Theale Church of England Primary School

Design and Technology Policy **October 2021**

"Design is intelligence made visible." - Alina Wheeler, author.

The Importance of Design and Technology

Design and Technology is an inspiring, rigorous and practical subject preparing children to deal with tomorrows rapidly changing world. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Theale, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. We aim to, wherever possible, link work to other disciplines such as mathematics, science, engineering, computing and art. The children are also 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.

CURRICULUM INTENT

It is the intent of Theale Primary School for Design Technology to be taught in all year groups through at least one topic per term. Design Technology projects are often made cross curricular - linking to other subjects taught.

Key objectives of intent within the Design Technology Curriculum based on the National Curriculum 2014 guidance:

- Products are to be made for a purpose.
- Individuality should be ensured in children's design and construction of products.
- Delivery of the two strands: Designing and Making and Cooking and Nutrition.
- More emphasis to be given on creating 'innovative' products in KS2.
- Teaching the importance of making on-going changes and improvements during making stages.
- Looking into seasonality of ingredients and how they are grown, caught or reared.
- The introduction of computing and coding of products in KS2.
- Researching key events and individual designers in the History of Technology in KS2.

Aims

The national curriculum for Design and Technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise need 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 IMPLEMENTATION

The teaching of Design Technology across the school follows the National Curriculum. Children design products with a purpose in mind and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this.

Design and technology is a crucial part of school life and learning and it is for this reason that as a school we are dedicated to the teaching and delivery of a high quality Design and Technology curriculum; through well planned and resourced projects and experiences.

It is an inspiring, rigorous and practical subject, requiring creativity, resourcefulness, and imagination. Pupils design and make products that solve real and relevant problems within a variety of contexts. It is very cross - curricular and draws upon subject knowledge and skills within Mathematics, Science, History, Computing and Art. Children learn to take risks, be reflective, innovative, enterprising and resilient. Through the evaluation of past and present technology they can reflect upon the impact of Design Technology on everyday life and the wider world.

Early Years Foundation Stage

During the EYFS pupils explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunities to learn to:

- Use different media and materials to express their own ideas
- Use what they have learnt about media and materials in original ways, thinking about form, function and purpose
- Make plans and construct with a purpose in mind using a variety of resources
- Develop skills to use simple tools and techniques appropriately, effectively and safely
- Select appropriate resources for a product and adapt their work where necessary
- Cook and prepare food adhering to good health and hygiene routines

National Curriculum requirements at 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, (or 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 requirements for Food and Nutrition at KS1

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:

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

In Key Stage 2:

Within key stage 2 key events and individuals that have influenced the world of Design Technology are teaching focuses that are to be covered.
The use of computer programmes and applications are also a key focus to be utilised by children in their design of their products.

National Curriculum requirements at 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, such as 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 as gears, pulleys, cams, levers and linkages)
- understand and use electrical systems in their products, (for example series circuits incorporating switches, bulbs, buzzers and motors)
- to apply their understanding of computing to programme, monitor and control their products.

National Curriculum requirements for food and nutrition at KS2

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:

- 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
- to understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Teaching and learning style

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

Differentiation

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.

Planning

Planning for KS1 and KS2 is organised in line with the frame work for Design and Technology as set out by the National Curriculum 2014. Planning in Foundation Stage is based on the Early Outcomes documents for the EYFS.

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.

Time Allocation

In EYFS and Year 1 Design and Technology is taught as a class activity for 2 hours every 3 weeks, on a half termly cycle, alternating with Art and Design.

In Year 2 - 6 Design and Technology is taught as a class activity for 2 hours every other week, on a half termly cycle, alternating with Art and Design.

Further opportunities for design and technological learning will also present themselves within other subject areas including the Science, Computing and Art curriculum adding approximately 3 hours /term to DT teaching.

TEACHING TO A GREATER DEPTH

Theale Primary School strives to offer an extended programme to children with exceptional ability and enthusiasm in key areas of the curriculum. We run a STEM club for Year 4 – 6 students as well as a range of afterschool clubs available for all ages. Clubs such as computing, drawing and puppet provide students with an opportunity to build on a variety of DT related skills.

Assessment

Information and Communication Technology

ICT is used to support Design and Technology teaching when appropriate. Children use appropriate apps and related software in their own work, and the internet for research purposes. Visual information can be collected using ipads and each classroom has a Smart board to provide instant access to a wide range of images and source material.

Health and Safety

At both key stages pupils will be taught:

- about hazards, risks and risk control
- to recognise hazards, assess consequent risks and take steps to control the risk 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.

The Role of the Design and Technology Leader

The leader is responsible for:

- teaching the units of work
- monitoring progress
- providing advice about Design and Technology
- keeping up to date through reading and attending relevant courses and passing this information/advice to other staff
- manage the ordering and maintaining all DT materials and equipment used in school in consultation with other members of staff
- inspire an enthusiasm for the subject
- ensure continuity of progression in work across the key stage and coverage of the National Curriculum

Resources

We have a range of resources to support Design and Technology across the school (kept in the SPEC room, Science, Maths and ICT spaces.)

Equal Opportunities and Special Needs

Every pupil will be given equal opportunity to follow the National Curriculum or Foundation Stage Curriculum, irrespective of their ethnic or linguistic background, gender, disability or religious beliefs. Children with Special Education Needs will have full access to the Design and Technology curriculum, which will be modified to best meet their needs.

CURRICULUM IMPACT

Assessment of children's learning in Design Technology is an ongoing monitoring of children's understanding, knowledge and skills by the DT teacher, throughout lessons. This assessment is then used to inform differentiation, support and challenge required by the children.

Summative assessment is conducted termly by the DT teacher across each year group of the school to inform the subject leader of progress or skills and knowledge still to be embedded.

Each pupil's progress and achievement will be assessed and reported to parents in an annual report. Pupils will use a sketchbook to record ideas, drawings and designs. Feedback will be given and advice on ways to improve their work. Children learn to evaluate their own and each other's work against learning objectives and provide positive criticism. Children's work is assessed by the teacher whilst observing them during lessons, by giving comments in sketchbooks, by evaluating the finished product and through discussion of pupil opinions/choices. Photographic evidence will be kept of samples of work.

Design Technology is also monitored by the subject leader throughout the year in the form of book monitoring, work scrutiny and pupil interviews to discuss their learning and understanding and establish the impact of the teaching taking place.

EYFS pupils' progress and attainment is tracked using the Early Excellence Assessment tracker system, telling us whether each individual child is below expected, at expected or above expected attainment for their age.

The subject leader, working with the head teacher is responsible for the monitoring of Design and Technology. The head teacher will report to governors through a termly report.

At the end of each Key Stage, pupils are expected to know, apply and understand the matters, skills and processes in the relevant programme of study.