Milecastle Primary School

Design Technology

Policy

June 2017

Rationale

Design and technology is an inspiring, rigorous and practical subject. Uing creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming more 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.

Aims

Through design and technology children are given opportunities to:

- 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.

Curriculum Content

At Milecastle Primary School we follow the National Curriculum for Design Technology, which is adapted to suit the topics being taught in each year group. A breakdown of skills for each year group is used to ensure progression throughout the year groups.

The Foundation Stage

In the early years the children are given opportunities though activities based upon first hand experiences to build and construct with objects and to make a choice of tools and techniques to shape, assemble and join materials.

Key Stage One

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in a constant 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.

When designing and making pupils should be taught to:

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.

(National Curriculum 2014)

Key Stage 2

In Key Stage 2 the children continue to build on their knowledge and understanding from Key Stage 1 with the inclusion of mechanisms, structures and control systems. The children acquire and refine the practical skills in designing and making. They also apply scientific, mathematical, art and IT skills to support their work in design and technology.

When designing and making, pupils should be 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 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.

(National Curriculum 2014)

Resources

Our school has a wide range of resources to support the teaching of design and technology across the school. Classrooms have a range of basic resources, with the more specialised equipment being kept in the design and technology store cupboard, mezzanine or technology room. Teachers must order resources for units of work at least one half term in advance with the prior approval of the headteacher.

Health, Hygiene and Safety

It is important that children are taught essential life skills to enable them to participate confidently and safely in designing and making. Teachers have a duty to introduce children to a wide variety of production processes and the correct tools for the task. Children must design considering health and safety issues and consequences and operate in a safe and hygienic manner when designing.

Links with other areas of the curriculum

ICT: ICT is a major link with design and technology as it facilitates and features support in teaching and learning and enhances the knowledge, skills and understanding in the context of design and technology.

English: Design and technology incorporates and facilitates links with English especially in speaking and listening and written presentations.

Mathematics: Designing and making provides opportunities for children to develop and apply mathematical skills.

Science, Art and design: In these curriculum areas there are opportunities for children to use and develop scientific knowledge and understanding and to develop creative skills and understanding.

PSHE and citizenship: Design and technology develops and promotes children's awareness of safe procedures; how to keep healthy; personal hygiene; a need for cooperation in a task and an understanding of what improves and harms their environments.