BRETHERTON ENDOWED CE PRIMARY SCHOOL
Design & Technology

Walking in the footsteps of Jesus with our Christian family, we learn, grow, achieve and flourish together in God's love.

This policy is for Bretherton Endowed CE Primary School and The Hub, Bretherton Endowed Out of School Provision.

Design and Technology is an exciting and highly practical subject in which pupils gain the experience of evaluating, designing and creating products for a purpose. At Bretherton Endowed Primary School we want pupils to examine their environment, question the world and review how and why things work the way they do. Pupils are afforded the opportunity to focus on what makes a successful product, what purpose that product serves and how it can be improved. Bretherton pupils achieve their skill set through progression which begins in EYFS, exploring how to join and build through our excellent continuous provision. From this, Design & Technology is organised into a scheme of work based on a series of key skills. The D&T Association's scheme 'Projects on a Page' is utilised alongside the Curriculum Maestro topic curriculum to provide a widely enriching experience of skills progression throughout EYFS and Key Stages 1 & 2.

Our aim at Bretherton Endowed Primary School is to provide good quality learning experiences for all pupils and in Design & Technology this includes:

- encouraging pupils to be independent in their exploration of design
- teaching a range of practical and intellectual skills through Projects on a Page
- involvement in cross-curricular DT projects through Curriculum Maestro
- opportunities to take part in activities hosted by others
- celebration of achievement in DT
- opportunities to see DT applications in the wider world e.g. visits to other schools etc.

Intent

At Bretherton Primary School, we believe that high-quality Design and Technology lessons will engage and inspire children to think innovatively and develop creative procedural understanding. Our aims are to fulfil the requirements of the National Curriculum for Design and Technology by providing a broad and balanced curriculum, ensuring the progressive development of knowledge and skills supported by Projects on a Page. We want pupils to learn how to take risks so that they become resourceful, innovative, enterprising and capable citizens through the evaluation of past and present Design & Technology. We want to ensure our pupils develop a critical understanding of Design & Technology's impact on daily life and the wider world. At Bretherton we also feel it is critical for pupils to participate successfully in an increasingly technological world and how packages and apps can be instrumental in assisting a successful design process. The D&T curriculum has been developed to ensure it is an integral part of the "whole school" approach to children's learning. At Bretherton Endowed CE Primary School we believe that our pupils deserve a broad and rich curriculum, and D&T is used to enrich that curriculum further.
We invoke a three-part process of 'design, make and evaluate' and our work reflects the National Curriculum requirements which states:-

Design and Technology prepares pupils to participate in tomorrow's rapidly changing technologies. They learn to think and intervene creatively to improve quality of life. The subject calls for pupils to become autonomous and creative problem solvers, as individuals and members of a team. They must look for needs, wants and opportunities and respond to them by developing a range of ideas and making products and systems. They combine practical skills with an understanding of aesthetics, social and environmental issues, function and industrial practices. As they do so, they reflect on and evaluate present and past design and technology, its uses and effects. Through design and technology, all pupils can become discriminating and informed users of products, and become innovators. 'Pupils should be taught to develop their design and technology capability through combining their designing and making skills with knowledge and understanding, in order to design and make products'.

Implementation

Design and Technology is taught through a topic approach alongside Projects on a Page. Our process is carefully planned to engage and excite all our learners with teachers afforded the freedom to utilise Curriculum Maestro topics alongside Projects on a Page, as well as their professional judgement, to expand the outcomes. All staff have participated in training on delivering Projects on a Page and further D&T continuing professional development is always on offer for staff should they feel further support is needed. Our school works in collaboration within a cluster of local schools; here the subject leaders meet and discuss aspects of the D&T curriculum, sharing good practice and ideas for purposeful teaching and learning and we have a connection to our Feeder high school for subject specialism support. The activities in Design and Technology throughout Key Stages 1 & 2 build upon the prior learning of the children. Children in their designing and making will apply knowledge and skills of:

- Textiles
- Food
- Mechanical Systems
- Structure
- Electrical Systems – Key Stage 2

