



## Curriculum Intent and Policy

*"Building a life-long love of learning in a safe and happy school."*

# Design and Technology

## Principles

Design and Technology is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Loughton Manor First School, we encourage children to use their creativity and imagination, to 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 aim to, wherever possible, link work to other disciplines such as Science, Computing, Geography, History and Art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers. This will provide the children with the means to confidently develop a critical appreciation of arts, crafts and design into adulthood. In developing this broad understanding and appreciation of the possibilities that the creative arts hold, children are able to think independently about their creations and make confident and informed decisions around media, materials and skills.

Design and Technology is taught through discrete, meaningful lessons in which children are taught through the three phases of designing, making and evaluating their own products. Each year group focuses on 3 topics throughout the year and each topic will focus on a different area of DT. As children progress through the school, they are presented with opportunities to develop these skills, as similar topics are revisited and built upon. Children design products with a purpose and an intended user of the products. Food technology is implemented across the school with children developing an understanding of where food comes from, the importance of a varied and healthy diet and how to prepare this also looking at seasonality and culture.

By the time children leave Loughton Manor First School at the age of seven, they will be able to apply different Design and Technology techniques confidently, allowing them to develop and share their ideas, experiences and imagination. We offer opportunities for children to explore a range of styles and genres in 2D and 3D.



## Progression in Design and Technology Skills and Understanding

KEY VOCABULARY			
Design	Foundation Stage	Year 1	Year 2
<p>planning, investigating design, evaluate, make, user, purpose, ideas, product,</p>	<p>Select appropriate resources. Use gestures, talking and arrangements of materials and components to show design. Use contexts set by the teacher and myself. Use language of designing and making (join, build, shape, longer, shorter, heavier etc.)</p>	<p>Have own ideas. Explain what I want to do. Explain what my product is for, and how it will work. Use pictures and words to plan, begin to use models. Design a product for myself following design criteria. Research similar existing products.</p>	<p>Have own ideas and plan what to do next. Explain what I want to do and describe how I may do it. Explain purpose of product, how it will work and how it will be suitable for the user. Describe design using pictures, words, models, diagrams, begin to use ICT. Design products for myself and others following design criteria. Choose best tools and materials, and explain choices. Use knowledge of existing products to produce ideas.</p>
Make	Foundation Stage	Year 1	Year 2
<p>planning, investigating design, evaluate, make, user, purpose, ideas, product</p>	<p>Construct with a purpose, using a variety of resources. Use simple tools and techniques. Build / construct with a wide range of objects. Select tools &amp; techniques to shape, assemble and join. Replicate</p>	<p>Explain what I'm making and why. Consider what I need to do next. Select tools/equipment to cut, shape, join, finish and explain choices. Measure, mark out, cut and shape, with support. Choose suitable</p>	<p>Explain what I am making and why it fits the purpose. Make suggestions as to what I need to do next. Join materials/components together in different ways. Measure, mark out, cut and shape materials and components, with</p>

	structures with materials / components. Discuss how to make an activity safe and hygienic. Record experiences by drawing, writing, voice recording. Understand different media can be combined for a purpose.	materials and explain choices. Try to use finishing techniques to make product look good. Work in a safe and hygienic manner.	support. Describe which tools I'm using and why. Choose suitable materials and explain choices depending on characteristics. Use finishing techniques to make product look good. Work safely and hygienically.
<b>Evaluate</b>	<b>Foundation Stage</b>	<b>Year 1</b>	<b>Year 2</b>
investigating, planning, design, make, evaluate, user, purpose, ideas, design criteria, product, function	Adapt work if necessary. Dismantle, examine, talk about existing objects/structures. Consider and manage some risks. Practise some appropriate safety measures independently. Talk about how things work. Look at similarities and differences between existing objects / materials / tools. Show an interest in technological toys. Describe textures.	Talk about my work, linking it to what I was asked to do. Talk about existing products considering: use, materials, how they work, audience, where they might be used. Talk about existing products, and say what is and isn't good. Talk about things that other people have made. Begin to talk about what could make product better.	Describe what went well, thinking about design criteria. Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion. Evaluate how good existing products are. Talk about what I would do differently if I were to do it again and why.

