Design & Technology Policy

St Werburgh's C of E Primary School

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Written by Miss H Bennett

Approved: _____

"The best way to predict the future is to create it"
(Abraham Lincoln).

Purpose of study

Design and technology is an inspiring, rigorous and practical subject. Using 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 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 – The National Curriculum, 2014.

Aims

The national curriculum for design and technology 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 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.

Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Schools are not required by law to teach the example content in [square brackets].

Teaching objectives

In KS1:

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

In KS2:
Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an interactive 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.

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:

KS1

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

KS2

- 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.

Design and Technology at St. Werburgh's C of E primary School

Intent

Our curriculum intent is central to our school vision:

Achieve, Believe, Together

Because we want our pupils to be "The best that they can possibly be and know that they have a valuable place in God's world", we have designed our Design and Technology curriculum to:

- Offer a high quality, exciting and progressive curriculum with knowledge and concepts that are correctly sequenced which will enable students to flourish.

- Offer stimulating learning opportunities that will draw on disciplines e.g Maths, Science, Engineering, Computing and Art.

- Offer exciting opportunities for all pupils to design, make and evaluate products that solve real and relevant problems.

- Enable pupils to explore their curiosities and develop their independence when designing and making.

- Encourage high aspirations and personal resilience: embracing mistakes and challenges as part of the learning process.

- Enable pupils to make an essential contribution to the creativity, culture, wealth and well-being of the nation.

Implementation

At St. Werburgh's C of E Primary school we recognise that our curriculum planning must allow for children to gain a progressively deeper level of knowledge, understanding and skill competency as they move throughout the school.

We teach a skills and knowledge based curriculum through our progressive design and technology programme of study for Foundation stage to Year 6, which is planned in regards to the National Curriculum and EYFS curriculum guidelines for Expressive Arts and Design, Physical Development and Understanding the World. Teachers work with the Design and Technology Co-ordinator to ensure full coverage of curriculum requirements, differentiation and progression. The knowledge and skills outlined in the design and technology progression programme of study are taught over a two year cycle (one year for Foundation Stage).

The programme of study ensures that children learn different skills and techniques, including gaining knowledge about design and technology in the wider world. Children will learn how to design, make and evaluate and will develop their technical knowledge with coverage of the following areas: materials, textiles, electronics, computing, mechanisms and construction. This will often be supported by a focus inventor or designer where the children will

develop knowledge of their work. Children will also learn about the importance of nutrition and cook a variety of dishes using various cooking techniques.

The progressive document ensures that children will practise and develop their knowledge and skills of design and technology from Foundation stage up to Year 6.

Impact

The impact of and measure of this is to ensure that our children develop the knowledge and skills to contribute to design and technology in the wider world.

How can we improve the quality of Design and Technology?

The Design and Technology Co-ordinator and Senior Leadership Team support the quality of education in design and technology. This will be through viewing curriculum plans, samples of pupils' work, classroom environment and displays, discussions with staff and children and lesson observations and learning walks, which will then be used to evaluate the quality of the design and technology curriculum in the school. All of these inform plans for CPD and resourcing. Information from this evaluation will form the basis for an action plan.

Assessment and recording

Assessment is a continuous process. Informal assessments are made during each lesson, in the form of questioning and observation. At the end of each lesson work completed by the pupils is reviewed and comments and advice (instructive and motivating) are given. This process informs future planning and allows the teacher to target those pupils who may be struggling or demonstrate a high ability. Pupils should be given time during each lesson to reflect upon and evaluate their work as this is an emphasis in the design and technology National Curriculum, therefore this should form part of teacher assessment.

More formal assessments are collected at the end of each topic by the Design and Technology Co-ordinator. Judgements are made against the National Curriculum requirements for each year group and children are recorded to be **working at the expected level**, **towards the expected level** or **at greater depth**.

The Design and Technology Co-ordinator collects evidence of work and is developing an online portfolio which shows examples of work from all key stages at various levels. This helps to monitor progress and informs further planning.

Cross-curricular links

Design and Technology draws upon children's knowledge and skills in other subjects, particularly Science, Computing, Mathematics, Language, History, Art and PHSE. To support their design and making we will try to encourage children to obtain, prepare, process and present and to communicate ideas with increasing independence. Design and Technology can be made relevant by using interesting contexts for the children's activities. Where possible, children design and make responding to real needs and opportunities, or those in which they can relate to.

Equality of Opportunities

Children of all abilities can benefit from the study of Design and Technology. Both boys and girls should be encouraged to take an active part in designing and making. We should aim to use a stimulus for technology which appeals to both boys and girls and will enable children to develop their own interests, skills and experiences.

We believe that a broad and balanced Design and Technology curriculum is the entitlement of all children within school. We continuously strive to ensure equal provision of Design and Technology for all children regardless of their gender, race, religion, class or physical or intellectual ability.

We achieve these goals by:
- Using a variety of teaching styles.
- Using teaching assistants to support children where possible.
- Differentiating tasks where appropriate.
- Ensuring that teaching content is relevant and accessible to all pupils.
- Ensuring our expectations do not limit pupil's achievements.

Resource management

Design and Technology requires a varied and wide-ranging selection of resources. It is the responsibility of the Design and Technology coordinator to ensure that such resources are available to the teachers in school, and teachers are also encouraged to inform the coordinator of any additional resources which they may require. A variety or resources are available in school, and these are replenished and added to as required when requested by staff. For food hygiene and safety, please see additional policy 'Food Hygiene and Safety'.

Safety guidelines

Guidance on safety issues is given within each unit of work and is specific to the activities being carried out. In general, when working with tools, equipment and materials pupils should be taught:

- about hazards, risks and risk control
- to recognise hazards, assess consequent risks and take steps to control the risks to themselves and others
- to use information to assess the immediate and cumulative risks
- to manage their environment to ensure the health and safety of themselves and others
- to explain the steps they take to control risks

Teachers are required to recognise and determine what level of health and safety issues there are and ensure that they refer to the school's Health and Safety Policy when planning lessons.

Role of Design and Technology Co-ordinator

The coordinator will work alongside the head teacher and has responsibility for:

- monitoring the progression of the Design and Technology curriculum
- supporting staff in the teaching of their activities within the scheme of work
- the day to day maintenance of equipment
- ordering new equipment and materials
- organising in service training for staff
- keep track of new developments