# Lockington CE VC Primary School



# **Design and Technology Policy**

# **Revised & Updated February 2022**

Date Policy Formally Agreed By Governors:	17 <sup>th</sup> March 2022
Date Policy Becomes Effective:	Spring 2022
Review Date:	Spring 2025
Person Responsible for Implementation and Monitoring:	Design and Technology Subject
	Leader

### 1 Introduction

This policy outlines the organisation and management of Design and Technology (DT) at Lockington CE VC Primary School. It has been written with regard to the requirements of the National Curriculum (2014), and the Early Years Foundation Stage Statutory Framework (2021),

It is written within the context of our school's mission statement: 'to develop lively, enquiring minds and promote outstanding standards of achievement in a happy, safe and caring environment, based on Christian values, which encourage all to show respect and understanding of others.'

It has also been written in the context of the school's Christian Vision: *'Let your light shine before others, that they may see your good works, and glorify your Father who is in heaven'* (Matthew 5:16).

This policy is to be read in conjunction with our 'Design and Technology: Intent, Implementation and Impact Statement'.

# 2 The Nature of Design and Technology

"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 DT, they develop a critical understanding of its impact on daily life and the wider world. High-quality DT education makes an essential contribution to the creativity, culture, wealth and wellbeing of the nation" (National Curriculum Document 2014)

As a Church of England school, we recognise and value the way in which DT enriches our appreciation and gives us a different lens through which to engage pupils in our Christian distinctiveness.

### 3 Aims

At Lockington School, we believe DT is essentially a practical subject that allows children to think imaginatively and creatively and to become more autonomous and effective problem solvers, both as individuals and as part of a team. It prepares children to participate in tomorrow's rapidly changing technologies.

Our aim is to provide children with a rich and enjoyable experience of DT, in which they can acquire and develop their own designing and making skills. Using the National Curriculum (2014) programmes of study for art and design and The Early Years Foundation Stage Statutory Framework (2021) as a basis, it is our aim to support pupils to:

- To develop the creative, technical and practical expertise need to perform everyday tasks confidently and to participate successfully in an increasingly technological world;
- To 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;
- To critique, evaluate and test their ideas and products and the work of others;
- To understand and apply the principles of nutrition and learn how to cook;
- To create an interest and enthusiasm for designing and making in children of all abilities and ages;
- To provide a developmental range of activities to increase the children's capability and confidence in their own ideas;
- To help children gain an understanding of the ways in which people from the past and present have used DT to meet their needs and how this is relevant to them;
- To help the children to become increasingly proficient across the range of media used.

The National Curriculum for DT 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.

# 4 Teaching and Learning

DT will engage the children in a broad range of designing and making activities which involve a variety of methods of communication, e.g. speaking, designing, drawing, assembling, making, writing and using information and communication technology. These activities can be differentiated through careful planning and the selection of resources, which are appropriate for different ages and abilities. The school uses a variety of teaching and learning styles in DT lessons. The principal aim is to develop children's knowledge, skills and understanding in DT. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products, and then evaluating them. We do this through a mixture of whole-class teaching and individual or group activities. Within lessons, we give children the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work and that of others. They have the opportunity to use a wide range of materials and resources, including ICT.

The decision making process involved, as teachers prepare to implement a DT module, is as follows:

- Does the DT project involve the three types of DT activity? (Investigate, disassembly and evaluate, focused practical tasks and design and make assignment);
- How and when is the DT module to be blocked?
- Which resources are required? Are any extra resources required? Approach coordinator if necessary to arrange ordering these;
- Do colleagues feel insecure about a particular project or require support in a particular element of it? Seek advice from the subject leader;
- Are any extra adults required to support the lessons, especially if there are potentially hazardous activities (e.g. hot glue guns, sharp knives);
- What needs to be gathered to enable children to evaluate and disassemble related products? (Disassemble can be an evaluation of a product without its destruction!);
- Which skills need to be taught/revised before the children can begin making e.g. use of hack saw and bench hook;
- Are children to be working as individuals, in pairs or small groups? There is a need for all these during a two year cycle;
- What are the essential rules of the classroom when hazardous activities are being tackled?

