



**Lutley**   
Primary School

# Curriculum Progression Document

## Design and Technology

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**Lutley**   
Primary School

## Design and Technology Curriculum Intent

# Lutley Primary School Curriculum Intent

## Lutley Primary School Curriculum Intent

As a values-led school, our curriculum is underpinned by Learning, Caring, Aiming High-Together. It is through these values that we develop the whole child. It is our intent that children leave Lutley ready to move forward in their learning, kind, resilient and well equipped digital and global citizens.

## Design and Technology Subject Intent

It is our intent that children will be able to research and design innovatively, creating their own criteria for success in order to solve real life, relevant problems for a consumer. They will apply subject specific knowledge and make links to other curriculum areas in order to become designers and makers, working safely and ethically with a range of tools and materials. Children will be able to critically evaluate their product against their original design criteria and refine their work accordingly.

## Cooking Subject Intent

It is our intent that children will understand the importance of a healthy lifestyle and have the knowledge and skills to implement cook safely and hygienically. They will be designers and makers, working ethically to create a range of sweet and savoury dishes that will appeal to their chosen consumer.

## Essential Characteristics in the Subject

- Significant levels of originality and the willingness to take creative risks to produce innovative ideas and prototypes.
- An excellent attitude to learning and independent working.
- The ability to use time efficiently and work constructively and productively with others.
- The ability to carry out thorough research, show initiative and ask questions to develop an exceptionally detailed knowledge of users' needs.
- The ability to act as responsible designers and makers, working ethically, using finite materials carefully and working safely.
- A thorough knowledge of which tools, equipment and materials to use to make their products.
- The ability to apply mathematical knowledge.
- The ability to manage risks exceptionally well to manufacture products safely and hygienically.
- A passion for the subject and knowledge of, up-to-date technological innovations in materials, products and systems.

## Curriculum Concepts

### Design

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

### Make

Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world

### Evaluate

Critique, evaluate and test their ideas and products and the work of others

### Technical knowledge

Build and apply a repertoire of knowledge, understanding and skills



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## Design and Technology in the Early Years Foundation Stage

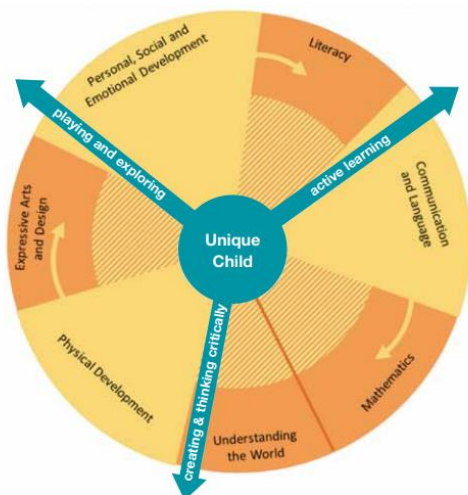
# Developing early Design and Technology skills

The Unique Child reaches out to relate to people and things through the **Characteristics of Effective Learning**, which move through all areas of learning.

- playing and exploring
- active learning
- creating and thinking critically

Children develop in the context of relationships and the environment around them.

This is unique to each family, and reflects individual communities and cultures.



**Prime** areas are fundamental, work together, and move through to support development in all other areas.

- Personal, Social and Emotional Development
- Communication and Language
- Physical Development

**Specific** areas include essential skills and knowledge for children to participate successfully in society.

- Literacy
- Mathematics
- Understanding the World
- Expressive Arts and Design

Each area of the EYFS curriculum has an **Early Learning Goal**, which is the standard that a child is expected to achieve by the end of their reception year. The ELG (Early Learning Goals) covers all of the 7 areas of learning as specified in the Early Years Foundation Stage Curriculum.

The following link to the teaching and learning of Design and Technology in our EYFS:

## ELG 16: Expressive Arts and Design: Creating with Materials

Children at the expected level of development will:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function;
- Share their creations, explaining the process they have used;
- Make use of props and materials when role playing characters in narratives and stories.

