At St Mary's we champion every child to be the **best that they can be.** Our knowledge-led curriculum therefore endeavours to develop our children's **character**, **core skills**, **creativity** and sense of **community**.
Supported by our school's vision, ethos and position as a junior school, we believe that our specialist knowledge of the Key Stage 2 age range ensures **improving outcomes, opportunities and experiences for all our children.** To achieve this, we are aspirational for our pupils, instilling high expectations, the passion, perseverance and stamina to succeed.

Design & Technology Policy

Ely St Mary's CofE Junior School

Written/reviewed by:	Rachel Clarke	**Date:**	19th May 2021
Next review due by:	May 2026		

1. Introduction & Aims

Our Design & Technology curriculum (D&T) aims to provide opportunities for children to use their creativity and imagination to design and make products and systems that solve real and relevant problems, within a variety of contexts and for varying audiences and purposes.

It aims to spark curiosity and encourage children to reflect on, learn from and evaluate present and past design technology, its uses and effects, so they are prepared to participate in tomorrow's rapidly changing technologies and further educational opportunities.

By the end of the key stage, children will have an understanding of how D&T differs from Art (function vs form), including the skills and progression involved in the designing and making process overall and other technical aspects, such as mechanisms.

Our children will have opportunities to work on projects that require them to draw upon and combine skills from across the curriculum including Maths, Science, Engineering, Computing and Art, promoted through whole school 'STEAM' facilities and ethos.

1.1 Objectives

At Ely St Mary's we implement the National Curriculum for Design & Technology 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

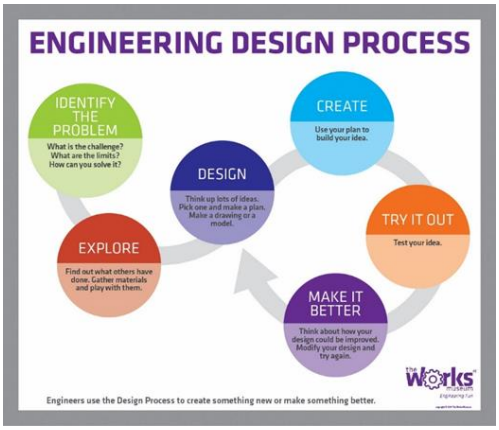
2. Procedures and practice

2.1 Teaching & Planning:

At St Mary's, we begin each D&T unit with a **challenge question**. This provides a real-life context and problem to be solved, which initiates the design process and related discussion and ideas. This context also helps to signify the purpose and audience of the task to avoid a sole focus on aesthetics.

Sequences of lessons are structured around the **design process** and take the children through:

- identifying the problem;
- exploring what others have done, possible materials and techniques to be used, market research;
- drawing designs;
- creating and building their ideas;
- testing their product;
- evaluating and adjusting their designs.



These steps mirror the design process of engineers and we are keen to inspire our children, through the teaching of all our STEAM subjects, to pursue these areas into further education and beyond and to make a difference to the future.

In every year group children develop the National Curriculum skills of **designing, making and evaluating throughout units.**

Across the key stage, the **technical knowledge is sequenced progressively** enabling children to develop their experience and knowledge of complex structures, mechanical and electrical systems as they get older and where this is supported by cross-curricular links within the year groups.

The teaching of nutrition is developed through Science, PE and Design Technology across the key stage and we aim for **all children to have at least one in-depth cooking experience** by the end of Year 6.

2.2 Organisation:

D&T is taught as a discrete subject and is taught in a variety of ways across the school, sometimes in blocks of taught time (projects) or in short skills-based activities. D&T is also taught within the classroom and, where appropriate, in our Café or developing Art & Design Studio (Create Space) or STEM Hub (Think Space) This approach enables staff and pupils to maximise the time and resources available to them to best effect.

A minimum of 3% curriculum time is allocated to Art and Design Technology. Pupils will complete a minimum of 30 hours per year on these subjects, alternating Art and D&T units each half term. Pupils will therefore complete 3 D&T units per year, visiting key technical aspects (such as woodwork, textiles, mechanisms) at least once in Lower KS2 and once again in Upper KS2 to consolidate and extend knowledge and application.

Children's work in D&T is recorded in pupils' Topic books and, where applicable, their Science books. Due to the practical nature of the subject, the D&T lead will regularly collate examples of children's D&T work both for monitoring purposes and CPD.

2.3 Resources:

D&T specific resources are kept in the allocated cupboard in the server room. In addition, we are broadening our resources and facilities (2021/22) to facilitate the teaching of D&T and STEM based projects, which can be found in the Art & Design Studio (Create Space) or STEM Hub (Think Space) or Café.

2021/22 all pupils will have the opportunity to achieve a Crest Award, SuperStar or Discovery Award. Information can be found here: https://www.crestawards.org/which-level/

2.4 Health and Safety:

When working with tools, equipment and materials, pupils are taught the appropriate health and safety procedures and understand the steps they should take to control risks.

At Ely St Mary's, the use of D&T specific equipment is supported by a Risk Assessment carried out by the class teachers delivering the relevant projects using the LGSS template. A general D&T specific risk assessment (by Kapow) is also available to guide staff in identifying and addressing subject-specific hazards. If any pupils are likely to cause injury to themselves or others, review and risk assess the pupils on an individual basis. Risk assessments should be checked by the D&T Lead or a member of SLT and saved centrally on Sharepoint.

