'Love one another as Jesus loved us' (John 13 v 34-35)

Design and Technology at St Mary's CE Primary School

Design and Technology Curriculum Rationale

At St Mary's CE we are designers and technologists! We want the children at our school to love design technology. We want our children to aim high, be ambitious and grow up wanting to be architects, graphic designers, chefs or carpenters. Our vision at St Mary's CE Primary School is to encourage and nurture the growth of every individual and their uniqueness, so that all flourish and become all that they can be and all that God made them to be.

The design technology curriculum has been carefully designed and sequenced so that our children develop their design and technology capital. We want our children to remember their DT lessons in our school and embrace the DT opportunities they are presented with! As an example previously, children in Year 4 were set a challenge of designing and making their own light up Christmas cards as part of a cross-curricular DT and science project. Things really did light up as the children applied their knowledge and understanding from their science lessons into their design and technology project. Bringing design technology alive is important at St Mary's CE Primary School.

Curriculum Intent

The design technology curriculum is ambitious and allows our children to become independent and resilient – like all curriculum areas.
We want to equip our pupils with all the statutory requirements of the design technology National Curriculum and also prepare them for the opportunities, responsibilities and experiences in the next stage of their education and beyond. We want our children to learn from other cultures, respect diversity, co-operate with one another and appreciate what they have. We achieve this by providing a strong SMSC curriculum, with British Values and our core values placed at the heart of everything we do. We celebrate innovation and the freedom of choice that British Society represents and as a result our pupils are encouraged to become free thinkers, with ambitious ideas. We encourage and celebrate this individuality. This often feeds into the design technology curriculum where we enrich their time in our school with memorable, unforgettable experiences and provide opportunities, which are normally out of reach, to engage and intrigue our pupils. For example, we have revisited the design technology long term plan and have added local, national and global designers who have contributed to innovation, architecture and culinary creativity from a range of backgrounds and cultures. Our pupils are inspired by these professionals in their industries and as a result these often influence product design and provide pupils with an insight into potential career opportunities.

We firmly believe that it is not just about what happens in the classroom, it is about the opportunities we offer to really inspire our children.

Curriculum Implementation

We have just completed a second review of the design and technology curriculum and this will become an annual task. In this second review, the design technology curriculum has been carefully revisited to ensure there is a clear progression of knowledge and vocabulary, embedding key aspects of learning as aspects

are revisited. We have included inspiring designers and inventors from a range of cultures and localities. The medium term plans are under review to ensure that the progression document is clearly reflected in the sequence of learning within any given topic. The assessment points and milestones are being defined and developed to reflect the key learning required in each year group. This will ensure the way design and technology is taught throughout our school follows a consistent structure.

With the reviewed curriculum pupils explore and practise the practical skills involved in the topic and then design, make, evaluate and refine their final products. This approach/ sequence is taken for every design technology topic. Design technology subject specific characteristics, which we expect the children to demonstrate, have been developed. These characteristics underpin all work in DT.

These characteristics are:

- design and make products
- apply their knowledge of maths, science, computing, art & design to design and technology
- make prototypes and products for a wide range of users
- critique, evaluate and test own ideas and products and the work of others
- take risks, become more resourceful, innovative, enterprising and capable young citizens
- evaluate the past and the present design and technology
- understand and apply the principles of nutrition and learn how to cook simple dishes/recipes

Subject Leads have devised whole school subject long-term curriculum plans, which identify when the different subjects and topics will be taught across the school and across the academic year. All subjects are taught discretely but staff make meaningful links across subjects where appropriate. They link prior knowledge to new learning to deepen children's learning. For example, in Year 3 when the children explore 'mechanisms and levers and linkages' they are building upon the knowledge and skills taught in Year 1 when they designed and made a simple moving story book using sliders. Our children are taught connected knowledge.

Class Teachers have devised year group long-term curriculum plans which outline when the different subjects and topics will be taught across the academic year within the year group.

Medium term plans have been developed and continue to be refined to show the sequence of lessons taught within each topic. These set out the learning challenges for each lesson and closely reference the key learning, vocabulary and progression document.

Staff teach a weekly design and technology lesson every other half term. This helps to ensure sufficient time is allocated to DT and that the subject matter can be revisited. The structure that has been developed helps to ensure that the children see the whole process – from starting with existing products through to their finished product. Occasionally staff may block the design and technology into a series of consecutive lessons where the design is more complex. We believe that by constructing our curriculum this way, we improve the potential for our children to retain what they have been taught, to alter their long-term memory and thus improve the rates of progress they make.

Curriculum Impact

We use both formative and summative assessment information in every design technology lesson. Staff use this information to inform their short-term planning and support. This helps us provide the best possible support for all of our pupils, including the more able. The progression document and the assessment points, once finalised, for each year group ensure that skills in design technology are progressive and build year on year.

Our aim is for staff to use design technology formative assessment methods to systematically assess what the children know as the topic progresses and inform their future planning. This formative assessment is then used to inform summative assessment judgements for each topic.
Assessment information in design technology is collected once a year and analysed as part of our monitoring cycle. This process provides an accurate and comprehensive understanding of the quality of education in design technology. A comprehensive monitoring cycle is developed at the beginning of each academic year. This identifies when monitoring is undertaken. Monitoring in design technology includes: book scrutinies, lesson visits and/or learning walks, pupil voice and parental views .
All of this information is gathered and reviewed. It is used to inform further curriculum developments and provision is adapted accordingly.

At St Mary's CE Primary School,

we are

DESIGNERS AND TECHNOLOGISTS!

Design Technology programmes of study:

Key Stages 1 and 2

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.

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].

Subject content – 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

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.

Subject content – Key stage 2

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, 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:

Key stage 1

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

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.