## ELG 7: Physical Development: Fine Motor Skills

Children at the expected level will:

- Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases;
- Use a range of small tools, including scissors, paint brushes and cutlery;
- Begin to show accuracy and care when drawing.

## ELG 4: Personal, Social, Emotional Development: Managing Self

Children at the expected level of development will: Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.



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Design and Technology  
and the National  
Curriculum

# Design and Technology and the National Curriculum: Key Stage One

## **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.

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].

## **Pupils should be taught about:**

### 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.

### Making

- 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.

### Evaluating

- 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.

### **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:**

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

## **Design and Technology and the National Curriculum: 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].

#### **Pupils should be taught about:**

##### Design

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- Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

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#### **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.



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Implementation of Whole  
School Design and  
Technology Programme of  
Study

# Lutley Primary School's Design and Technology Programme of Study

## Year 1

Autumn	Spring	Summer 1
<b>Aspect of DT: Mechanisms</b> <b>Focus:</b> Sliders and Levers Moving Pictures	<b>Aspect of DT: Structures</b> <b>Focus:</b> Freestanding structures Furniture for the 3 bears	<b>Aspect of DT: Food</b> <b>Focus:</b> Preparing fruit and vegetables (including cooking and nutrition requirements for KS1) Layered fruit dish

## Year 2

Autumn	Spring	Summer 2
<b>Aspect of DT: Mechanisms</b> <b>Focus:</b> Wheels and axles Making a vehicle	<b>Aspect of DT: Textiles</b> <b>Focus:</b> Templates and joining techniques Glove puppet	<b>Aspect of DT: Food</b> <b>Focus:</b> Preparing vegetables (including cooking and nutrition requirements for KS1) Salad

## Year 3

Autumn	Spring	Summer
<b>Aspect of DT: Structures</b> <b>Focus:</b> Shell structures using computer- aided design Broken Biscuits	<b>Aspect of DT: Food</b> <b>Focus:</b> Healthy and varied diet (including cooking and nutrition requirements for KS2) Sandwich snacks	<b>Aspect of DT: Textiles</b> <b>Focus:</b> 2D shape to 3D product Making an apron

## Year 4

Autumn 1	Spring	Summer
<b>Aspect of DT: Food</b> <b>Focus:</b> Healthy and varied diet (including cooking and nutrition requirements for KS2) Soup	<b>Aspect of DT: Electrical systems</b> <b>Focus:</b> Simple Programming and Control A nightlight.	<b>Aspect of DT: Mechanical systems</b> <b>Focus:</b> Lever and Linkages An information book.

## Year 5

Autumn 2	Spring	Summer
<b>Aspect of DT: Food</b> <b>Focus:</b> Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Ginger biscuits for an advent calendar	<b>Aspect of DT: Electrical systems</b> <b>Focus:</b> Monitoring and control Alarming Vehicles	<b>Aspect of DT: Structures</b> <b>Focus:</b> Frame structures Bird Hide

## Year 6

Autumn	Spring	Summer
<b>Aspect of DT: Food</b> <b>Focus:</b> Celebrating culture and seasonality (including cooking and nutrition requirements for KS2) Bread	<b>Aspect of DT: Textiles</b> <b>Focus:</b> Using computer-aided design in textiles Designer Bags	<b>Aspect of DT: Mechanical systems</b> <b>Focus:</b> Cams, Pulleys and Gears Mechanisms with a message

## Subject content

### 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**, pupils should be taught 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**

**creative and practical activities** – through these activities pupils are equipped with the knowledge, understanding and skills to engage successfully and with increasing independence in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn from a range of existing products.

**iterative process** – when carrying out a design, make and evaluate assignment, pupils should engage in an iterative process. Through this process pupils' ideas are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.

