Mechanisms, Textiles, Food and nutrition. Food and nutrition plays an important role in our enrichment sessions throughout the year. We make excellent us of our 'Secret Garden', where pupils and staff plan realistic and ambitious ideas for the garden for the coming year. The area is then prepared and seeds planted, ready for harvesting later in the year. Children take ownership of their garden; Giving them responsibility to devise watering rotas and monitor progress of the plants.

Impact

We ensure the children:

- 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 and critique, evaluate and test their ideas and products and the work of others.

- Understand and apply the principles of nutrition, have a sound knowledge of the journey of the food we eat and learn how to cook. 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 resilient, responsible, resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.