# Mowbray School Long Term Design and Technology Plan KS1

## Two Year rolling programme KS1

**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.

**Aims**
The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

**Attainment targets**
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.

# 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, such as 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

**Make**

- select from and use a range of tools and equipment to perform practical tasks such as 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, such as 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.

**Year 1**

| Term | Topic | What we are covering |
|---|---|---|
| **Autumn Term** | **We're going on a journey.** | This **Fabric Bunting** unit will teach your class about working with fabric. It starts with children evaluating a range of existing bunting with a theme around counting. Children are then set a design criteria. They will learn how to use a graphics program to create a design and template for their bunting. Working with felt, children will cut out a bunting shape and use a simple running stitch. Children will be given the chance to explore different fabrics that they could use to enhance their designs. Using techniques such as sewing, stapling and gluing, children will decorate their felt flag. Finally, children will evaluate their product |
| **Spring Term** | **Humans 'v' Animals** | **'Our fabric faces'** in this unit your class will learn all about different fabrics. They will explore and become familiar with the names of different fabrics and learn how to choose and manipulate fabrics to create different effects; they will also learn how to join fabrics in a variety of ways. Finally, children get the chance to apply all of these skills to help them create their own fabric face which they will evaluate. |
| **Summer Term** | **Come and Listen to a story** | This **'Moving Traditional Tale Pictures'** unit gives children opportunities to develop their understanding of mechanisms. Children listen to and role play different Traditional Tales and then learn how sections of the stories can be made into a moving picture. Following instructions on how to make different types of mechanisms, such as levers, wheels and sliders, gives children experience and information to draw on when developing their own ideas. They sketch a design based on their ideas and then create their moving picture centred on the story of 'The Three Billy Goats Gruff.' Children evaluate their finished product. |

**Year 2**

| Term | Topic | What we are covering |
|---|---|---|
| **Autumn Term** | **Around the world in 80 days** | This **Dips and Dippers** unit will teach your class about good food hygiene rules and using kitchen equipment to prepare food safely. Children will apply these skills when making and evaluating a healthy dip and dippers. The unit develops children's understanding of the eat well plate and explains the importance of eating a healthy and varied diet. |
| **Spring Term** | **From farm to Plate** | This **Lighthouse Keeper's Lunch Box** unit gives children the opportunity to develop their understanding of structures. The exploration ofdifferent types of lunch boxes gives children the experience and information to draw on when developing their own ideas. The children create their ideas following the design criteria, given at the beginning of the project, and go on to create models from reclaimed materials. Children gain a basic understanding about how structures can be made stronger, stiffer and more stable. At the end of the unit children test their products and suggest further improvements. |
| **Summer Term** | **Hidden Treasure** | This **Sensational Salads** unit will teach your class about peeling, zesting, cutting safely and applying these skills when preparing healthy dishes. Children will learn key information about healthy eating and where their food comes from. They will gain some practical ideas about ingredients that can be combined to make interesting and healthy salads. |

## Mowbray School Long Term Design and Technology Plan Lower KS2

Two Year rolling programme

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, such as 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 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

**Make**

- select from and use a wider range of tools and equipment to perform practical tasks, such as 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, such as gears, pulleys, cams, levers and linkages
- understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs, buzzers and motors
- apply their understanding of computing to programme, monitor and control their products.

**Key stage 2**

- 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.

Year 1

| Term | Topic | What we are covering |
|---|---|---|
| **Autumn Term** | **We're going on a journey.** | This **Let's Go Fly a Kite** unit gives children opportunities to develop their understanding of frame structures and how they can be strengthened and stiffened. Children will discover information about a key event involving a kite that helped shape the world. Children will gain knowledge and understanding about the parts and shapes of kites. This will help them when designing and making their own kites. Finally, children will test and evaluate their kites against design criteria they have created. |
| **Spring Term** | **Humans 'v' Animals** | This **Edible Garden** provides an opportunity for children to learn where and how a variety of ingredients are grown. Firstly, children will learn how to plant seeds and care for their plants so they yield produce that can be used in their cooking. They will learn how to cook with the ingredients they are growing; following recipes and using different kitchen equipment. The lessons take into account the appropriate safety and hygiene rules |
| **Summer Term** | **Come listen to a story** | This **'Battery Operated Lights'** unit gives children opportunities to enhance their knowledge and understanding of electrical systems. In this unit children will develop understanding about series and parallel circuits and different types switches. They will then be given the chance to apply |

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| | | their knowledge about electric circuits in a purposeful way by designing and making a battery operated light which will be controlled by a homemade switch. Children will decide upon the design criteria for the light by considering who will use it, where it will be used and what for. Finally, children will complete a detailed evaluation of their final product. |

