



## Tarleton Mere Brow CE Primary School Design and Technology Policy

### 1 Intent

1.1 Design and technology prepares children to take part in the development of tomorrow's rapidly changing world. Creative thinking encourages children to make positive changes to their quality of life. The subject encourages children to become autonomous and creative problem-solvers, both as individuals and as part of a team. It enables them to identify needs and opportunities and to respond by developing ideas and eventually making products and systems. Through the study of design and technology they combine practical skills with an understanding of aesthetic, social and environmental issues, as well as functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impacts. Design and technology helps all children to become discriminating and informed consumers and potential innovators.

### 1.2 The aims of design and technology are 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 and uses.
- 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.

### 2 Implementation

2.1 The school uses a variety of teaching and learning styles in design and technology lessons. The principal aim is to develop children's knowledge, skills and understanding in design and technology. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products and then evaluating them. We do this through a mixture of whole-class teaching and individual/group activities. Within lessons, we give children the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work

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and that of others. They have the opportunity to use a wide range of materials and resources, including the use of Computers.

**2.2** In all classes there are children of differing ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies:

- setting common tasks that are open-ended and can have a variety of results;
- setting tasks of increasing difficulty where not all children complete all tasks;
- grouping children by ability and setting different tasks for each group;
- providing a range of challenges through the provision of different resources;
- using additional adults to support the work of individual children or small groups.

### **3 Impact**

Design and Technology should be exciting, informative and give the children the chance to produce work using different skills and techniques taught to them. Children should enjoy the subject and experience relaxation as they have the freedom to express themselves through Design and Technology. Children should be able to experiment and design pieces of work using their learned knowledge and skills. They should be able to assess their own work and decide how they might amend their designs next time to improve the designs. These skills should be transferrable and be able to be used in other subjects, in particular Science, Mathematics and Computing.

### **Subject Content**

#### **4.1**

##### **Key stage 1**

Through a variety of creative and practical activities, pupils should be taught 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 [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

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### **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.

## **4.2 Key stage 2**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in a process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

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.

### 4.3 Cooking and nutrition

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.

Pupils should be taught to:

#### 4.4 Key stage 1

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

#### 4.5 Key stage 2

- 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.

### 5. Design and technology curriculum planning

- 5.1** Design and technology is a foundation subject in the National Curriculum. At Tarleton Mere Brow CE Primary School we teach Design and Technology of our Creative Curriculum topic. When appropriate we use the local environment as the starting point for aspects of our work.
- 5.2** We carry out the curriculum planning in design and technology in three phases: long-term, medium-term and short-term. The long-term plan maps out the units covered in each term during the key stage. The subject leader works this out in conjunction with teaching colleagues in each year group.
- 5.3** Our medium-term plans give details of each unit of work for each term. They identify learning objectives and outcomes for each unit, and ensure an appropriate balance and distribution of work across each term.
- 5.4** Class teachers complete a weekly plan for each design and technology lesson as part of the creative curriculum planning. These list the specific learning objectives for each lesson and detail how the lessons are to be taught. The class teacher keeps these individual plans, and the class teacher and subject leader discuss them on an informal basis.
- 5.5** We plan the activities in design and technology so that they build upon the prior learning of the children. We give children of all abilities the opportunity to develop their skills, knowledge and understanding and we also build planned progression into the

scheme of work, so that the children are increasingly challenged as they move through the school.

## **6. Early Years Foundation Stage (EYFS)**

- 6.1** We encourage the development of skills, knowledge and understanding that help reception/nursery children make sense of their world as an integral part of the school's work. As the reception/nursery class is part of the Foundation Stage of the National Curriculum, we relate the development of the children's knowledge and understanding of the world to the objectives working towards the Early Learning Goals. These underpin the curriculum planning for children aged three to five. This learning forms the foundations for later work in design and technology. These early experiences include asking questions about how things work, investigating and using a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control.
- 6.2** We provide a range of experiences that encourage exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, attract the children's interest and curiosity.

## **7. Contribution of design and technology to teaching in other curriculum areas**

### **7.1 English**

Design and technology contributes to the teaching of English in our school by providing valuable opportunities to reinforce what the children have been doing during their English lessons. Discussion, drama and role-play are important ways that we now employ for the children to develop an understanding that people have different views about design and technology. The evaluation of products requires children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion children learn to justify their own views and clarify their design ideas.

