



**Roe Lee Park
Primary School & Nursery**

Free to Flourish

***Design and Technology
Policy***

***Our Mission Statement is;
'Children, parents, governors and all staff to work together to ensure that
everyone fulfils their potential and enjoys a rewarding experience'.***

1. Statement of Intent

Design and Technology is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. The children are 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. We want to create independent, creative problem solvers. Children will also work in groups to develop collaborative working and respect for other children's abilities.

Through the use of enquiry, we encourage children to use their creativity and imagination, to design products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Children are then taught to select and use appropriate tools, safely, to make the product. The children will develop their technical vocabulary when understanding the process of designing and six principles of design - user, purpose, functionality, design decisions, innovations and authenticity.

We aim to, wherever possible, link work to other curriculum areas such as maths, English, science, computing and art. We hope links with other STEM subjects will be considered, with a focus on STEM questioning and beginning to prepare our children for the jobs that they will enter as adults.

2. Legal Framework

This policy has due regard to all relevant legislation and statutory guidance including, but not limited to, the following:

- DfE (2018) 'Keeping children safe in education'
- National Curriculum DfE (2013) 'Design and technology programmes of study: key stages 1 and 2'

The school aims to assist pupils in achieving attainment targets set out in the national curriculum. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills, and processes specified in the national curriculum. Pupils will learn a broad range of subject knowledge and draw on disciplines such as maths, science, engineering, computing and art. For further information on the National Curriculum please see Section 5.

3. Roles and responsibilities

Overall responsibility for monitoring the teaching of D&T throughout the school lies with the headteacher.

The headteacher will make decisions on:

- How D&T should support, enrich and extend the curriculum.
- The provision and allocation of resources.
- The ways in which D&T can benefit the aims and objectives of the school.
- The headteacher will also be responsible for overseeing the review of this policy with the subject leader.

The design and technology co-ordinator is responsible for monitoring the standards of children's work and the quality and breadth of teaching. The D&T subject leader will also be responsible for:

- Implementing this policy across the school.
- Maintaining resources and advising staff on the use of materials.
- Assisting the headteacher in deciding on the allocation of resources.
- Supporting teaching staff, advising and offering to share their expertise and experience.
- Leading staff training on new initiatives.
- Helping staff to plan future lessons and assessments and advising teachers on teaching methods they may wish to explore.
- Encouraging staff and pupils to be creative.
- Assisting the headteacher in reviewing this policy.

The co-ordinator is also responsible for evaluating strengths and weaknesses in the subject and identifying areas for improvement and development. Subject Leader release time will enable the coordinator to fulfil the role, reviewing medium term plans, monitoring children's work and observing teaching in the subject

Classroom teachers will be expected to:

- Plan and deliver interesting and engaging lessons that adhere to the national curriculum.
- Provide equality of opportunity through their teaching approaches and methods.
- Keep up-to-date assessment records.
- Ensure pupils' development of skills and knowledge progresses through their learning and understanding of D&T.
- Set pupils suitable targets based on prior attainment.
- Maintain an enthusiastic approach to D&T.

Monitoring of children's progress begins with the analysis of data from the school tracking system and this feeds into pupil progress meetings.

- Examination of evidence and planning helps further evaluation alongside analysis of assessment results, this will involve the head teacher, deputy headteacher and the subject lead.
- Feedback from monitoring is given to staff about how they can strengthen their practise and CPD opportunities built in where it would be deemed valuable.

4. Teaching and Learning

- *Please see the Teaching and Learning policy for approaches to teaching and learning at Roe Lee.*

The teaching and learning of design and technology should be a step by step process, where children are taught how to design and make things for a particular purpose. When designing, pupils need to think about what the products they are designing are used for and the needs of those who use them. Each activity should be challenging because they have to develop their own ideas or put a creative stamp on the things they design. Teaching should enable pupils to learn practical skills and technical knowledge, with sufficient depth and breadth to allow practise and experimentation. When making, the children should individually or collaboratively apply those skills to their chosen design. Pupils should be able to test, refine and develop the products they design and make, to check their ideas work and improve them if they don't. When evaluating, the children should be able to explore existing products, modify working models and evaluate their final product.

