

Lingham Primary School

Design and Technology Policy

1. Purpose of Study

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 design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

2. Aims

At Lingham Primary School our central aim is to provide a relevant, challenging and enjoyable design and technology curriculum for all pupils. Through teaching design and technology all children will:

- 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.

3. Teaching and Learning

3.1 At Lingham Primary School our principal aim is to develop the children's knowledge, skills and understanding in design and technology. The foundation subjects are taught using a topic-led approach and units of work are sourced from a range of places which include QCA where it is relevant to the topic.

During Key Stage 1 the pupils learn how to design purposeful, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates and ICT. When making products, pupils learn to select from and use a range of tools and equipment to perform practical tasks as well as selecting from and using a wide range of components including construction materials, textiles and ingredients according to their characteristics. As part of the evaluation process, children in KS1 learn to explore and evaluate a range of existing products as well as evaluating their own ideas and products against design criteria. Pupils across KS1 will develop their technical knowledge and understanding in relation to exploring how to make structures more stable, how to use mechanisms in their products,

prepare dishes based upon their understanding of the basic principles of a healthy and varied diet and develop their understanding of where food comes from.

During Key Stage 2, pupils will learn to 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. They will generate, develop, model and communicate ideas through discussion, annotated sketches, cross sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. As they make products, they will select from and use a wider range of tools and equipment to perform practical tasks (e.g. cutting, shaping, joining and finishing) accurately and select from and use a wider range of materials and components, including construction materials and ingredients, according to their functional properties and aesthetic qualities. Pupils will be encouraged to 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. Importantly, they will also develop an understanding of how key events and individuals have helped shape the world. When developing their technical knowledge, the focus at KS2 will be on how to reinforce complex structures, using electrical and mechanical systems in their products and using programming to control their products. Food technology plays an important part of the curriculum and at KS2, the emphasis is on developing the techniques involved in cooking a range of dishes, understanding seasonality and how food is grown, reared and processed and understanding the principles of a healthy diet.

3.2 At Lingham Primary School we recognise that we have children of differing ability in all of 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 open-ended tasks which can have a variety of responses;
- providing differentiated resources with extension activities for the more able;
- using additional adults to support the work of individual or small groups of children.

4. Design and Technology Curriculum Planning

4.1 Design and technology is a foundation subject in the National Curriculum. Planning is carried out in three phases; long-term, medium-term and short-term. Our long-term plan maps out topics covered by each year group during the year. (Some year groups work on a two year rolling programme.) Coverage of the subject content is overseen by the subject leader and supported by the Design and Technology Progression Framework. (Design Technology Association)

4.2 Our medium-term plan/short-term plan is adapted from QCA or is written by the class teacher. These plans define what will be taught and ensure an appropriate balance of tasks within each stage of the design process. These will include:

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

5 The Foundation Stage

During the Early Years, children develop their confidence in speaking about their ideas and using talk to organize, sequence and clarify ideas, thoughts, feelings and events whilst listening and responding to the ideas expressed by others. When making a model or a product, they begin to select resources with help, use equipment appropriately and safely to effect changes to materials, and begin to handle tools, objects, construction and malleable materials safely and with increasing control. Their questioning about aspects of their familiar world as well as enquiry skills into how or why things work will be nurtured and they will begin to understand the need for variety in food and what a healthy diet consists of, understanding how hygiene and eating contribute to good health.

6. Contribution of Design and Technology in other Curriculum Areas

6.1 English

Teachers are expected to use the organisational structure of language, features of recounted texts, use of instructions and non-chronological reports to enhance pupils' literacy skills whilst undertaking design and technology units. Pupils consolidate their skills by reading, writing and following instructions, researching and reading captions and labels in their design work. Design and technology also contributes to the teaching of speaking and listening by providing children with the opportunity to compare ideas, methods and approaches in their own work and that of other children, and to say what they think and feel about them.

6.2 Mathematics

The teaching of design and technology provides ample opportunities for the practical application of mathematics. At Lingham Primary School children are encouraged to choose and use appropriate ways of calculating measurement and distances and to check the result of their calculations. They may be required to use fractions and percentages to describe quantities and proportions, read and interpret graphs and scales and identify position and direction. During the design process children will communicate their ideas through cross-sectional and exploded diagrams, prototypes and pattern pieces.

6.3 Information and Communication Technology (ICT)

At Lingham Primary School we use ICT to support design technology. Children are taught to:

- model and communicate their ideas;
- use computer-aided design;
- apply their knowledge of computing to program, monitor and control their products.

6.4 Science

Children will be taught to draw on their Scientific knowledge to:

- select and use a wide range of materials fit for a purpose;
- understand and use electrical systems in their products;
- understand and use mechanical systems.

6.5 Art and Design

In Key Stage One children will be given the opportunity to investigate materials and try out tools and techniques and apply these to materials and processes. In Key Stage Two children will investigate and combine the visual and tactile qualities of materials and processes and match these qualities to design criteria. Using their creativity and imagination children will make products that are appealing but solve real and relevant problems.

6.5 Personal, Social and Health Education (PSHE) and Citizenship

Design technology helps children to reflect on how technology affects the environment and how it has helped to shape the world. 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 of other cultures. Children 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 the importance of personal hygiene. The teaching of design and technology offers opportunities to support the social development of our children through the way we expect them to work with each other. Groupings allow children to work together and gives them the opportunity to discuss their ideas and feelings about their own work and the work of others.

7. Assessment and Recording

In our school, assessment is regarded as an integral part of teaching and learning and is a continuous process carried out by the class teacher gathered in various ways: conversations with the children, observations, marking etc. Assessment is formative, informing our future planning for the class as well as highlighting next steps for individual children, thus ensuring appropriate challenge and support for all pupils. At the end of each term, summative assessments are made for each child which are recorded on our foundation subject assessment trackers to show which children are broadly in line with National Curriculum expectations, those who are below and those who are above. The experiences and progress of each child is documented in their written annual report to parents. Pupils are encouraged to use self-assessment as part of their evaluation process, describing what they might change if they were to revisit the activity, Key Stage 2 children taking into consideration the views of others. In addition to these assessments, the subject leader will also keep a bank of photographic evidence which demonstrates progression between year groups and a range of abilities within each class.

8. Resources

Each year group is responsible for ordering the consumables needed for each unit. The subject leader is responsible for auditing the central resources on a regular basis and ordering accordingly. Equipment and materials are organised in the central store and will be maintained by the subject leader. Any shortages, breakages or losses should be reported immediately to the design and technology leader.

9. Health and Safety

9.1 Children will develop the knowledge and understanding of health and safety, as consumers and when working with materials and components. This includes:

- Use of materials, tools and techniques in accordance with health and safety requirements;
- Appropriate storage of tools and materials;
- Teaching pupils to recognise hazards in a range of products, activities and environments and to take action to control the risks to themselves and others;
- Food hygiene.

9.2 Class teachers are responsible for writing a risk assessment before each unit of work.

10. Roles and Responsibilities

10.1 The Design and Technology leader will:

- ensure continuity and progression across and between year groups;
- provide guidance to staff on the coverage and progression expected in each year group;
- monitor the teaching of Design and Technology throughout the school, e.g. through curriculum walks, observations, monitoring of planning and work sampling;
- keep up to date with new developments and inform staff;
- encourage other members of staff in their planning and teaching of Design and Technology and support when necessary;
- keep a portfolio for Design and Technology that will include photographic evidence, examples of work, pupil interviews and feedback from pupils;
- audit resources regularly.

10.2 The Class Teacher will:

- be responsible for the planning, teaching and assessment of Design and Technology as set out in this policy.

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