Newdale Primary School and Nursery

Design & Technology Policy

Reviewed: April 2025
Next Review: April 2027
Co-Ordinator: Leanne Lowe

Policy for Design and Technology

Principles

What is Design and Technology?

"Design and Technology is about making things that people want and that work well. Creating these things is hugely exciting: it is an inventive, fun activity."

James Dyson

"DT at Newdale is about creating practical, creative innovators preparing pupils for life beyond school. It gives children the knowledge and understanding that Design and Technology is about following the design process to create something, for someone, for something. " **Leanne Mee (The STEM Network)**

At Newdale Primary School, Design and Technology is taught to all children irrespective of their gender, race, creed or ability. It is important that all children are provided with equal access to all curriculum areas.

At Newdale, we offer a bespoke curriculum based on the National Curriculum (2014). Children are taught to understand that Design and Technology is making **"something for somebody to do something"** (User and Purpose). D&T lessons have a strong **reference to engineering and manufacturing,** to ensure that our pupils develop a secure understanding that everything around them has been through the Design & Technology process. D&T is built into our curriculum and school life through explicit D&T teaching, alongside STEM and Career-themed days to promote the importance of STEM-based careers in our society. The skills taught within D&T units are **skills that are transferable** to other areas of the curriculum but most importantly for life beyond Newdale.
Our D&T offer ensures that our pupils are able to become **skillful;** ensuring **technical knowledge** is taught prior to children having opportunities to use **creativity and imagination** to design and make products that solve **relevant and real problems**.

We strive to teach Design & Technology within contexts which are meaningful and engaging to all learners. We hope, that by planning these cross-curricular links, we will make the most effective use of learning time and that learning will become multi-sensory – with the aim for our pupils to know more and remember more. We challenge all children to reach their potential. We meet the needs of SEN children by providing targeted focussed support and additional materials where necessary. We meet the needs of our More Able learners by providing focussed activities which challenge them to broaden, enrich, deepen and accelerate their learning. All pupils will be given the opportunity to take risks and begin to develop the skills necessary to become resourceful, innovative, enterprising and capable citizens.

Aims

We aim to:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world,
- Help children develop a curiosity and interest in the world and be prepared for the range of technologies operational in society with a particular focus on manufacturing and engineering with 10% of manufacturing related careers in Telford & Wrekin.,
- Create an interest and enthusiasm for designing and making for children of all abilities and provide opportunities for all children to design and make products,
- 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,
- Provide a range of activities to develop the children's capability and confidence in their own ideas,
- Teach pupils to combine practical skills with an understanding of aesthetics, social and environmental issues, function and industrial practices,
- Develop children's confidence and skill in using and selecting a range of tools and materials safely and competently,
- Critique, evaluate and test their own ideas and products, and the work of others,
- Understand and apply the principles of nutrition and begin to learn to cook using a variety of skills.

Content

In design and technology, children acquire and apply knowledge and understanding of:

- materials and components,
- mechanisms and control systems,
- electrical systems,
- structures,
- food, cooking and nutrition,
- existing products,
- quality,
- health and safety.

Children will:

- develop designing skills, including generating and developing ideas, clarifying a task, creating design proposals, communicating ideas, planning and evaluating,
- acquire and refine the practical skills associated with making, including working with materials and components, tools and processes, e.g. planning, measuring and marking out, cutting and shaping, joining and combining, finishing, and evaluating,
- apply scientific skills, e.g. predicting and fair testing,
- apply mathematical skills, e.g. measuring to an appropriate number of decimal places, drawing and interpreting tables, graphs and bar charts,
- apply computing skills, e.g. making things happen by the use of control, handling information through the use of a database or spread sheet,
- apply art skills, e.g. investigating texture and colour or recording visual information through design and the making stages.

Children will have opportunities in Design Technology to:

- work both independently and with others, listening to others' ideas and treating these with respect;
- can be creative, flexible and show perseverance,

- critically evaluate existing products, their own work and that of others,
- develop a respect for the environment and for their own health and safety and that of others,
- recognise the strengths and limitations of a range of technologies and appreciate which are appropriate for particular situations,
- develop their cultural awareness and understanding and appreciate the value of differences and similarities,
- develop an understanding that all people are equal regardless of age, race, gender or ability and that there needs to be alternative solutions to meet the needs of individuals and groups of people,
- find enjoyment, satisfaction and purpose through designing and making,
- apply value judgements of an aesthetic, economic, environmental, moral, scientific and technical nature.