As part of their work on cooking and nutrition, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. It should be used to instil a love of cooking and show an expression of creativity. Cooking and nutrition should be practical lessons incorporating technical knowledge and pupils' choice.

The school uses a variety of teaching and learning styles in D&T lessons, the main aim of these lessons is to develop pupils' knowledge, skills and understanding. Teachers will ensure pupils apply their knowledge and understanding when developing ideas, planning and making products, and then evaluating them.

The school aims to do this through a mixture of whole-class teaching, group work, and individual activities. Pupils are given the opportunity to work on their own and collaborate with others, listening to their classmates' ideas and treating these with respect.

Principles for effective teaching include:

- Setting tasks in the context of pupils' prior knowledge.
- Promoting active learning.
- Inspiring, exciting and motivating pupils to know more.

Strategies for effective teaching include:

- Ensuring the teaching methods used suit the purpose and needs of pupils.
- Providing a meaningful context and clear purpose when assigning tasks.
- Investigating, disassembly and evaluative activities.
- Using focussed practical tasks to help pupils make and evaluate products.
- Ensuring tasks are built on skills and understanding.

5. The Curriculum: EYFS/KS1/KS2

In Design and Technology, children acquire and apply knowledge and understanding of:

- Materials and components;
- Mechanisms and control systems;
- Structures;
- Food and horticulture;
- Existing products;
- Quality;
- Health and safety.

The school aims to assist pupils in achieving attainment targets set out in the national curriculum. By the end of each key stage, pupils are expected to know, apply and understand the matters, skills, and processes specified in the national curriculum. Pupils will learn a broad range of subject knowledge and draw on disciplines such as maths, science, engineering, computing and art.

In accordance with the national curriculum, the school aims to ensure that all pupils:

- 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 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.

By the end of KS1, pupils will be able 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 and mock-ups and, where appropriate, ICT.

Make

- Select from and use a range of tools and equipment to perform practical tasks, e.g. 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, e.g. levers, sliders, wheels and axles, in their products.

By the end of KS2, pupils will be able 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 accurately, e.g. cutting, shaping, joining and finishing.
- 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 D&T 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, e.g. gears, pulleys, cams, levers, and linkages.
- Understand and use electrical systems in their products, e.g. 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 will be taught how to cook and apply the principles of nutrition and healthy eating. 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.

By the end of KS1, pupils will be able to:

- Use the basic principles of a healthy and varied diet to prepare dishes.
- Understand where food comes from.

By the end of KS2, pupils will be able to:

- 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.

For details of curriculum coverage to fulfil National Curriculum expectations please see long term overview document.

6. Planning

Using the National Curriculum Programme of study, Design and Technology Scheme of work for Key Stage 1 and 2 and the curriculum guidance for the Foundation Stage as the basis of their long term planning document teachers refer to their year group planning which relates to the national curriculum level descriptors. Teachers are also supported by the D&T coordinator with a curriculum overview as to what is expected in each year group.

Classroom teachers will be expected to plan and deliver interesting and engaging lessons that adhere to the national curriculum. Each lesson should provide equality of opportunity through their teaching approaches and methods. Alongside planning, class teachers must keep up-to-date assessment records. The planning and organising of teaching strategies for each subject will be consistently reviewed to ensure that no pupil is at a disadvantage.

7. Assessment and Recording

The learning outcomes in each unit show how children might demonstrate what they have learnt. Pupils should be involved in actively evaluating their work and thinking about possible improvements.

Pupils' D&T work may be assessed throughout the design process and by teachers judging recorded work. Teachers will also assess pupils':

- Knowledge of tools, materials and equipment.
- Ability to record and communicate their design ideas in a clear manner.
- Personal qualities and attitudes towards their work.
- Ability to explain what they have created and how.
- Ability to use tools and materials safely and effectively.
- Ability to evaluate their work and the work of others.