**range of relevant contexts** – pupils should carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. The list of examples illustrates the breadth of contexts in each key stage. They do not prescribe content to be taught, but a range of authentic situations which provide starting points for designing and making. Schools may choose to work in contexts that are not listed. For example, in KS1 pupils may also work in contexts that are imaginary or story-based.

**when designing and making** – pupils' learning within Design, Make, Evaluate and Technical Knowledge should be developed as a connected, coherent whole when they are designing and making products.

**purposeful, functional, appealing** – when designing, pupils should always think about what their products are for, how they will work and whether they will be liked by intended users.

**themselves and other users** – pupils should always think about who their products will be for. In KS1, users might include themselves, imaginary or story-based characters.

**design criteria** – pupils should think about what their product must do to be successful and use these criteria to inform their evaluation throughout the designing and making process.

**talking, drawing, templates, mock-ups** – pupils should be taught a range of ways to develop their ideas. The techniques chosen should be appropriate for the product they are designing and making and the needs of the individual pupil. Some pupils may initially find it difficult to develop and communicate their ideas through drawings and may find it easier to develop this technique retrospectively by drawing their product when it has been completed.

**information and communication technology** – when designing, KS1 pupils could, for example, use a basic paint program to draw the design for a coat for Teddy.

## 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.

**select** – when making design decisions, pupils should have the opportunity to select from a range of tools, equipment and materials provided by their teacher.

**range of tools and equipment** – the range of tools and equipment used should be determined by the school. They should build on the Early Years Foundation Stage (EYFS), match the fine motor skills of all pupils and enable the projects scheduled in the long-term plan to be carried out successfully.

**wide range of materials and components** – during KS1 pupils should design and make with all the materials specified. 'Ingredients' means food ingredients. Construction kits should be added to the list to help pupils design and make structures and mechanisms.

**explore and evaluate** – pupils need opportunities to handle collections of existing products related to their projects. Teachers and pupils should learn how to ask questions such as who the products are for, what they are for and how they work.

**build structures** – the structures pupils build in KS1 should be predominantly freestanding, including walls, towers and frameworks. Through exploring and assembling they should learn how to make structures stronger, stiffer and more stable.

**explore and use mechanisms** – to ensure progression to KS2 it is advisable for pupils to use wheels and axles, and levers and sliders in KS1.

## Subject content

### 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, pupils should be taught to:

#### Design

- **use research** and **develop design criteria** to inform the design of **innovative, functional, appealing** products that are **fit for purpose**, aimed at **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**

**creative and practical activities** – through these activities pupils are equipped with the knowledge, understanding and skills to engage successfully and with increasing independence in the process of designing and making. They include focused tasks where pupils are taught specific technical knowledge, designing skills and making skills, and investigative and evaluative activities where they learn from a range of existing products and about D&T in the wider world.

**iterative process** – when carrying out a design, make and evaluate assignment, pupils should engage in an iterative process. Through this process pupils' ideas are communicated and clarified through action. As opposed to a formulaic linear or cyclical process, during an iterative process thought leads to action, resulting in further thought and action as pupils resolve design problems and address design opportunities.

**range of relevant contexts** – pupils should carry out projects within contexts that add meaning, relevance and create motivating opportunities for learning. Engaging with contexts may involve visiting locations and people outside school, inviting experts into school and using media to enable pupils to explore less familiar surroundings. The list of examples illustrates the breadth of contexts in each key stage. They do not prescribe content to be taught, but a range of authentic situations which provide starting points for designing and making. Schools may choose to work in contexts that are not listed. For example, in KS2 pupils may also work in contexts such as sustainability.

**when designing and making** – pupils' learning within Design, Make, Evaluate and Technical Knowledge should be developed as a connected, coherent whole when they are designing and making products.

**use research** – this could include the use of secondary sources, relevant websites, questionnaires, surveys and interviews.

**develop design criteria** – pupils should develop and prioritise their own criteria and use these to evaluate their ideas and products throughout the designing and making process.

