



**Weobley
Primary
School**

Design and Technology Policy

Date of Review:	September 2025
Reviewed by:	Amanda Gammond - Subject Leader
Date of Approval:	September 2025
Approved by:	Sharon Thomas – Head of School
Next Review Date:	September 2026

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1. Our Mission

'A safe, happy learning environment where everyone is valued'

- The staff at Weobley Primary School are committed to working together to contribute to the healthy growth and development of all our children.
- We aim to create an atmosphere of care, trust and respect in which children feel nurtured, encouraged and valued and staff feel supported by one another.
- Through a stimulating and broad curriculum, we embrace the diversity of cultures, race and social backgrounds.
- We aim for each child to reach their full potential, to be confident and to develop a positive attitude towards their own learning.
- We will provide a wide range of learning opportunities for the children; encourage them to value their own achievements and to celebrate the success of others.
- Our high expectations for achievement include good behaviour, tolerance, cooperation and fairness.
- We welcome active involvement of parents and carers in the life of the school and recognise their vital role in laying the foundation of their children's educational development.
- This partnership is extended to the wider community, where strong, mutually beneficial links are valued.

2. Our Intent

A pupil of Weobley Primary School will:

- Foster enjoyment, purpose and a sense of pride in designing and making
- Develop into thinkers who can solve creative problems as individuals and members of a team
- Have the opportunity to access the design and technology facilities at our federated High School
- Understand and apply the principles of nutrition and learn how to cook

3. Implement of the Curriculum

What does our design and technology curriculum look like?

Children in our Early Years Foundation Stage have many opportunities to carry out design and technology-based activities such as designing, making, cooking and evaluating their finished products. Within the expressive arts and design strand of the EYFS curriculum children should:

Explore different materials, using all their senses to investigate them. Manipulate and play with different materials.

Use their imagination as they consider what they can do with different materials.

Make simple models which express their ideas.

Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Return to and build on their previous learning, refining ideas and developing their ability to represent them.

Create collaboratively, sharing ideas, resources and skills.

Pupils will be taught in line with the National Curriculum 2014 and opportunities for teaching design and technology as part of a cross curricular approach will be encouraged where possible.

During key stage one, 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 in key stage one pupils should be given opportunities 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.

During key stage two, 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 in key stage two, pupils should be given opportunities 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.

The teaching and learning of design and technology will be varied and will be the most appropriate method to address the learning outcome of the lesson.

Children will be taught and will work:

As a whole class

In groups (sometimes differentiated by ability)

In pairs or individually

Cooking and Nutrition

Across the school, 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.

In key stage one, 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 two, 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
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

Time Allocation

Design and technology should be taught for 19 hours over the course of a year. To ensure design and technology is taught in the best possible way, class teachers are given flexibility as to how they allocate this time throughout the school year. For example, this may mean a subject is taught in a block over the course of a week rather than for a short period every week or it may be paired with another subject and each subject taught for half of the term.

Cross-Curricular Opportunities

English: Design technology links to the three main strands of English: speaking, reading and writing. All design and technology projects allow for speaking and listening such as presenting research, ideas and final products; sharing viewpoints; negotiating; explaining how a product would work and listening to others' viewpoints. Children will develop their reading skills whilst researching online and in print; pupils' vocabulary will be broadened through research; they will gain an understanding of nonfiction texts; the difference between fact and opinion and representation of research through graphs, tables or diagrams.

Maths: Design and technology offers many opportunities for children to develop and apply their mathematical problem-solving skills through engagement in technological real-life situations. Children have many opportunities to apply their arithmetical calculations, develop an appreciation of shape, space and measures, in addition to the use of graphs and statistics to represent data collated.

Science: In design and technology children learn why a product works, the science applied to industrial technology and how economical the product is, including the production of said product. In science children will be learning about 'everyday materials', this allows children to be educated on newly developed materials, which were designed with a

clear purpose in mind. This knowledge can be applied when children are selecting materials they wish to use in the creation of their products based upon their unique properties.

Learning about food nutrition and cookery closely links to science; linking the children's learning to where food comes from such as plants; local producers; seasonality and a balanced healthy lifestyle. Children also study the change of state in science which links well to lessons such as baking bread where the changes are irreversible.

In Upper Key Stage Two work on forces links to work in design technology on mechanisms whilst in Year Six the study of electricity links to controlled technology such as making fair ground rides.

Humanities:

Human and physical geography allows children to learn about the use of different technologies across the world and why certain areas need specific technologies such as coastal locations. Children in key stage one learn about weather patterns and the seasons in Geography which link to seasonality of foods. In key stage two children learn about types of settlement and land use, economic activity including trade links and the distribution of natural resources including energy, food, minerals and water. This allows for exploration of technology in houses, buildings and different structures, transport systems, food and cooking, sources of materials etc.

In history the children can discover how the modern technological world has developed and adapted through changes in our country overtime. Children should observe technological achievements overtime from as early as the Neolithic cultures, particularly those at world heritage sites with a sense of awe. Children have the opportunity to gain an appreciation for the development of farming and machinery techniques in our local rural area.