At Bretherton Primary School we also have in place a skills progression document, which enables continuity and ensures that there is an increasing challenge for the children as they move up through the school. As well as making its own distinctive contribution to the school curriculum, Design & Technology aids the wider aims of primary education by making links between all areas of learning. The context for the children's work in Design & Technology is also well considered and children learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. The time dedicated to Design & Technology ensures that each topic can be delivered to a high standard and children can create important and useful products. Resources are plentiful and allow children to be clever and creative when designing and making their products. All children are challenged during Design & Technology lessons through continuous verbal feedback and through problems presented to them. Whole school planning for Design & Technology will be undertaken by all staff and supported through the Projects on a Page scheme of work. Subject Monitoring Forms are completed termly and a thorough Design & Technology audit is completed each year by the co-ordinator, with input from all other members of staff, so that resources can be replenished on a regular basis and schemes of work re-assessed. Year specific materials are delivered to class

teachers and are stored in classrooms until they are needed. Perishable items for cookery will be purchased by class teachers and refunded by the administration staff on the production of a receipt. In an effort to create an environment for learning, the use of effective display work is promoted throughout the Key Stages at all times, including 2D and 3D materials and using photography where it is impractical to display. Children are encouraged to actively participate and be responsible for creating displays, thus demonstrating the value placed on their work. Pupils can access up-to-date technology including through our 3D Printer loan scheme and CAD design classes. Our children also find out about famous designers and their designs and gifts to the world.

At Bretherton Primary School, during a typical project the children are 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 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, as well as chopping and slicing) accurately.
- select from and use a wider range of materials, ingredients and components, including construction materials, textiles and ingredients, according to their functional properties, aesthetic qualities and, where appropriate, taste.

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.
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures.
- understand and use mechanical systems in their products.
- understand and use electrical systems in their products.
- apply their understanding of computing to program, monitor and control their products
- Understand some of the ways that food can be processed and the effect of different cooking practices (including baking and grilling).

During our D&T lessons, many cross-curricular links are observed. Maths links are easy to come across during any D&T lesson; children are continuously measuring during the 'design' and 'make' phases of lessons. During cooking topics, children are measuring out ingredients, as well as calculating the quantities of different recipes. Instructions are often created as part of the 'design' phase, which has a direct link to English. Through the children presenting their products confidently, oracy skills are practised. Science knowledge is practised when children are creating products that contain electrical components, for example Class 3 in cycle A use their knowledge of electrical circuits to create a Christmas light-up picture. Teachers also encourage children to consider the impact their product can have on the wider world, to ensure they realise the difference they may make in the future. In addition, we hold enterprise weeks biannually and enrich D & T through linking to Christian festivals.

Early Years Foundation Stage

Children in the Early Years Foundation Stage will undertake investigative and skills-based tasks during independent, child-led activity time and excellent continuous provision. The

'Creative/Workshop/Art' areas will be available to them on a daily basis and they will be encouraged to undertake focused practical tasks through directed and self-initiated stimuli. They will be provided with resources based on topics within the focus of the classroom and will be encouraged to design and develop ideas independently. Children in EYFS will work on a range of creative themes and tasks, and their work in Expressive Arts and Design links closely to other areas of the EYFS profile, namely 'Moving and Handling' through the opportunity to develop skills in using various tools, and 'Shape, Space and Measure' through access and exploration of a range of construction materials.

The National Curriculum (2014) states that the purpose of studying Design and Technology is as follows:

- 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 statutory framework for the EYFS (2021) states that educational programmes must involve activities and experiences for children, as set out under each of the areas of learning.

Expressive Arts and Design - The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

Spiritual, moral, social and cultural development and British Values

Social - During DT there are many opportunities to promote social responsibilities. All the children have a collective responsibility to ensure they contribute to a safe working environment where the use of tools and equipment are involved. Pupils are often asked to design and make products to meet the needs of others and value the feedback they receive; they must show mutual respect when working individually and collaboratively. Peer evaluation and self-evaluation of designed and made items plays a big part in Design & Technology work. Pupils learn to articulate their thoughts and feelings about their own and others' work, and learn to give and take criticism without offence.

Moral - Pupils are faced with moral decisions through designing, selecting materials/ingredients, methods of manufacture, considering the needs of others, as well as the sustainability and environmental impact. The 3 R's are routinely discussed throughout the design & make process – Reduce, Reuse, Recycle. Within the classroom and the wider community, the pupils are expected to show respect to others and take responsibility for their own actions and of those around them, taking into consideration the consequences.

Spiritual - Through the projects we offer and the curriculum we deliver at both Key Stages, the pupils are taught how to investigate products, aesthetic and functional, past and present and examine how they affect the quality of our daily lives. They are encouraged to develop their thinking skills and explore the wider world around them, to reflect upon what they see and develop an open mind and use this inspiration and creativity when approaching their design work.