**Year 2**

| Term | Topic | What we are covering |
|---|---|---|
| **Autumn Term** | **Around the world in 80 days** | This **Juggling Balls** unit will teach your class how to make juggling balls. They will start by exploring and evaluating different juggling balls. Children are then given a design brief, asking them to design and make a circus themed juggling ball. A hemming and overcast stitch will be introduced during this unit. Children will learn about decoration techniques; getting the chance to use tie-dye and fabric paints. Finally, when they have completed the making of their juggling ball, children will evaluate their product against design criteria. |
| **Spring Term** | **From farm to Plate** | This **Great Bread Bake Off** unit will teach your class about working with food. Children will gain an insight into the history of bread production, then investigate and evaluate existing bread products. They will create design criteria which will be referred to when designing, making and evaluating their own bread product. Children use a range of skills and techniques using simple kitchen tools and measuring equipment, they will learn how to knead dough correctly and the technique of proving bread. |
| **Summer Term** | **Hidden Treasure** | This '**Mechanical Posters'** unit gives children opportunities to develop their understanding of mechanical systems. Following instructions on how to make different types of lever and linkage mechanisms gives children experience and information to draw on when developing their own ideas. They sketch a design based on their ideas, make a prototype, and then create their 'Lever and Linkage Poster' using the context of recycling. Finally, children will evaluate their finished product. |

# Mowbray School Long Term Design and Technology

# Plan Upper KS2

## Two Year rolling programme

### Year 1

| Term | Topic | What we are covering |
|---|---|---|
| **Autumn Term** | **We're going on a journey**. | This **Felt Phone Cases** unit will teach your class about how to write their own design criteria. They will design products with the user in mind thinking about aesthetics and functionality. Annotated designs will be used to communicate ideas as well as step by step plans. Children will learn how to make a paper template and how to sew a running stitch, backstitch, whip stitch and blanket stitch. Finally, when they have made their felt phone case, children will learn how to write a detailed evaluation. |
| **Spring Term** | **Humans 'v' Animals** | This **'Automata Animals'** unit gives children opportunities to further develop their understanding of mechanical systems. Children learn about controlling movement with a cam mechanism as part of an automata animal. They develop their designing skills through using information sources to research ideas about animals which are then incorporated into the design criteria and designs. They make a simple cam mechanism to formulate an understanding of how different shaped cams can be used to produce different movements. Children extend their making skills by developing techniques in cutting, shaping and joining to combine components and by selecting tools and equipment to measure and cut wood and card accurately. Through these activities they gain an understanding of the working characteristics of the materials and components and how they can be combined to create more useful properties. Peer assessment is used to improve designs and evaluate final products. |
| **Summer Term** | **Come and Listen to a story** | This **Biscuits** unit gives children the opportunity to explore a range of biscuits, investigate how we make biscuits and how to handle food and equipment safely and hygienically. Children will work together to discuss ideas then they will design and make a Halloween or Christmas biscuit. Producing a recipe card for their biscuit. |

Year 2

| Term | Topic | What we are covering |
|---|---|---|
| **Autumn Term** | **Around the world in 80 days** | This **Global Food** unit will give your children the chance to discover the exciting and diverse choice of food available around the world. The first part of the unit provides an opportunity for children to learn where in the world a variety of ingredients flourish. They will then build on their understanding of the eat well plate, placing different ingredients into the correct food groups. This will develop a deeper understanding that although food can be extremely varied, it still comes under the same basic food groups. Children will then have the chance to learn some basic and advanced cooking techniques, they will apply these skills when making some traditional dishes from different countries. |
| **Spring Term** | **From farm to Plate** | This **'Super Seasonal Cooking'** unit of work will teach your class about the importance of buying seasonal food. The first part of the unit provides an opportunity for children to learn where, when and how a variety of ingredients are grown, reared, caught and processed. Children will then have the chance to sample some spring seasonal food before designing their own balanced seasonal meal. They will learn how to cook with the seasonal ingredients following their own recipes and using a wide range of preparation and cooking techniques. Finally, children will evaluate their product against their design criteria. Children will learn appropriate hygiene rules for handling meat and fish and safe preparation skills. |
| **Summer Term** | **Hidden Treasure** | This **Marbulous Structures** unit gives children opportunities to develop their understanding of more complex free standing structures and how they can be strengthened and reinforced. Children will gain knowledge and understanding about how to join and shape materials. Children will then apply these skills, using an iterative design process, to create their marble runs. Finally, children will test and evaluate their marble runs against design criteria. |