Design and Technology in the National Curriculum

Early Years Foundation Stage

Design and Technology is taught in EYFS as part of their continuous provision offer. Pupils in EYFS will have the opportunity to take part in activities that involve cooking, expressive arts and design and will begin to use tools and explore joining techniques. The six key Design and Technology principles (outlined below) will also begin to be addressed through questioning (for example, "Who did you make this for?", "What will you use this for?" etc), by allowing children freedom to make their own design decisions, and by encouraging pupils to be reflective. Children are encouraged to develop their Design and Technology skills through daily independent activities and termly focused work as outlined in the Development Matters document. Design and Technology contributes to a child's Expressive Arts and Design development and Physical Development.

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, forest school, base camp and playgrounds, the local community, industry and the wider environment].

At the end of Key Stage 1 most pupils will be able 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.

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].

By the end of key stage 2, most children will be able 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 (each year group has a key event/ individual linked to one of their D&T units, that they will focus on)

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:

EYFS

- know that we must wash our hands before preparing food,
- understand the safety rules when learning in a kitchen environment,
- name some of the tools used in the kitchen,
- begin to use some techniques (such as mixing, stirring etc.), with adult support.

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from (farmed, grown elsewhere or caught)
- start to name and sort foods into the five groups in 'The Eatwell Plate'
- know how to prepare simple dishes safely and hygienically, without using a heat source
- with some support, know how to use techniques (such as cutting, peeling etc.), using the appropriate tools safely.

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, demonstrating an understanding of how to do so safely and hygienically
- understand the safety rules regarding the use of a heat source
- begin to understand and use a variety of more complicated techniques (grating, kneading etc.)
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.
- Understand that different food and drink contain different substances – that are needed for health.

Design and Technology History and Appreciation

Through evaluation of past and present design and technology, children will develop a critical understanding of impact on daily life and the wider world. In KS1 and KS2, year groups will learn about a key individual or event linked to one of their Design and Technology projects. Over their time at Newdale Primary School, pupils will learn about a variety of key inventors/ designers/ engineers/ chefs who have developed ground-breaking products and have helped to share the modern world.
Children will be exposed to STEM activities during STEM day and DT based careers on Careers day, opening up opportunities for children to understand there are many STEM/DT careers on their doorstep in Telford Wrekin.

Organisation and Delivery of Design and Technology

Years 1-6 will cover three Design and Technology topics each year (one of which will be a cooking topic). Within each topic, the six key principles of Design and Technology will be addressed. Teachers will ensure that each of the six key principles are evident in each topic by encouraging pupils to be reflective in their work and giving opportunities for pupils to discuss and review their own and others' work.
The six Design and Technology principles are:

- User
- Purpose

- Functionality
- Design Decisions
- Innovation
- Authenticity

Time Allocation

- Three units per year;
- One unit per term (carried out during one half-term);

'Blocking' of time may be used within Design and Technology as deemed appropriate by the class teacher.

We have a bespoke EYFS curriculum using 'Development Matters 2021' and 'Birth to 5 Matters 2021' to explore and teach the EYFS goals under the areas: 'understanding the world: the natural world' and 'Expressive Arts and Design'. Our DT curriculum introduces children to the foundational knowledge of DT that they will need in order to be well-placed to access the DT National Curriculum at Key Stage 1. Design and Technology topics in EYFS will address the same six key principles outlined above as part of their child-initiated learning and continuous provision. The six key principles will be addressed through questioning (for example, "Who did you make this for?", "What will you use this for?" etc), by allowing children freedom to make their own design decisions, and by encouraging pupils to be reflective. The EYFS curriculum has been updated to ensure that DT is covered through their curriculum and follows substantive and disciplinary knowledge within lessons.

Links with other subjects

As much as possible, we aim to make cross-curricular links within the teaching of Design and Technology and these can be seen in our creative curriculum termly overviews.

Planning

Planning is the responsibility of the class teachers who deliver the lessons across the school. Guidance and support will be provided by the Design and Technology co-ordinator using the D&T association 'project on a page' planning support document. Some year groups are using supplementing elements of PlanBee topics to support the planning for some of the Design and Technology topics creating a bespoke Design and Technology curriculum to Newdale.

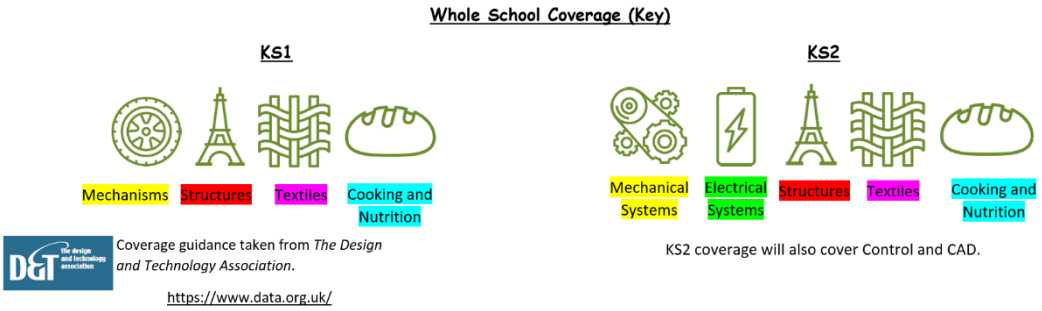
Planning is used to:

- Set clear achievable goals;
- Ensure work is matched to pupils' abilities, experiences and interests;
- Ensure progression, continuity and subject coverage throughout the school;
- Provide criteria for assessment and evaluation of teaching and learning.