In all classes, there are children of differing ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies:

- Setting common tasks that are open-ended and can have a variety of results;
- Setting tasks of increasing difficulty where not all children complete all tasks;
- Grouping children by ability, and setting different tasks for each group;
- Providing a range of challenges through the provision of different resources;
- Using additional adults to support the work of individual children or small groups;
- Providing specialist support where individual children have particular gifts or talents.

# 5 Design and Technology Timetable

KS1 – 1-hour lesson weekly during three half terms (or equivalent)KS2 – 1-hour lesson during three half terms (or equivalent)

Units may be blocked.

# 6 Design and Technology curriculum planning

DT is a foundation subject in the National Curriculum. Our school uses the national programmes of study for DT as the basis for its curriculum planning. Plans are designed, so that the topics the children study build upon prior learning. While there are opportunities, for children of all abilities to develop their skills and knowledge in each teaching unit, the progression planned into the scheme of work means that the children are increasingly challenged as they move through the school.

This progression has three aspects:

- Increasing breadth and range of DT experiences;
- Increasing challenge and difficulty in DT activities;
- Increasing confidence and creativity in the children's DT making.

We carry out the curriculum planning in DT in three phases (long term, medium term and short term). The long term maps the topics studied in each term during the key stage. Where possible the DT topics are linked in with the main topic or theme for the half term, in order to enable teachers to profit from links with the rest of the curriculum. Should the links with other subjects not enable the proper aims and objectives of DT to be met, then the subject will stand alone.

The medium term plans give details of each unit of work for each term. The subject leader is responsible for keeping and reviewing these plans. These are stored on the staff drive on the server. As we have some mixed-age classes, we do the medium-term planning on a two-year rotation cycle in key stage 1, and a 4-year rotation cycle in key stage 2. This way, we ensure that children have complete coverage of the National Curriculum, but do not have to repeat topics.

Within the term, the teachers decide how to best apportion the time allocation for DT. It can be done as a block, as a way of maximising.

## 7 Curriculum organisation

## **Early Years Foundation Stage**

We encourage the development of skills, knowledge and understanding that help EYFS children make sense of their world, as an integral part of the school's work. As the EYFS class is part of the Foundation Stage of the National Curriculum, we relate the development of the children's knowledge and understanding of the world to the objectives set out in the Early Learning Goals. These underpin the curriculum planning for children aged three to five. This learning forms the foundation for later work in DT.

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;
- Handling appropriate tools and construction material safely and with increasing control.

We provide a range of experiences that encourage exploration, observation, problem solving, critical thinking and discussion. These activities, both indoors and outdoors, attract the children's interest and curiosity.

# 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, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, the principal focus is to ensure pupils are taught:

# 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.

# <u>Make</u>

- 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.

# <u>Evaluate</u>

- 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.

# 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:

# Key stage 1:

- Use the basic principles of a healthy and varied diet to prepare dishes;
- Understand where food comes from.

# 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].

When designing and making, the principal focus is to ensure pupils are taught to:

# <u>Design</u>

- 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.

# <u>Make</u>

- 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.

# <u>Evaluate</u>

- 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 DT 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.

# 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:

- 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.

# 8 The use of technology

Computing enhances our teaching of DT, wherever appropriate, in all key stages. Children use computer programs to design and enhance their research skills. They also use computing to improve the presentation of their work. The children also use the Internet, to find out more about the lives and works of famous designers/sculptors.

When considering its use, we take into account the following points:

- Any decision about using computing in a particular lesson or sequence of lessons must be directly related to the teaching and learning objectives for those lessons;
- Computing should be used if the teacher and/or the children can achieve something more effectively with it than without it;
- Teachers should use their judgement about when ICT tools should be used.