Food technology activities should also be carried out in consultation with the D&T lead, who maintains a Food Safety & Hygiene certificate. Risk assessments should consult school medical records regarding allergies and food activities should be nut free.

2.5 Equal opportunities:

Every child has the right to access the full D&T curriculum regardless of gender, race and ability.

Learning objectives, activities and adult support will be adapted to meet the needs of all pupils including those with SEND and higher attaining children. See both our SEND policy and our Most Able Policy.

Pupil Premium funding can also be allocated to facilitate disadvantaged pupils in accessing extracurricular opportunities and in subsidising enrichment trips, visits and experiences relating to D&T or, more broadly, STEAM.

2.6 Assessment:

Assessment is based on a combination of teacher assessment and pupil self-evaluation in D&T. Feedback is offered verbally and through live marking/feedback during lessons. During a unit, teachers will document pupils' strengths and next steps to be addressed through further teacher input – see the schools Feedback Policy.

Annually, staff will use the Upper and Lower Key Stage 2 progression grid to benchmark pupils against, recording each pupil's individual attainment level on Pupil Asset according to whether they are working towards/ at/ above the age-related expectation.

Both unit-based feedback and annual assessments inform teacher comments in children's end of year reports to parents.

Most able learners in D&T are recorded as 'exceeding' on Pupil Asset. These pupils are identified by and supported to develop a selection of the following characteristics:

- High levels of technological understanding and application
- High-quality making and precise practical skills
- Readily accept and discuss new ideas; conceptualise beyond the information given
- Have flashes of inspiration and highly original or innovative ideas
- Demonstrate different ways of working or different approaches to issues
- Identify the simple, elegant solution from complex, disorganised data
- Reflective and constructively self-critical
- Link the familiar with the novel
- See application in 2D or 3D
- Transfer and adapt ideas from the familiar to a new problem
- Sensitive to aesthetic, social and cultural issues when designing and evaluating
- Capable of rigorous analysis and interpretation of products
- Conduct independent research to solve problems
- Work comfortably in contexts beyond their own experience and empathise with users' needs and wants.

2.7 Monitoring and Evaluation:

The implementation of this policy will be monitored by the subject lead for D&T and Heads of Phase/Year.

The quality of D&T will be evaluated through lesson drop ins, pupil voice, work sampling.

The link D&T school governor will support the monitoring of this subject area at least annually (e.g. via our Governor Day).

3. Contribution of D&T to other subjects in the curriculum

3.1 STEAM

D&T provides ample opportunities for the practical application of mathematics, science, art and computing. Pupils are encouraged to choose and use appropriate ways of calculating measurement and distances and to check the results of their calculations. They may be required to use statistics to collate market research or to test the effectiveness of a design. They will be encouraged to evaluate and improve their designs, applying their knowledge of scientific, mathematical and technological concepts and skills of forces, electricity, materials and their properties, geometry, programming and fair testing, for example.

2021/22 all pupils will have the opportunity to achieve a Crest Award, SuperStar or Discovery Award, which will offer and inspire further opportunities for pupils to collaborate and apply STEAM-based knowledge, ideas and skills.

3.2 English

D&T lessons promote key English skills of reading and writing both naturally and explicitly. For example, through the reading and following of instructions, skimming and scanning information and explanation texts. Pupils also have opportunities to revisit and consolidate written genres and the associated language and features across the D&T curriculum by writing non-chronological reports,

biographies or discussions about designers, writing evaluations. Pupils are taught the meaning, the use and spelling of technical and specialist vocabulary, too.

Some D&T units are also inspired by children's books such as 'The Emperor's Egg' packaging unit or KrindleKrax Story Scenes.

3.3 Humanities

D&T lessons and projects encourage pupils to be critical and reflective thinkers. As in History, we aim for these lessons to provide further opportunities to learn about design and invention from the past and its lasting impact and legacy in society, as well as the world's design needs in the future. Children are encouraged to consider their place in the world and our individual and collective impact on it. Cross curricular units, such as 'reduce, reuse & recycle' offer opportunities for pupils to combine this understanding with environmentally friendly design.

Other units are also delivered with a context or inspiration taken from across the humanities curriculum. Examples include pupils learning about how pulley systems are used in Nepal to transport food; applying their knowledge and understanding of rangoli patterns in RE to textiles; and woodwork creations inspired by local historical buildings.

3.4 PSHE

Where possible D&T activities are used to encourage pupils to recognise and value their own and other people's creativity. D&T activities also help pupils to reflect on how design decisions affect or influence the environment and society. They are encouraged to recognise the need to consider the views of others when discussing design ideas and explore the contribution of products to the quality of life within different cultures.

Pupils are encouraged to manage their environment to ensure the health and safety of themselves and others, to develop their sense of responsibility in following safe procedures and understand both the importance of personal hygiene and how to work hygienically.

4. Concluding notes

4.1 Consultation

This policy and DT curriculum was written by Rachel Clarke, deputy headteacher and leader for DT education, in consultation with:

- Teaching staff & LGB representatives – Professional Development Meeting February 2020
- Governors – Governor Day monitoring visit January 2020

4.2 Monitoring and review

This policy will be monitored and reviewed by the subject leader responsible for D&T.

4.3 Links to other policies

- Full D&T Coverage Map and Progression of Skills can be found in the Ely St Mary's Curriculum Document here: https://www.elystmarys.org.uk/web/overview/503308
- SEND Policy
- Pupil Premium Strategy
- Most Able Policy
- Feedback Policy