**innovative, functional, appealing** – when designing and making, pupils should always be given scope and encouraged to be original with their thinking, create products that are required to work in some way to be successful, and think about the features of their products that will be interesting and engaging for intended users.

**fit for purpose** – when designing and making, pupils should always think about the tasks that their products should perform.

**individuals or groups** – when designing and making, pupils should always create products with a specific client, consumer or a target group in mind.

**annotated sketches** – refers to pupils' use of sketching techniques with related notes to develop, record and communicate their thinking.

**cross-sectional and exploded diagrams** – cross-sectional drawings are an effective technique when pupils want to show what their products will look like inside, for example the parts of a torch. Exploded diagrams enable pupils to communicate the components that will be used to build their products and the order of assembly, for example when designing battery-powered vehicles.

**computer-aided design** – simple computer-aided design software enables pupils to draw shapes accurately, for example the nets for packaging. With the addition of text and graphics it can also help to ensure pupils' products have a high quality finish.

## 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.

**accurately** – the expectation by the end of KS2 is that pupils should be using appropriate tools, equipment and techniques with accuracy.

**wider range of materials and components** – during KS2 pupils should design and make with all the materials specified, adding to those used in KS1. 'Ingredients' means food ingredients. Construction kits should be added to the list to help pupils design and make structures and mechanical systems.

**functional properties** – characteristics of materials and components that enable products to work effectively, for example strength, flexibility and electrical conductivity.

**aesthetic qualities** – characteristics of materials and components that make products pleasing to the user, for example, colour, pattern and texture.

**investigate and analyse** – through asking a range of questions pupils should investigate, analyse and evaluate a range of existing products related to the product they will be designing and making.

**views of others** – when seeking the views of others, wherever possible pupils should ask for feedback on their ideas and products from intended users.

**key events and individuals** – opportunities for pupils to research famous designers and inventors, and ground-breaking products should be integrated into investigative and evaluative activities.

**more complex structures** – these include shell structures which have an outer skin to provide strength (e.g. packaging) and frame structures (e.g. tent frame) which are constructed using an arrangement of thin components.

**mechanical systems** – pupils should think about the related components that make up mechanical systems, for example the levers, linkages and pivots in a moving picture. They should also think about the input movement used to operate the mechanism, the output movement produced by the mechanism and the process – how the mechanism changes the input movement into the output movement.

**electrical systems** – pupils should think about the related components that make up electrical systems, for example the switch, bulb and batteries. They should also think about what type of input device, for example a toggle switch or push-to-make switch, they will use to control their product, what output device will be operated, for example a bulb or buzzer, and the process that causes input devices to control output devices.

**program, monitor and control** – pupils should have opportunities to use a computer to operate electrical products they design and make, for example creating a sequence to make an illuminated sign flash on and off in a repeating pattern. As they progress through KS2 they should also use switches or sensors to monitor products, for example a delayed reaction burglar alarm they have created and programmed.

## Lutley Primary School's Design and Technology – EYFS skills

Term	Learning focus	Skill
Autumn	Let's make faces  Andy Goldsworthy	<p>To use one-handed tools and equipment, e.g. makes snips in paper with child scissors.</p> <p>To understand that equipment and tools have to be used safely</p> <p>To show an interest in technological toys with knobs or pulleys, or real objects. • To show skill in making toys work by pressing parts or lifting flaps to achieve effects, such as sound, movements or new images.</p> <p>To capture experiences and responses with a range of media, such as music, dance and paint and other materials or words.</p> <p>To use simple tools to effect changes to materials. • To handle tools, objects, construction and malleable materials safely and with increasing control.</p> <p>To show understanding of the need for safety when tackling new challenges and consider and manage some risks. • To show understanding of how to transport and store equipment safely. • To practise some appropriate safety measures without direct supervision.</p> <p>To explore what happens when they mix colours. • To experiment to create different textures.</p> <p>To select appropriate resources and adapt work where necessary. • To select tools and techniques needed to shape, assemble and join materials they are using.</p> <p>To create simple representations of events, people and objects. • To choose particular colours to use for a purpose.</p>
Spring	Making animals  Mother's Day cards	<p>To develop preferences for forms of expression.</p> <p>To use simple tools to effect changes to materials.</p> <p>To show understanding of the need for safety when tackling new challenges and consider and manage some risks. • To show understanding of how to transport and store equipment safely. • To practise some appropriate safety measures without direct supervision.</p> <p>To understand that different media can be combined to create new effects.</p>