We use Purple Mash and Tux paint to support lessons when appropriate. These can be used at home or in school.

### 9 Cross-curricular links

English: DT contributes to the teaching of English in our school by providing valuable opportunities to reinforce what the children have been doing during their English lessons Discussion, drama and role-play are important ways that we employ for the children to develop an understanding of the fact that people have different views about DT. The evaluation of products requires children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion, children learn to justify their own views and clarify their design ideas.

Mathematics: In DT, there are many opportunities for children to apply their mathematical skills through choosing and using appropriate ways of calculating measurements and distances. They learn how to check the results of calculations for reasonableness, and learn how to use an appropriate degree of accuracy for different contexts. Children learn to measure and use equipment correctly. They apply their knowledge of fractions and percentages to describe quantities and calculate proportions. The children will carry out investigations, and in doing so, they will learn to read and interpret scales, collect and present data, and draw their own conclusions. They will learn about size and shape, and make practical use of their mathematical knowledge, in order to be creative and practical in their designs and modelling.

Science: There are also many opportunities to link ICT with Science. Children will be given opportunities to use their design skills when conducting investigations. There is also a strong link when using textiles, changing/mixing colours, choosing appropriate materials for a task when selecting insulators, or waterproofing a design etc. Personal, Social and Health Education (PSHE) and Citizenship: DT contributes to the teaching of personal, social and health education and citizenship. We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about health and healthy diets. Their work encourages them to be responsible and to set targets to meet deadlines. They also learn through their understanding of personal hygiene, how to prevent disease from spreading when working with food.

Spiritual, Moral, Social and Cultural Development: The teaching of DT offers opportunities to support the social development of our children through the way in which we expect them to work with each other in lessons and our 'Christian' values. Our groupings allow children to work together, and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and cooperative work across a range of activities and experiences in DT, the children develop respect for the abilities of other children, and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety, and for that of others. They develop their cultural awareness and understanding, and they learn to appreciate the value of differences and similarities. A variety of experiences teaches them to appreciate that all people are equally important, and that the needs of individuals are not the same as the needs of groups.

## 10 Differentiation

We recognise that we have children of differing ability in all our classes, and so we provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies:

- Setting common tasks that 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;
- Providing a range of challenges with different resources;
- Using additional adults to support the work of individual children or small groups.

### 11 Special Educational Needs, Disabilities and More Able Pupils

Appropriate adjustments will be made for pupils who have special educational needs. A differentiated approach will operate at the planning stage and be adjusted to suit the needs of individual pupils. Specific pupils needs, will be provided for, in line with the schools' policy on SEN.

More able pupils will be given opportunities and tasks to maximise progression and development in DT.

# 12 Equal Opportunities

All pupils should have equal access to the curriculum, irrespective of particular circumstances such as race, background, gender and capability. In DT, we support children in a variety of ways, such as speaking clearly, repeating instructions, emphasising key words, using picture cues and adapting resources where necessary. The teaching of DT is in accordance with our policy for Equal Opportunities.

### 13 Assessment

We assess the children's work in DT while observing them working during lessons. Teachers record the progress made by children against the learning objectives for their lessons. Throughout a topic or unit of work, the teacher is responsible for recording information on the school tracking system. At the end of the year, we make a judgement against age related expectations. The teacher records where each child is working at, and then uses this information to plan future work. This method of recording also enables the teacher to make an annual assessment of progress for each child, as part of the child's annual report to parents and carers. We pass this information on to the next teacher at the end of each Key Stage.

Children are encouraged to assess and evaluate both their own work and that of other pupils. This helps them to appreciate how they can improve their performance, and what their targets should be for the future.

## 14 Resources

We have a wide range of resources to support the teaching of DT across the school. The resources for DT are kept in cupboard in the hall. This room is accessible to children only under adult supervision.

# 15 Design and Technology Learning Environment

DT is promoted and valued throughout the school. Designs and models are displayed in both the corridors and the classrooms.