Key Stage One



## Design & Technology Curriculum

Year	Term	Scheme of work	Stable Structures
1	Aut	Stable Structures	<ul style="list-style-type: none"> <li>• I can identify the features of toy garages.</li> <li>• I know what the word 'stable' means.</li> <li>• I can make changes to the design of a stable structure to make it fit for purpose.</li> <li>• I can explore a range of materials and evaluate the usefulness of their properties for a particular project.</li> <li>• I can explore how to make stable structures that hold a given object.</li> <li>• I can follow a design to make a stable structure.</li> <li>• I know some ways to make a structure more stable.</li> <li>• I can evaluate my finished structure against a set of given criteria.</li> </ul>

		Scheme of work	Textiles
2	Aut	Puppets	<ul style="list-style-type: none"> <li>• I can explore a variety of puppets, identifying and labelling their features.</li> <li>• I can cut out felt using a simple template.</li> <li>• I can stick pieces of felt together to make a finger puppet.</li> <li>• I can add pieces of felt and other materials to a finger puppet to create features, such as eyes, hats and mouths.</li> <li>• I can use running stitch to join two pieces of fabric together.</li> <li>• I can use overstitch to join two pieces of fabric together.</li> <li>• I can sew a button onto a piece of fabric.</li> <li>• I can design a glove puppet for a particular purpose.</li> <li>• I can follow a design to make a glove puppet by sewing two pieces of fabric together and adding decorations.</li> <li>• I can evaluate my finished glove puppet by identifying what went well and what could be improved.</li> </ul>

		Scheme of work	Mechanical Systems
1	Spr	Moving Pictures	<ul style="list-style-type: none"> <li>• I can make a sliding mechanism out of card.</li> <li>• I know what a pivot and lever are.</li> <li>• I can use a pivot and lever mechanism using card and a split pin.</li> <li>• I can make a wheel mechanism using card and a split pin.</li> <li>• I can match a mechanism to the type of movement they produce.</li> <li>• I can design a moving picture to include a variety of moving mechanisms.</li> <li>• I can follow a design to create a moving picture for a particular purpose.</li> <li>• I can evaluate my finished moving picture by identifying things that worked well and things that could be improved.</li> </ul>
2	Spr	Vehicles	<ul style="list-style-type: none"> <li>• I can investigate a range of vehicles, identifying and labelling their features.</li> <li>• I know what an axle is.</li> <li>• I know what a chassis is.</li> <li>• I can explore different ways of using axles, chassis and wheels to create a moving base.</li> <li>• I can design a vehicle with wheels, axles and chassis, as well as a body.</li> <li>• I can follow a design to make a moving vehicle.</li> <li>• I can evaluate my finished moving vehicle.</li> </ul>

Year	Term	Scheme of work	Cooking and Nutrition
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1	Su m	Eat More Fruits and Vegetables	<ul style="list-style-type: none"> <li>• I can name a variety of fruits and vegetables.</li> <li>• I can use adjectives to describe the taste, smell and texture of a variety of fruits and vegetables.</li> <li>• I know that some fruits and vegetables need to be washed, cut, cored, peeled or grated before they can be eaten.</li> <li>• I understand basic food hygiene, e.g. washing hands, tying long hair back and keeping surfaces clean.</li> <li>• I can use a knife to cut some fruits and vegetables in different ways.</li> <li>• I can grate an apple and a carrot.</li> <li>• I can peel a banana, apple and cucumber.</li> </ul>
2	Su m	Perfect Pizzas	<ul style="list-style-type: none"> <li>• I can name a variety of pizza toppings.</li> <li>• I can use the model of the balanced plate to evaluate how healthy different pizzas are.</li> <li>• I can explore different types of bread and evaluate which would work best for a pizza base.</li> <li>• I can identify which food group a variety of pizza toppings belong to.</li> <li>• I can sort pizza toppings into groups based on different criteria, e.g. animal vs plant products.</li> <li>• I can explain why each of the food groups is important for a balanced diet.</li> <li>• I can design and make a healthy pizza following given criteria.</li> <li>• I can evaluate my finished pizza, saying what I think and feel about it.</li> </ul>

## **DESIGN AND TECHNOLOGY POLICY**

### **Philosophy**

Design and Technology is an inspiring, rigorous and practical subject. Design and Technology encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Loughton Manor First School, we encourage children to use their creativity and imagination, to 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 aim to, wherever possible, link work to other disciplines such as Science, Computing, Geography, History, SMSC and Art. The children are also given opportunities to reflect upon and evaluate past and present design technology, its uses and its effectiveness and are encouraged to become innovators and risk-takers.