		<p>To construct with a purpose in mind, using a variety of resources. • To use simple tools and techniques competently and appropriately</p> <p>To create simple representations of events, people and objects. • To choose particular colours to use for a purpose.</p> <p>To use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories</p>
Summer	<p>Building boats</p> <p>Father's Day cards</p>	<p>To capture experiences and responses with a range of media, such as music, dance and paint and other materials or words.</p> <p>To show understanding of the need for safety when tackling new challenges and consider and manage some risks. • To show understanding of how to transport and store equipment safely. • To practise some appropriate safety measures without direct supervision</p> <p>To manipulate materials to achieve a planned effect. To construct with a purpose in mind, using a variety of resources</p> <p>To select tools and techniques needed to shape, assemble and join materials they are using</p> <p>To create simple representations of events, people and objects. • To choose particular colours to use for a purpose</p> <p>To handle equipment and tools effectively, including pencils for writing.</p> <p>To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>To use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories</p>



**Lutley**   
Primary School

**Implementation of Whole School  
Design and Technology  
Programme of Study  
Progression of Skills**

# Progression of Skills – Curriculum Concepts

At Lutley, we aim to develop the following concepts through the progressive teaching of art and design knowledge, skills and understanding. These essential threshold concepts are based on the requirements of the National Curriculum Programme of Study for Key Stage One and Key Stage two.

## **Design**

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

## **Make**

Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world

## **Evaluate**

Critique, evaluate and test their ideas and products and the work of others

## **Technical knowledge**

Build and apply a repertoire of knowledge, understanding and skills

Implementation

## Progression of Skills – Designing

Curriculum Concept:	Key Stage One	Key Stage Two
Understanding contexts, users and purposes	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> <li>• state what products they are designing and making</li> <li>• say whether their products are for themselves or other users</li> <li>• describe what their products are for</li> <li>• say how their products will work</li> <li>• say how they will make their products suitable for their intended users</li> <li>• use simple design criteria to help develop their ideas</li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>• describe the purpose of their products</li> <li>• indicate the design features of their products that will appeal to intended users</li> <li>• explain how particular parts of their products work</li> </ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• gather information about the needs and wants of particular individuals and groups</li> <li>• develop their own design criteria and use these to inform their ideas</li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• carry out research, using surveys, interviews, questionnaires and web-based resources</li> <li>• identify the needs, wants, preferences and values of particular individuals and groups</li> <li>• <i>develop a simple design specification to guide their thinking</i></li> </ul>
Generating, developing, modelling and communicating ideas	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>• generate ideas by drawing on their own experiences</li> <li>• use knowledge of existing products to help come up with ideas</li> <li>• develop and communicate ideas by talking and drawing</li> <li>• model ideas by exploring materials, components and construction kits and by making templates and mock-ups</li> <li>• use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>• share and clarify ideas through discussion</li> <li>• model their ideas using prototypes and pattern pieces</li> <li>• use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> <li>• use computer-aided design to develop and communicate their ideas</li> </ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• generate realistic ideas, focusing on the needs of the user</li> <li>• <i>make design decisions that take account of the availability of resources</i></li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• generate innovative ideas, drawing on research</li> <li>• <i>make design decisions, taking account of constraints such as time, resources and cost</i></li> </ul>