Long Term Planning

Our long term planning and skill progression document was produced by all teachers, working cross-phase to ensure progression and development of skills. This document can be found within the Curriculum area within the 'Document Library (L:) and in the co-ordinator's subject file.

Within each key stage, each stand of Design and Technology will be covered at least once. They are as follows:



Medium Term Planning

Termly learning objectives, linked to each topic, are derived from the National Curriculum and the whole-school skill progression document. Staff at Newdale Primary School have also been given progression documents for each unit of Design and Technology. These documents provide teachers with the disciplinary and substantive knowledge statements for each year group, outlining what pupils should know and be able to do at the end of each Design and Technology topic. Teachers will use the detailed Topdoc created collaboratively by the DT coordinator and teachers which consists of all the substantive and disciplinary statements used to create each lesson's learning objective. The Topdoc includes images of example skills used within a unit. Teachers use this document to support each individual lesson including keywords.

Short term Planning

Teachers will produce an objective based lesson plan in accordance with the medium term planning grids. Support from 'Project on a page' is available to support teacher's subject knowledge which will enhance the progression documents created that inform the lessons success criterion.
Teachers will use the detailed Topdoc to create each lesson's learning objective and use of keywords and key DT terminology.

Resources

Written resources and planning support documents are saved on the 'Document Library (L:) or in the co-ordinator's subject file. Tools, materials and teaching aids are stored in the design and technology storage boxes and located in year group classrooms. Each year group has storage boxes dedicated for their topic-specific resources. Existing products and examples of work from previous units can also be found in the storage boxes or within year group classrooms. The co-ordinator is responsible for ensuring that consumable resources are replenished when necessary. Other members of staff should inform the co-ordinator when resources have run out or are broken.

Assessment and Record Keeping

Class teachers assess a pupil's progress through observation, recorded work and specially planned assessment activities in line with our assessment objectives. Teachers use an end of unit quiz which assesses the children's substantive knowledge. Teachers use a disciplinary end of unit assessment grid

for each pupil following the make part of the DT cycle to assess whether a child has met the disciplinary skills. The learning outcomes in each unit show how children might demonstrate what they have learnt. Pupils should be involved in actively evaluating their work and thinking about possible improvements. Class teachers will input assessment data for Design and Technology onto O-track, twice yearly.

Examples of work and photos will be kept as evidence of each unit of work across all Key Stages. These examples of work will also demonstrate the performance of children at different levels within their year group. The co-ordinator has set up folders on the Media drive for class teachers to save their photo evidence into.

Monitoring and Reviewing

The Design and Technology co-ordinator is responsible for monitoring the standards of children's work and the quality and breadth of teaching. This will be done through discussions with staff, lesson observations, pupil voice and book looks. The coordinator supports colleagues in the teaching of Design and Technology by informing them of current developments in the subject and by providing a strategic lead and direction for the subject in school. The co-ordinator is also responsible for evaluating strengths and weaknesses in the subject and identifying areas for improvement and development. Subject Leader release time will enable the coordinator to fulfil the role, reviewing medium term plans, monitoring children's work and observing teaching in the subject.

Reporting

Class teachers comment upon children's progress in Design and Technology on parents' evenings and in annual reports.

The Role of the Co-ordinator

The co-ordinator will:

- Lead the development of Design and Technology throughout the school and encourage cross-curricular links with other subject areas;
- Provide guidance on planning suitable activities for each unit of work;
- Review and monitor the success and progress of the units of work;
- Order and replenish resources and stock linked to each unit of work;
- Be responsible for the organisation and maintenance of design and technology resources;
- Keep up to date on local and national developments within Design and Technology and advise staff as appropriate,
- Provide (book or deliver) CPD opportunities, as appropriate.

Health and safety

"The safety of the children is the responsibility of the class teacher. It is therefore important to ensure that all staff and helpers are confident in the appropriate and correct use of tools."

The Design and Technology Primary Co-ordinator's File, DATA

Risk assessment guidance on Design and Technology is to be held on the 'Document Library (L:)' and in the co-ordinator's subject file. Copies of Risk Assessments may also be held in the main office. Staff

should refer to this guidance before using or teaching children how to use tools, equipment, materials and when cooking.

Written September 2015
Reviewed and edited by Leanne Lowe, April 2025