The majority of assessments will be conducted through observations and discussion. A selection of work may be retained as evidence or photographed for this purpose.

8. Cross Curricular Links

D&T contributes to the teaching of a number of other subjects in school.

English

D&T offers the opportunity to reinforce what pupils have been learning during English lessons. Discussion, drama and role-play are important methods that the school employs to help pupils develop an understanding of people's different views and opinions of D&T and society.

Evaluating products requires pupils to articulate and formulate their ideas to compare their views with other pupils'; through discussion, pupils will learn to justify their own views and clarify their design ideas.

Maths

D&T will assist pupils in learning about shape and size and will make use of what they have already learned in maths lessons. Pupils will carry out investigations – by doing this, they will learn to read and interpret scales, collect and present data, as well as draw their own conclusions.

Science

D&T will assist children to explore and understand properties of materials and their functions. In addition they will develop an understanding of force and pressure.

During cooking and nutrition, they should develop strong links to the human body's requirements for growth and maintenance.

PSHE

D&T lessons will be used to teach pupils how to discuss their own work and the work of others; in addition, pupils will be taught about health and hygiene, including diets, and how to prevent germs and illnesses from spreading when working with food.

Teaching D&T offers opportunities to support the social development of pupils through the way they are expected to work collaboratively in lessons. D&T helps pupils to develop a respect for other pupils' abilities. Working in groups encourages collaboration and gives pupils the opportunity to learn from each other and share ideas and feelings.

Computing

Technology enhances the teaching of D&T and provides pupils with additional equipment, extending the possibilities for developing, sharing and recording their work.

Utilising technological devices also benefits pupils by helping them collect information and present their designs and ideas through a range of design and presentation software. Additionally specialist equipment such as Lego WEDO can help develop a knowledge of control and mechanisms.

9. Homework (If appropriate)

D&T will concentrate on a skills based curriculum and will require the majority of assessments to be conducted through observations and discussion. Skills learnt during cooking and nutrition lessons and building during any processes lessons should be done in school under observation.

Pupils may occasionally be asked to bring materials from home if they can; however, to allow all pupils the same opportunities, pupils that are unable to do this will be provided for.

For homework tasks, pupils may be set a 'brain-builder' challenge that involves researching and developing design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.

10 Equal opportunities

All pupils will have equal access to the entire design and technology curriculum. Gender, learning ability, physical ability, ethnicity, linguistic ability and/or cultural circumstances will not impede pupils from accessing all design and technology lessons.

Where it is inappropriate for a pupil to participate in a lesson because of reasons related to any of the factors outlined above, the lessons will be adapted to meet the pupil's needs and alternative arrangements involving extra support will be provided where necessary.

All efforts will be made to ensure that cultural and gender differences will be positively reflected in all lessons and teaching materials used.

Roe Lee Park Primary aims to provide more academically able pupils with the opportunity to extend their thinking through additional challenge questions and activities.

11 Resources and Tools

A resource audit and purchase is carried out annually. Before new stock is ordered, teaching staff complete request lists based on specific needs for their future DT lessons. There are both central resources in the art and D&T cupboard and also some supplies are kept in individual classrooms.

Children are encouraged at all times to respect and care for their working environment, selecting, using, storing and returning their own materials and equipment tidily, safely and with regard to economy of use.

12 Health and Safety

The general teaching requirement for health and safety applies in this subject. Certain health and safety concerns are inherent with design and technology, including the storage of materials and tools and the use of equipment within lessons. Children must be supervised at all times during activities.

Children are instructed in the correct use of equipment and tools with specific dangers, e.g. heated or sharp resources.

In-class ovens, heated hobs or electrical pans are all PAT tested and visually inspected before use. Children should be supervised in their use and objects should never be left unattended.

Cool melt glue guns are used by children under supervision.

Teachers will carry out a risk assessment before each activity, considering their tools, materials and equipment being used. Teachers will follow the safe systems of work document to ensure safe practices when using DT equipment. Before undertaking practical tasks, children should be taught to use tools correctly in order to ensure safety.

Policy written by: R. Allen

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