# Progression of Skills – Making

Curriculum Concept:	Key Stage One	Key Stage Two
Planning	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>• <i>plan by suggesting what to do next</i></li> <li>• select from a range of tools and equipment, <i>explaining their choices</i></li> <li>• select from a range of materials and components according to their characteristics</li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>• select tools and equipment suitable for the task</li> <li>• <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i></li> <li>• select materials and components suitable for the task</li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities</li> </ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• <i>order the main stages of making</i></li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• <i>produce appropriate lists of tools, equipment and materials that they need</i></li> <li>• <i>formulate step-by-step plans as a guide to making</i></li> </ul>
Practical skills and techniques	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>• follow procedures for safety and hygiene</li> <li>• use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li> <li>• measure, mark out, cut and shape materials and components</li> <li>• assemble, join and combine materials and components</li> <li>• use finishing techniques, including those from art and design</li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>• follow procedures for safety and hygiene</li> <li>• use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• measure, mark out, cut and shape materials and components with some accuracy</li> <li>• assemble, join and combine materials and components with some accuracy</li> <li>• apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• accurately measure, mark out, cut and shape materials and components</li> <li>• accurately assemble, join and combine materials and components</li> <li>• accurately apply a range of finishing techniques, including those from art and design</li> <li>• <i>use techniques that involve a number of steps</i></li> <li>• demonstrate resourcefulness when tackling practical problems</li> </ul>

# Progression of Skills – Evaluating

Curriculum Concept:	Key Stage One	Key Stage Two
Own ideas and products	<p>Across KS1 pupils should:</p> <ul style="list-style-type: none"> <li>• talk about their design ideas and what they are making</li> <li>• make simple judgements about their products and ideas against design criteria</li> <li>• <i>suggest how their products could be improved</i></li> </ul>	<p>Across KS2 pupils should:</p> <ul style="list-style-type: none"> <li>• identify the strengths and areas for development in their ideas and products</li> <li>• consider the views of others, including intended users, to improve their work</li> </ul> <p>In early KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• refer to their design criteria as they design and make</li> <li>• use their design criteria to evaluate their completed products</li> </ul> <p>In late KS2 pupils should also:</p> <ul style="list-style-type: none"> <li>• critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>• <i>evaluate their ideas and products against their original design specification</i></li> </ul>
Existing products	<p>Across KS1 pupils should explore:</p> <ul style="list-style-type: none"> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for</li> <li>• how products work</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• what materials products are made from</li> <li>• what they like and dislike about products</li> </ul>	<p>Across KS2 pupils should investigate and analyse:</p> <ul style="list-style-type: none"> <li>• how well products have been designed</li> <li>• how well products have been made</li> <li>• why materials have been chosen</li> <li>• what methods of construction have been used</li> <li>• how well products work</li> <li>• how well products achieve their purposes</li> <li>• how well products meet user needs and wants</li> </ul> <p>In early KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> <li>• who designed and made the products</li> <li>• where products were designed and made</li> <li>• when products were designed and made</li> <li>• whether products can be recycled or reused</li> </ul> <p>In late KS2 pupils should also investigate and analyse:</p> <ul style="list-style-type: none"> <li>• how much products cost to make</li> <li>• how innovative products are</li> <li>• how sustainable the materials in products are</li> <li>• what impact products have beyond their intended purpose</li> </ul>
Key events and individuals	Not a requirement in KS1	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</li> </ul>