Cultural - Pupils are taught that all their design work should be sensitive to needs and beliefs of different backgrounds, ensuring all imagery, text and products won't cause offence. They think about how their ideas and products could impact on the world around them. Pupils are encouraged to use the work of artists and designers from a wide range of cultures and historical contexts to influence and support the development of their work.

In Summary;

Spiritual - At Bretherton Endowed Primary School pupils are spiritually educated in D.T. by:
- Working collaboratively and expressing individual ideas in groups
- Exploring their emotions through design development
- Appreciating reflection time to review their own and others' ideas
- Exploring their own creativity through product design
- Appreciation of beauty through the discovery of materials and design

Moral – At Bretherton Endowed Primary School pupils are morally educated in D.T. by:
- Encouraging respect for others and appreciating others' work and ideas
- Working co-operatively for a collective goal
- Encouraging respect in the practical classroom environment
- Encouraging respect and safe use of equipment
- Promoting trust
- Encouraging sustainability through recycling and upcycling

Social - At Bretherton Endowed Primary School pupils are socially educated in D.T. by:
- The promotion of a sense of community
- Encouraging independence and self-respect
- Celebrating success with displays and exhibitions
- Encouraging regular group/class discussion and reflection
- Promoting group work and accepting roles within a group

Cultural - At Bretherton Endowed Primary School pupils are culturally educated in D.T. by:
- Appreciating how culture influences design
- Exploring a range of materials and equipment used by different cultures for a variety of purposes
- Gaining inspiration through visiting exhibitions
- Understanding the importance of respect for the diversity of cultural values and beliefs

Special Education Needs and reducing barriers in D & T

D&T education is one particular area of the Curriculum which allows a great deal of pupil creative expression and non-verbal communication. Therefore, we aim to use the area of Design, Art and Craft and as a means of supporting children with S.E.N. to develop their own learning skills and

levels of personal self-esteem. Each teacher will make every effort to adapt all areas of the D&T Curriculum to suit the individual needs of the children in their class. Children with any form of Special Educational Need will be able to access the D&T curriculum with success an achieve an outcome. Children who have been identified as Gifted and Talented in D&T will be provided with opportunities to take part in any extra-curricular activities, such as making costumes or props for performances.

Impact

Within Design and Technology, we strive to prepare children to take part in the development of tomorrow's rapidly changing world. We aim to encourage children to become creative problem-solvers, both as individuals and as part of a team. Through the study of Design & Technology children combine practical skills with an understanding of aesthetic, social and environmental issues, as well as of functions and industrial practices. This allows them to reflect on and evaluate present and past design and technology, its uses and its impact. Our Design & Technology curriculum is high quality, well thought-out and is planned to demonstrate progression. We focus on progression of knowledge and skills and discreet vocabulary progression also form part of the units of work. We measure the impact of our curriculum through the following methods:

- Assessing children's understanding of topic linked vocabulary before and after the unit is taught.
- Summative assessment of pupil discussions about their learning.
- Images and videos of the children's practical learning.
- Interviewing the pupils about their learning (pupil voice).
- Moderation staff meetings where pupil's books are scrutinised and there is the opportunity for a dialogue between teachers to understand their class's work.
- Annual reporting of standards across the curriculum.

Each topic ends with all children creating a final product; these products are a fantastic way for children to demonstrate the skills they have learnt. Throughout the school, children are given the opportunity to consolidate their skills by creating their final product independently. Each lesson builds on the previous and children's skills are improved upon throughout each topic. It is also clear to see the progression of skills throughout the school through the quality of products that each year group creates. Subject leaders monitor the impact of our curriculum provision through completing regular monitoring, which includes listening to the voice of our children.

