Orchard Community Primary School

Design and Technology Policy

This policy was approved by the Governing Body of Orchard Primary School at their meeting on.....

Signed **Chair of Governors**

Version	Date	Author	Reason for Change
0.1	9/2018	FS	New Policy
0.2	9/2021	LC	Reviewed
0.3	9/2024	FS	Reviewed & updated

Review Frequency	Next Review Date
Every 3 years	9/2027

'Design is not just what it looks like and feels like. Design is how it works.'

Steve Jobs

Intent: Purpose of Study

- Design and Technology is an inspiring, rigorous and practical subject. It is our intent that, 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.
- We want out DT curriculum to encourage children to become innovators who think and intervene creatively to solve problems both as individuals and as part of a team - by learning how to take risks, children become resourceful, innovative, enterprising and capable citizens.
- DT combines a number of skills, knowledge, key vocabulary, concepts and values; we aim, wherever possible therefore, to link work in Design and Technology to other disciplines such as Mathematics, Science, Engineering, Computing and Art.
- High quality DT education makes an essential contribution to the creativity, culture, wealth and well-being of the nation. Through the evaluation of past and present design and technology, its uses and its effectiveness, pupils therefore develop a critical understanding of its impact on daily life and the wider world
- We aim to develop curiosity about how things work, and to foster enjoyment, satisfaction and purpose in the designing and making process.

All Design and Technology teaching at Orchard is based on the following six concepts:

1. Products are made for an intended user
2. Products need to have at least one purpose
3. Products need to function effectively
4. Design decisions need to be made during the process of planning and making
5. Innovation leads to a range of improved ideas and products
6. Products should be authentic: believable, real and meaningful

All Design and Technology units of work follow the model: **Design > Make > Evaluate**

Aims and Objectives

This policy has been informed by National Curriculum 2014 guidance for Design and Technology. The national curriculum for Design and Technology aims 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.

Implementation: Planning

We carry out curriculum planning in Design and Technology in three phases: long, medium and short term.

Using the Design and Technology Programmes of Study from the National Curriculum as the basis for our long-term curriculum planning, this overview shows how coverage of the subject is is planned for mixed age groups

over a two year cycle so that children have access to teaching relevant to the Early Years Framework or Key Stage 1 and 2.

Our medium-term plans, which are linked to a cross-curricular half-termly 'Learning Adventure', identify learning objectives and outcomes for each scheme of work. These plans ensure appropriate coverage, balance and progression across each phase.

Teachers complete a short-term plan for each Design and Technology lesson which list specific learning objectives for each lesson and detail how the lesson will be taught. We ensure that each scheme of work builds upon prior learning so that children develop their skills, knowledge and understanding as they move through the school.

Implementation: Learning Experiences

Through a variety of creative and practical activities children will develop the knowledge, understanding, skills and key vocabulary needed to engage children in the frequent process of designing and making required by the end of each key stage.

The Foundation Stage
We relate the development of the children's knowledge and understanding of the world to the objectives set out in the Early Learning Goals. Children in the EYFS explore and use a variety of media and materials through a combination of child initiated and adult directed activities. They have the opportunity to use their senses to explore the world around them creating simple representations of events, people and objects. They are encouraged to think of ideas, finding ways to solve problems and testing their ideas.

These early experiences include asking questions about how things work, investigating and using a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control. These activities, indoors and outdoors, attract the children's interest and curiosity.

KS1 lessons include progressive skills using a range of relevant contexts:

- When designing and making children are taught about functionality, purpose and appeal based on their given criteria.
- Children are given time to communicate their ideas through talk, drawings, templates, mock-ups and where appropriate information and communication technology.
- They can select from a wide range of tools and equipment to perform practical tasks e.g. cutting, joining, shaping and finishing and choose from a wide range of materials and components including construction, textiles and ingredients according to their characteristics.
- When evaluating their work, children study a range of existing products and evaluate their own ideas and products against design criteria whilst acquiring the technical knowledge to build structures that can be made stronger, stiffer and more stable and explore the use of mechanisms e.g. levers, sliders, wheels and axles in their products.

As part of their work with food children are taught how to cook and apply the principles of nutrition including the basics principles of a healthy and varied diet and where food comes from.

KS2 lessons include progressive skills using a range of relevant contexts.

- When designing and making children use research and develop design criteria to inform the design of innovative, functional, appealing products fit for purpose aimed at particular individuals or groups.

- Children generate, develop, model and communicate their ideas through discussion, sketches, diagrams, prototypes, pattern pieces and computer aided designs. They can select from a wide range of tools and equipment to perform practical tasks e.g. cutting, joining, shaping and finishing and choose from a wide range of materials and components including construction, textiles and ingredients according to their functional properties and aesthetic qualities.
- When evaluating their work children investigate a range of existing products and evaluate their own ideas and products against their own design criteria and consider the views of others to improve their work while understanding how key events and individuals in design and technology have helped shape the world.
- During the sequence of learning children will acquire the technical knowledge and skills to understand how to strengthen, stiffen and reinforce more stable structures and understand the use of mechanical systems e.g. gears, pulleys, cams, levers and linkages and the use of electrical systems in their products such as circuits, bulbs, buzzers and motors while applying their understanding of computing to program, monitor and control their products.

Children will be given the opportunity to work within three main areas of development during each Learning Adventure:

1. Investigative, disassembly and evaluative activities (IDEAs) - These activities provide opportunities for the children to explore existing products and to gain skills, knowledge and understanding which can be applied in a design and make assignment.

2. Focused practical tasks (FPTs) - Focused practical tasks provide opportunities to learn and practice particular skills and knowledge.