This will provide the children with the means to confidently develop a critical appreciation of arts, crafts and design into adulthood. In developing this broad understanding and appreciation of the possibilities that the creative arts hold, children are able to think independently about their creations and make confident and informed decisions around media, materials and skills.

### **Specific Aims**

By the time children leave Loughton Manor First School at the age of seven, they will have explored a variety of media and developed a range of skills. 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 products covering a wide range of skills and have learnt to evaluate and test their ideas and products and the work of others;
- understand and apply the principles of nutrition and learn how to cook;
  
- design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child;
  
- learn how to take risks, becoming resourceful, innovative, enterprising and capable adults.

### **Planning**

Our planning for the delivery of Design and Technology is taken from Plan Bee and is based on the Programme of Study for KS1 in the 2013 National

Curriculum in England, and on the requirements of the technology strand of the Reformed EYFS 2021.

We recognise that to ensure continuity Design and Technology is planned on a weekly basis, which is reflected in our medium term plans. There may be times where we have a DT day, depending on the activity, i.e. collaboration with the local charity, Ride High, to construct a Hobby Horse made out of recycled materials in order to raise funds for them as we have developed very close links with them over recent years. Cross curricular DT activities may be planned, where appropriate, to fit in with special weeks in the school year.

## **Organisation**

Design and Technology is taught in units of work that link to topic areas where possible. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products and then evaluating them. All ideas will be treated with respect.

Design and Technology learning in the EYFS takes place within Understanding of the World and Expressive Arts and Design and is based on the EYFS Curriculum (updated September 2021).

Children approach a range of tasks independently in mixed ability groups or in whole class activities. We encourage children to discuss their work as it develops and share their ideas.

## **Teaching Methods**

Design technology teaching contains four sequential elements:

### **1. Design**

Children look at specific products, photographs or the environment. They discuss and observe, and ask and answer questions. Products may be taken apart to investigate how they work, what they are made from and how they are fixed together. Design functional appealing products based on design criteria.

### **2. Make**

Children are taught specific skills and techniques used in making and finishing a product. Skills are developed in measuring, cutting, shaping, fixing, finishing and safety. Children select and use materials and components to make their own products.

### **3. Evaluate**

Children are encouraged to evaluate a range of existing products. Through peer group discussion pupils learn to evaluate their product and designs against the design criteria.

### **4. Technical Knowledge**

Children explore how structures can be made stronger/more stable. They will explore and use mechanisms (levers, sliders, wheels, axles) in their products.

### **Cooking and Nutrition**

At Loughton Manor we believe that learning how to cook is a crucial life skill. We teach pupils the basic principles of a healthy diet, where some foods come from, how to prepare healthy meals and begin to understand the impact of food on world resources.

Regular “Cookathons” take place for FS2, Year 1 and Year 2 whereby children learn how to bake and/or cook something. Children work collaboratively covering many of the key skills for cooking and get to take something home to eat. Projects are chosen for each year group to show clear progression of skills throughout the ages.

### **Cross-Curricular Links**

Design and Technology provides a range of cross-curricular links.

Children use:

- Scientific skills e.g. hypothesising and applying control through mechanisms.
- Mathematical skills e.g. measuring/marking out, recording in tables, charts, properties of shape, problem solving.
- Computing skills e.g. data handling, designing.
- Creative skills: e.g. manipulate materials, sketch designs, fix and apply finishing techniques.
- Literacy skills e.g. develop and use specific vocabulary, discussion. Record observations in words, tables, diagrams.
- SMSC, e.g. collaborative work in Design and Technology develops respect for the abilities of others and a better understanding of themselves. In addition, they develop a respect for the environment, for their own health and safety and that of others. They learn to appreciate the value of similarities and differences. A variety of experiences teaches them to appreciate that all people are equally important.
- Computing, e.g. ICT is used to support Design and Technology teaching when appropriate.

### **Outdoor Learning**

At Loughton Manor First School we pride ourselves in our school grounds and benefit from a community rich with learning opportunities. We recognise the importance of Outdoor Learning (OL) on our children’s development and plan OL opportunities whenever possible.