# Progression of Skills – Technical Knowledge

Curriculum Concept:	Key Stage One	Key Stage Two
<p>Making products work</p>	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> <li>• about the simple working characteristics of materials and components</li> <li>• about the movement of simple mechanisms such as levers, sliders, wheels and axles</li> <li>• how freestanding structures can be made stronger, stiffer and more stable</li> <li>• <i>that a 3-D textiles product can nbe assembled from two identical fabric shapes</i></li> <li>• <i>that food ingredients should be combined according to their sensory characteristics</i></li> <li>• <i>the correct technical vocabulary for the projects they are undertaking</i></li> </ul>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• how to use learning from science to help design and make products that work</li> <li>• how to use learning from mathematics to help design and make products that work</li> <li>• that materials have both functional properties and aesthetic qualities</li> <li>• <i>that materials can be combined and mixed to create more useful characteristics</i></li> <li>• that mechanical and electrical systems have an input, process and output</li> <li>• <i>the correct technical vocabulary for the projects they are undertaking</i></li> </ul> <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• how mechanical systems such as levers and linkages or pneumatic systems create movement</li> <li>• how simple electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to control their products</li> <li>• how to make strong, stiff shell structures</li> <li>• <i>that a single fabric shape can be used to make a 3D textiles product</i></li> <li>• <i>that food ingredients can be fresh, pre-cooked and processed</i></li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• how mechanical systems such as cams or pulleys or gears create movement</li> <li>• how more complex electrical circuits and components can be used to create functional products</li> <li>• how to program a computer to monitor changes in the environment and control their products</li> <li>• how to reinforce and strengthen a 3D framework</li> <li>• <i>that a 3D textiles product can be made from a combination of fabric shapes</i></li> <li>• <i>that a recipe can be adapted by adding or substituting one or more ingredients</i></li> </ul>

Implementation

# Progression of Skills – Cooking and Nutrition

Curriculum Concept:	Key Stage One	Key Stage Two
Where food comes from Across KS1 pupils should know:	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that food has to be farmed, grown elsewhere (e.g. home) or caught</li> </ul>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• that seasons may affect the food available</li> <li>• how food is processed into ingredients that can be eaten or used in cooking</li> </ul>
Food preparation, cooking and nutrition	<p>Across KS1 pupils should know:</p> <ul style="list-style-type: none"> <li>• how to name and sort foods into the five groups in The eatwell plate</li> <li>• that everyone should eat at least five portions of fruit and vegetables every day</li> <li>• how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• how to use techniques such as cutting, peeling and grating</li> </ul>	<p>Across KS2 pupils should know:</p> <ul style="list-style-type: none"> <li>• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</li> <li>• how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul> <p>In early KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eatwell plate</li> <li>• that to be active and healthy, food and drink are needed to provide energy for the body</li> </ul> <p>In late KS2 pupils should also know:</p> <ul style="list-style-type: none"> <li>• <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i></li> <li>• that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ul>

Implementation

# Approaches to Teaching and Learning in Design and Technology

Teaching and learning will focus on a range of agreed entitled experiences and there will be a focus on:

- Developing a clear progression of knowledge and skills linked to the essential learning objectives of the subject. These will be set out as threshold concepts and milestones for each Key Stage.
- Ensuring that appropriate opportunities are taken to develop the major cross-curricular skills such as English, Mathematics and Computing skills.
- The effective use of a range of design and technology sources including: materials that join, books, photographs, pictures, videos, computing software and a range of websites to find out about designs and technologies.
- The consistent use of a range of teaching and learning approaches to engage pupils in the study of Design and Technology. This will include objective and question led learning, observation and recording, class and group discussion, teaching of specific knowledge and skills.
- To use knowledge of skills to support, evaluate and discuss improvements with others, challenging their own and others' evaluative opinions.
- The use of enrichment opportunities such as expert visitors, partnerships with other schools and trips.
- Developing pupils' ability to design, create, modify, reflect, discuss and evaluate their own work.
- Enabling pupils to develop an overview of the skills used in Design and Technology.