3. Design and make assignments (DMAs) - A design and make assignment provides an opportunity for the children to combine their skills, knowledge and understanding to develop products that meet a real need. (In general DMAs in Key Stage One will tend to be shorter in duration and, as children move towards the end of Key Stage Two, their designing and making will become more complex and therefore more time consuming.)

Teaching and Learning

DT is taught explicitly as a sequence of lessons focusing on developing designing skills, including generating ideas, clarifying a task, creating design proposals, communicating ideas, planning and evaluating. These lessons are designed to build on previous skills taught to date and are identified on the progression of skills document.

Techniques include applying scientific skills (e.g. fair testing and predicting). Applying mathematical skills (e.g. measuring, drawing, interpreting data). Applying computer skills (e.g. making things happen by the use of control, handling information through database or spreadsheet). Applying art skills (e.g. investigating textures and colour or recording visual information).

Care will be taken to use related vocabulary building on previous lessons.

Whilst children can work on their own or in groups they will be encouraged to respond in their own way. They will be provided with resources needed or may be expected to make their own selections.

Children will be supported to comment upon their own work and that of others in a constructive manner, evaluating their work against a set criteria.

Assessment and Recording

Robust assessment at the end of each unit of work shapes future learning to ensure key skills, knowledge and understanding are built upon year on year as set out in the National Curriculum to support progression throughout the key stages, thus supporting children's transition into secondary education and the wider world beyond.

Informal assessment of progress will be made by the class teacher during lessons through questioning, oral feedback and observations. They record progress made against the learning objectives for that lesson and record end of unit achievements on our foundation subject skills grids. Teachers also make an annual assessment of attainment for each child, as part of the annual report to parents. Each teacher passes this information on to the next teacher at the end of each year.

At the end of a unit of work, children undertake a review of their work that focuses upon an evaluation of the finished product and an overview of the various tasks undertaken.

Due to the practical nature of Design and Technology, evidence of work undertaken by children can be in the form of teacher's notes or as a photographic record. Samples of the design process and end product compiled in pupils' individual Learning Adventure folder, are also valuable evidence. The Subject Leader will monitor and track progress across the school and review the effectiveness
of the procedures implemented.

Organisation

Staff will teach either DT or Art each half term. Lessons are either timetabled for at least one hour per week with approximately 5 lessons per half term, or the unit is blocked so that the investigate, design, plan, create and evaluate cycle can be delivered into one full day.

Resources

There are a wide range of resources to support the teaching of design and technology across school; all classes have a range of basic resources. Other resources including gears, wood, dowels, saws, fabrics, sewing materials etc are kept in a central location and forms part of the school's general provision. Visits are planned by year groups to enhance learning and give hands-on experiences. In addition, people with an interest, or expertise, in a particular topic or area could be invited into school to work with the children.

Inclusion

As an inclusive school we recognise the need to tailor our provision to support children with Special Educational Needs as well as those who are identified as more able or 'talented'.

Through our Design and Technology teaching, we provide learning opportunities that enable all pupils to make progress by setting suitably pitched learning challenges and responding to each child's different abilities. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, and adaptation – so that we can take some additional or different action to enable the child to learn more effectively. Staff are encouraged to develop a repertoire of flexible, active learning methods, which can be adjusted to meet individual needs.

Where pupils are to participate in activities outside the classroom, we carry out a full risk assessment prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

Design and Technology Policy Statement regarding the use of Food

As part of their work with food, children in both key stages are taught how to prepare, cook and apply the principles of nutrition including the basics principles of a healthy and varied diet, where food comes from, seasonality and where and how a variety of ingredients are grown, reared, caught and processed.

When working with food:

- An adult will be required to supervise activities involving cooking and food handling/preparation.
- The appropriate Health and Safety Procedures must be adhered to.
- Pupils and staff should follow personal hygiene guidance (tie back hair, clean apron, use of blue plasters and washing hands)
- Teachers should check the dietary needs of the children in their class to identify any foods that should not be available to specific children, or groups of children.
- Any perishable food should be stored in a fridge.
- Only the equipment in the food technology cupboard, which is for food use only, should be used.
- Glass and wooden items should never be used.
- Ensure that the plastic work sheets, especially for use with food, cover the desk area. This sheet should be wiped down with a steriliser.
- Ensure that all equipment is cleaned and put away in the food technology cupboard.
- Certain spoons should be identified and used when placing food onto plates for children to taste food.

Health & Safety during DT lessons

All adults leading should ensure that:

- DT equipment is not left out and unsupervised, floors and work surfaces are kept clean and tidy and all tools used must be of good quality, in good condition and stored safely.
- Direct safety instructions should be given to children each time pupils undertake a design and technology activity.
- Children should be given suitable instruction on the operation of all equipment before being allowed to work with it.
- Children should be strictly supervised in their use of equipment at all times. Adult to child ratio must be appropriate to the activity e.g. closer supervision on activities such as use of a glue gun.
- Children should be taught to recognise and consider hazards and risks and to take action to control these risks, having followed simple instructions.
- Specific health and safety points will need to be included onto lesson plans to help teachers identify any areas in which they need to reduce risk or ensure safe practice.
- Risk assessments for specific tools should be referred to during the planning and use of equipment.

Monitoring and Evaluation

Monitoring and evaluation will take place throughout the year. Work scrutiny, lesson observations, learning walks, pupil voices and working walls will form part of monitoring and evaluation. All monitoring will be carried out by the DT Subject Leader, and where appropriate, members of SLT may be involved or school support team. Findings will be shared with the SLT and class teachers. The work of the DT subject leader also involves supporting colleagues in the teaching of this subject, staying informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.