Art and Design: Children in both art and design lessons and design technology accrue overlapping skills such as designing; creative exploration and making. The difference being that in design technology children are expected to design a product with functionality, authenticity and careful consideration of the user and purpose. Art and design can be utilised to ensure products are aesthetically pleasing and finished using a range of different finishing techniques such as printing; digital art etc.

ICT:

Children utilise their ICT skills and knowledge when researching existing products and procedures in design and technology which can be used as inspiration for their own designs and products after careful consideration and evaluation. Children in upper key stage two can utilise computer aided design programmes to produce nets of their designs prior to the making stage of production.

Extra-Curricular Opportunities

At Weobley Primary School we offer a STEM based after school club each academic year, which runs for a whole term. During this time the children learn to design, test theories and ideas, create prototypes, build and evaluate their products. The club is open to all KS1 and KS2 pupils encouraging team working skills and independent work. The children are faced with a challenge every fortnight that they have to overcome by researching, designing, making and evaluating products that meet their brief. This is always a very well attended club by both boys and girls.

Our Year Six children have the opportunity to present their final products during an open afternoon showcasing their fairground rides created during design and technology sessions. This encourages the children to take ownership of their work, share their thought processes, test out their product and present their work to an audience.

Inclusion and Equal Opportunities

Activities are carefully planned by the class teacher and will be differentiated where appropriate for children with SEN and equally the more able and Gifted and Talented children. All resources/materials have been reviewed with equal opportunities in mind, e.g. race, gender, ethnicity. Learning experiences in design and technology will be available to every child, regardless of race, gender, class or ability. Pupils will be encouraged to value social and cultural diversity through their experiences in the subject.

We recognise that in all classes, children have a wide range of ability, and so we seek to provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this in a variety of ways which include, but are not limited to:

setting tasks which are open-ended and can have a variety of responses

setting tasks of increasing difficulty

grouping children by ability and setting different tasks for each group

grouping children in mixed ability groups

providing resources of different complexity, depending on the ability of the child

using classroom assistants to support the work of individuals or groups of children

Resources

Central stores of materials are located in the labelled cupboards and drawers outside of the Key Stage Two classrooms, in the main Art and Design cupboard between Year Three and Four and in the tall locked cupboard opposite the kitchen. All techniques can be equipped, and advised upon by the design and technology coordinator. The design and technology coordinator is responsible for ordering or resourcing any gaps, when made aware of resources that are needed by class teachers.

Health and Safety

With any practical activity there is an element of risk, however, this can be kept to an acceptable minimum as all school staff educate the children around the safe use of tools, equipment and design technology processes. By frequent reference to safety expectations, a high standard of safety awareness can be attained creating harmonious conditions conducive to learning. All teaching staff should determine the appropriateness of resources based upon the age and needs of their class. If they are unsure of this, they should seek guidance off the design and technology coordinator. Certain resources such as craft knives and junior hack saws are stored behind a locked door to ensure the safety and wellbeing of all of the staff and children.

With regards to Health and Safety, the following areas are of particular note:

Organisation of resources: Safe storage which ensures tools are not damaged or mixed together should be used; children should not have to 'rummage' to find a tool.

Electrical things: Electrical equipment should not be brought in from home. ALL mains electrical equipment owned by the school must be checked regularly for safety before being used in school.

Using Electricity: Short lengths of wire must not be used directly between the terminals of 'high power' and particularly rechargeable cells, the heat of which may be generated in the wire could burn.

Using Food: The need for hygienic practices cannot be over emphasised. Food should only be consumed if the teacher is confident that such practices have been adhered to. If food is to be taken home, teachers should ensure that it can be transported 'hygienically'.

Things that are hot: Children are permitted to use low temperature glue guns with supervision.

Using machines: Children should not use any power tools in primary schools unless specifically designed for their use and under supervision (e.g. sewing machine)

Things that are sharp or pointed: Retractable craft knives are only used under supervision on a cutting mat with a metal safety ruler.

Further Information

Further detail of the design and technology curriculum can be found in the following three documents:

National Curriculum for design and technology 2014

Subject Map – design and technology

Year Group Subject Map – design and technology

4. Impact

Our design and technology curriculum facilitates sequential learning and long-term progression of knowledge and skills. Teaching and learning methods provide regular opportunities to recap acquired knowledge through high quality

questioning, discussion, modelling, and explaining to aid retrieval at the beginning and end of a lesson unit. This will enable all children to alter their long-term memory and know more, remember more and do more as designers, makers and engineers.

Assessment

Each lesson in design and technology gives the children the opportunity to self-assess their confidence in the lesson's objective. Self-assessments are compared with the teacher assessments and a decision is made as to whether the whole class, a small group or individuals need further support in this area. This additional support is either delivered by the class teacher or teaching assistant.

5. Role of the Subject Leader

Monitoring

Monitoring is carried out by the Subject Leader, supported by the Head of School and Lead Teacher in the following ways:

- Informal discussions with staff and pupils
- Work sampling
- Classroom observations
- Assessment folder observations

Training

Any staff training needs identified through monitoring will be organised by the Subject Leader in conjunction with the Head of School and Lead teacher.

Evaluation and Review

This policy along with the Subject Map and Year Group Subject Map are reviewed annually by the Subject Leader. A Subject Action Plan is also produced each Autumn term, at the same time, the previous year's action plan is reviewed.