Implementation

# Teaching, Recording, Feedback, Assessment and Reporting

## This will happen by:

- Curriculum concepts for this subject cover each phase (KS1, LKS2 and UKS2), these concepts form the basis of learning objectives for each lesson taught. These are based on the National Curriculum programme of study.
- Learning objectives are shared with children each lesson and displayed in the children's design project proforma.
- Threshold concepts are repeated throughout each phase so that children gain a deep understanding of them, rather than moving on to the threshold concepts for later year groups.
- Children are given a context through which they can explore each learning objective.
- Progress milestones for each threshold concept are used to inform and create steps of success, which are referred to throughout lessons.
- The key knowledge for each unit is shared with children and parents through a knowledge organiser, which may include essential facts and key people associated with the learning. It will also highlight the key learning that will have taken place prior to this and pose questions which will form the basis of the learning enquiry.
- Teaching is focused on input, experiences and activities which promote the development of each threshold concept so that children can achieve the milestones specific to their phase.
- The various methods of recording should demonstrate the children's understanding of the lesson's learning objective and how deeply they have understood the objective based on their success against the steps of success.
- Teachers' feedback should be either written where necessary or verbally discussed and directly relate to the learning objective for the lesson, focusing on the development of the child's work.
- Any Gap Tasks given should be meaningful and purposeful and develop the child's design and/or ideas. They should be scaffolded where necessary.
- Teachers should use observations and work recorded by children to make judgements of the children's current progress against their year group's expectations.
- Regular retrieval practice focuses on children knowing and remembering more of what they have been taught, using the unit's knowledge organiser as a basis for questioning.
- Assessment information will be used to plan future work for the class, including any intervention.
- This continual assessment will be used to report to parents. End of year academic reports will contain comments about an individual pupil's progress against the year group expectations, threshold concepts and progress milestones.
- All formative and summative assessments made will be used to inform discussions around pupils' progress and attainment in the subject at appropriate times, for example discussions with other professionals and reporting to parents on during parent consultation evening etc.

Implementation

# SMSC and Rights Respecting in Design and Technology

## Rights Respecting and SMSC within the curriculum

As a Rights Respecting School, our children not only respect their rights but they actively promote them. They understand that their rights are universal and unconditional and are true Change Makers when it comes to championing the rights of others in our own community and across the world. We have been awarded the Gold Rights Respecting School Award which means that we have been recognised by Unicef UK for our Rights Respecting School ethos ensuring that teaching children about their rights is explicitly embedded into our school curriculum. Rights Respecting underpins the work we do throughout SMSC development and the two core areas work hand in hand together to equip children with the key skills that they need to become Global Citizens.

## What does this look like?

SMSC and Rights Respecting are not lessons which are taught in isolation, they are interwoven throughout our curriculum. Design and Technology provides rich opportunities for learning about the convention and there are clear links with global citizenship and sustainable development. Our staff have a deep understanding of the United Nations Convention on the Rights of the Child (UNCRC) and are able to make links in lessons which are deep and meaningful. Staff are able to enhance teaching and learning by modelling rights respecting language and attitudes and making strategic decisions about the content of curriculum lessons that involve the children. Where appropriate, particular articles or areas of SMSC are linked to areas of Design and Technology to provide children with a broad knowledge and understanding.

## What impact does this have?

Due to the fact rights and SMSC development are integrated into our broad and balanced curriculum, children understand the importance of the convention and their SMSC key skills and it becomes a fundamental part of our school ethos. We have found that bringing a rights perspective to areas of the curriculum can enhance and enrich learning and instil a rights respecting ethos within our school. By ensuring that children have a rich SMSC and Rights Respecting understanding, we ensure that they are ready to embrace the challenges of creating a happy and successful adult life in modern Britain.

## Using Skills Builder in Design and Technology



These are the skills that underpin success at every stage of life: they unlock learning while at school, ensure young people are fully prepared for the independence of university and college, and empower people to land their dream job. At Lutley, we use skills builder framework in many ways.

A mastery approach underpins the framework – that means, no steps should be skipped and only when a step is mastered should learners move onto the next one. Mastery of a step is evident when a child or young person is regularly able to demonstrate that step in different contexts.

Once staff know where the children are in the essential skills they are working on, they can focus the activities, in this subject, towards the specific next skill steps.

**Implementation**