### 16 Parental Involvement

We encourage parents to be involved in the DT curriculum by:

- Inviting them into school each term to discuss the progress of their child and look at their child's work;
- Encouraging parents to be involved in homework activities and making the learning objectives, and the task clear and achievable;
- Encouraging any parents who are involved with or interested in DT to come in to work with the children.

### 17 Homework

It is our policy to provide parents and carers with the opportunity to work with their children at home.

# 18 Health and Safety Issues:

At all times, children will be taught how to care for and how to handle equipment and media safely and with respect. When working with tools, equipment and materials, in practical and in different environments, including those that are unfamiliar, pupils will be taught:

• About hazards, risks and risk control;

- To recognize hazards, assess consequent risks and take steps to control the risks to themselves and others;
- To use information to assess the immediate and cumulative risks;
- To manage their environment to ensure the health and safety of themselves and others;
- To explain the steps they take to control risk.

Particular care should be taken when handling food. Every lesson must start with a review of do's and don'ts with food. All children must wash their hands. This should be witnessed if there is any doubt.

When working with food, pupils will be taught to ensure:

- All equipment should be washed before and after use;
- Equipment specifically purchased for food technology must be used and not from the staff or school kitchen;
- Any child seen to put their fingers in their mouth or any unclean place must wash them immediately;
- All other equipment and clothing must be moved away from the work surface;
- Children should do everything for themselves except near an oven; This includes weighing, measuring, mixing and cutting; Use of knives must be supervised by an adult;
- All surfaces must be cleaned thoroughly;
- Ingredients must be stored appropriately;
- Children must not use ovens;
- Ovens must be cordoned off;
- Baking should be consumed on the day or sent home that night;
- All ovens should be cleaned after each use;

# 19 Roles and Responsibilities

**The Governing Body** determines, supports, monitors and reviews the school DT policy. We have an identified governor for DT; the governor is informed of progress in the subject by the subject leader;

### The Headteacher's role is to:

- Provide support by encouraging staff and praising good practice;
- Monitor learning and teaching through lesson observations;
- Monitor planning and reviews;
- Give feedback to teachers following lesson observations;
- Support staff development through in service training and provision of resources;
- Observe colleagues with a view to identifying the support they need;

# The DT subject leader's role is to:

- Provide a strategic lead and direction for DT in the school;
- Provide support and advice to staff in the delivery of the DT programme of study;

- Remain informed about current developments in the subject by attending CPD sessions and being involved in independent research and reading;
- Deliver CPD sessions to staff, to support staff development and lead by example by setting high standards in their own teaching;
- Liaise with other members of staff to form a coherent and progressive scheme of work;
- Monitor standards in the subject;
- Consider with staff and work with the Headteacher in the evaluation and planning of actions included within the School Development Plan;
- Take responsibility for the choice, purchase and organisation of central resources for DT, in consultation with colleagues;

Moderating the standards of children's work and of the quality teaching in DT is the responsibility of the DT subject leader along with the headteacher.

As well as regular updates, the DT subject leader gives the Headteacher an annual report in which s/he evaluates strengths and weaknesses in the subject and indicates areas for further improvement;

The subject leader will be responsible to the Headteacher and will liaise with the named link Governors;

The class teacher's role is to:

- Be responsible for the teaching of DT as set out in the policy;
- Provide planning and reviews for the Headteacher and DT leader to have access to;
- Provide samples of work to the DT leader/Headteacher when required;
- Assess children's work in order to detail future planning;
- Update skills, knowledge and understanding of DT;
- Identify inset needs in DT and take advantage of training opportunities;
- Keep appropriate on-going records in relation to school policy;

### 22 Review

This policy will be reviewed during the Spring Term 2025.

Person responsible: DT Subject Leader

Date reviewed February 2022

Signed:

Signed:

\_ (Chair of Governors)

(Headteacher)