Health and Safety

In teaching certain practical elements of D&T to pupils, we recognise that safety is a key issue. All safety precautions must be taken. This is done by recognising health and safety in the classroom organisation and, furthermore, by giving children guidance on how to use the equipment provided. Monitoring the pupils in small groups helps overcome the problems of safety when using potentially dangerous D&T equipment. Children will be introduced to the correct techniques for handling D&T equipment and will develop these techniques as they progress through the school. The co-ordinator is always available to guide staff in the safest ways of using various equipment including;

- Glue Guns

- Circle Cutters
- Craft Knives
- Saws
- Hammers
- Bradawls
- Drills
- Rasps

When working with tools, equipment and materials in practical activities, pupils taught about hazards, risks and risk control in order to:

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

Assessment, Monitoring and Evaluating

Class teachers will be responsible for the assessment and recording of pupil's D&T capabilities and achievements. These achievements must be praised and rewarded as would any exceptional achievements in other subjects. The Design & Technology subject leader will meet with teachers informally to discuss progress, schemes of work and resources on a regular basis. Assessment and the recording of a child's personal development is required throughout the key stages. In order to avoid distinctions and comparisons between pupils we endeavour to assess sensitively, aiming to recognise achievements of the pupil on an individual level. Reporting to parents will be through two parent evenings and a written report detailing the coverage and attainment with regards to the National Curriculum at the end of the Summer term.

Assessment techniques will ensure that teachers assess the on-going design process and not just the finished products or outcomes through:

- observation of pupils
- teacher – pupil discussion and teacher questioning
- pupils' drawings, notes, models, comments and written work
- artefacts made by pupils
- pupils' on-going analysis of their achievements
- photographs of children engaged in the design process
- use of appropriate ICT

Teachers must consider children's:

- knowledge and understanding of materials and components
- understanding of mechanisms and ICT control
- ability to use materials and equipment safely
- ability to develop, plan and communicate design ideas
- interest and motivation in designing and making
- ability to appreciate and produce items of quality that meet its intended purpose.

Children's knowledge and skills are live assessed and developed by the teacher during lessons and through critical discussion at the end of each unit. With reference to the progression outlined in the National Curriculum, teachers use the 'key learning' listed in the 'Projects on a Page' scheme, alongside the progression outlined by the national curriculum, to identify the key knowledge and skills that underpin progress in each unit of work. These build progressively throughout the school,

and across the programme of study, and form the basis of assessment in Design and Technology. The knowledge, understanding and skills identifies form the basis of learning objectives for each D&T session and is used to help focus teacher's discussions with children and inform observations. Teachers use the information they gather during projects about the performance of individual children and groups to provide carefully tailored feedback, questioning, explanation and support, according to their needs.

Role of the Subject Leader

The subject leader works with the whole staff to develop a cohesive D&T experience throughout the school. The co-ordinator will also:

- support colleagues in their development and understanding of detailed work plans and implementation of schemes of work and in assessment and record keeping.
- take responsibility for the purchase and organisation of resources for D&T
- keep up to date with developments in D&T.
- monitor delivery throughout the school.

Equal Opportunities

It is our intention to provide each and every pupil with a broad and balanced D&T curriculum. A curriculum which also approaches those key issues associated with multiculturism and gender. It is our belief that all children (regardless of their own particular ethnic group) have the same entitlement to a broad and varied multi-cultural D&T education, an education which provides a unique insight into the historical and contemporary traditions of both their own culture and that of other nationalities. In addition, every effort is made to seek out ways of reinforcing sexual equality within the classroom where both sexes are treated fairly and are provided with the same educational opportunities.

BRITISH VALUES

Democracy

The children must take the views and opinions into account but still have the right to make their own choices.

To take turns both in speech and practically with others.

To understand that it is not always possible or right to have their own way and understand the value of compromise.

The rule of law

To understand the importance of safety rules when using tools.

To understand and accept that if these rules are not followed that there are consequences to this.

Individual liberty

To understand that there are able to listen to others but can use their own ideas and design choices when making an artefact.

To accept that others ideas may not be the same as their own but are able to accept this.

Tolerance

To tolerate ideas from others that are different to their own.

To understand that many great design ideas originate from other cultures.

Mutual Respect

To listen to and consider the ideas and opinions of others even if they differ from your own.

To be able to take turns during discussions to resolve difficulties
or make decisions.

To offer supportive comments in evaluations that will improve learning outcomes in a way that is objective but sensitive to the listener.

Equality Statement

At Bretherton Endowed CE Primary School, we actively seek to encourage equity and equality through our teaching.
As such, we seek to advance the equality of opportunity between people who share any of the following characteristic:

- gender;
- ethnicity;
- disability;
- religion or belief;
- sexual orientation;
- gender reassignment;
- pregnancy or maternity.

The use of stereotypes under any of the above headings will always be challenged.

This policy was adopted: October 2022
This policy will be reviewed before the end of 2024

All aspects of our policy intend to comply within the Data Protection (GDPR) legislation.