### **7.2 Mathematics**

In design and technology there are many opportunities for children to apply their mathematical skills through choosing and using appropriate ways of calculating measurements and distances. They learn how to check the results of calculations for reasonableness, and learn how to use an appropriate degree of accuracy for different contexts. Children learn to measure and use equipment correctly. They apply their knowledge of fractions and percentages to describe quantities and calculate proportions. The children will carry out investigations, and in doing so they will learn to read and interpret scales, collect and present data, and draw their own conclusions. They will learn about size and shape, and make practical use of their mathematical knowledge, in order to be creative and practical in their designs and modelling.

### **7.3 Personal, social and health education (PSHE) and citizenship**

Design and technology contributes to the teaching of personal, social and health education and citizenship. We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about health and healthy diets. Their work encourages them to be responsible and to set

targets to meet deadlines, and they also learn through their understanding of personal hygiene, how to prevent disease from spreading when working with food.

### **7.4 Spiritual, moral, social and cultural development**

The teaching of design and technology offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Our groupings allow children to work together, and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and co-operative work across a range of activities and experiences in design and technology, the children develop respect for the abilities of other children and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness and understanding, and they learn to appreciate the value of differences and similarities. A variety of experiences teaches them to appreciate that all people are equally important, and that the needs of individuals are not the same as the needs of groups.

## **8. Computing / Remote Learning through Design and Technology**

Wherever appropriate we use Computing to support and enhance the teaching of design and technology in all key stages. Teachers can set tasks or activities on Seesaw so that if a child cannot come into school for any reason they can access the day's learning easily. Children use software to enhance their skills in designing and making things. Younger children are able to use simple desktop publishing software to try out designs. Older children use a Computer control program to control mechanisms and to get them to move in different ways, either in the virtual world or via an infrared connection to working models. For example, children use computer-aided design (CAD) software as part of an investigation into packaging, before making their own. They use databases to provide a range of information sources and CD-ROMs to gain access to images of people and environments. The children also use ICT to collect information and to present their designs through a range of design and presentation software.

## **9. Design and technology and Inclusion**

- 9.1 At our school we teach design and technology to all children, whatever their ability and individual needs. Design and technology implements the school curriculum policy to provide a broad and balanced education to all children. Through our design and technology teaching we provide learning opportunities that enable all pupils to make good progress. We strive hard to meet the needs Gifted and Talented, English as an additional language.
- 9.2 When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors- classroom organisation, teaching materials, teaching style, differentiation- so that we can take some additional or different action to enable the child to learn more effectively. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels. This helps us ensure that our teaching is matched to the child's needs.

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- 9.3 Intervention may lead to the creation of an SEN Plan for children with special educational needs. The SEN Plan may include, as appropriate, specific targets relating to design and technology.
- 9.4 We enable pupils to have access to the full range of activities involved in learning design and technology. Where children are to participate in activities outside the classroom, for example, in a museum or on a factory trip, we carry out a risk assessment prior to the activity, to ensure the activity is safe and appropriate for all pupils.

### 10. **Assessment**

Teachers assess children's work in design and technology by making assessments as they observe them working during lessons. On completion of a piece of work, the teacher assesses it and written or verbal feedback is given to the child to help guide his/her progress. At the end of a unit of work, teachers make a judgement against the National Curriculum levels of attainment. Older children are encouraged to make judgements on ways in which their work can be improved. Teachers then use the levels to plan the future work of each child and to make an annual assessment of progress for each child, as part of the annual report to parents. Each teacher passes this information on to the next teacher at the end of each year.

### 11 **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 stockroom.

### 12 **Health and safety**

In this subject the general teaching requirement for health and safety applies. We teach children how to follow proper procedures for food safety and hygiene.

### 13 **Monitoring and review**

The monitoring of the standards of children's work and of the quality of teaching in design and technology is the responsibility of the design and technology subject leader. The work of the subject leader also involves supporting colleagues in the teaching of design and technology, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school. The design and technology subject leader is given some time to review design and technology across the school.

This policy will be reviewed and adopted by FGB at least every two years.

**Signed:** S.Green

**Date:** Sept 2020