### **Health and Safety**



Teachers always teach the safe use of tools and equipment and insist on good practice. Children should be strictly supervised in their use of equipment at all times. Classroom rules encourage children to behave responsibly when using tools or when working close to other children who are using tools.

Direct safety instructions should be given to children each time they undertake a design and technology activity.

*Scissors* - Children are taught how to use and carry scissors, and how to hold the objects being cut.

*Hammers/nails* – Children are taught how to use hammers and nails safely when joining together 2 pieces of wood.

*Vices/Clamps* - Children are taught how to fix them to a table and fasten and unfasten them safely.

*Cooking/Food Preparation Equipment* - Children are taught to recognise the dangers of a hot oven and hob. They use appropriate equipment to keep them safe. They learn to use knives and other potentially hazardous equipment safely, with supervision. Children are taught to use the 'claw' and 'bridge' methods when using knives.

Staff will ensure that allergies and permissions are planned for before any food items are used (lactose-intolerant/vegan/allergens etc.)

*Sewing Needles* - Children are given ground rules for using needles at their table and are responsible for their needle's safe return.

## **Assessment**

Teachers assess work in Design and Technology by making observations of the children working during lessons and assessment is used to inform future planning and to review children's capability. Design and Technology projects are used throughout the key stages to assist with formative and summative assessment. Children undertake a review of their work that focuses upon an evaluation of the finished product and an overview of the various tasks undertaken. Where appropriate, children will use design sheets to plan, record, assess and evaluate their work.

Evidence of work undertaken by children can be in the form of teacher's notes, photographs, samples of the design process and end product. As part of the Plan Bee resources, children are assessed as they make their way through each unit of work using a RAG system, which is recorded by teachers and kept for end of year reports and to pass on to the Subject Leader for monitoring and observation purposes.

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

- The Early Years Foundation Stage (EYFS) Profile is used to record assessments in Nursery and Reception.

## **Resources**

Some basic Design and Technology resources can be found in each classroom e.g. scissors, paper, pencils, glue.

Resources for each unit are stored in appropriate year groups. Specialist resources need to be requested from the Design and Technology Subject Leader in anticipation of teaching the unit.

The Design and Technology Subject Leader is available for support in areas of the curriculum where it is needed.

## **Inclusion and EAL Children**

All pupils, regardless of race, religion, gender, class, educational need or disability will be given the opportunity to develop their Design and Technology skills and understanding in a safe and supportive environment.

- Teachers should be aware of the individual and differing needs of all pupils including those with physical, emotional and learning difficulties as well as those pupils identified as working at Greater Depth.
- Alternative or adapted activities will be provided to overcome specific difficulties with tools, equipment and materials.
- Children with specific learning difficulties will be given more time, support or guidance as appropriate to complete the range of work. Additionally, opportunities to communicate their ideas through means other than writing and drawing will be provided for.
- Where needed and available, children will be supported by technological aids or specialist software.
- Where pupils are to participate in activities outside the classroom, a full risk assessment will be carried out prior to the activity, to ensure that the activity is safe and appropriate for all pupils.
- Opportunities for children to lead and develop ideas will contribute to the extension for more able children. Activities are planned that incorporate scope for elaboration, demonstration, leading, independent work etc for children who demonstrate a particular strength for Design and Technology.

## **Equal Opportunities**

All pupils, regardless of race, religion, gender, class, educational need or disability will be given the opportunity to develop their Design and Technology skills and understanding in a safe and supportive environment in line with the school's Equal Opportunities policy.

## **Monitoring and Evaluation**

Monitoring and evaluation will be within the remit of the Expressive Arts Team, a curriculum team which meets half termly. Their annual development

plan will identify aspects for development/improvement that help to support and sustain our high standards. The development plan details aspects to be monitored and evaluated, and identifies these members of staff/governors involved.

### **Roles and Responsibilities**

The Design and Technology Subject Leader together with the head teacher, Curriculum Team and the governing body is responsible for the review of the subject policy. It is the Design and Technology Subject Leader's role to support colleagues, review planning and ensure that the necessary resources are in school in order to deliver the National Curriculum Programmes of study. The Design and Technology (D&T) Subject Leader will keep abreast of current thinking within the teaching of D&T and communicate these ideas to the school staff.