

Manor Primary School

Science Year 4: Designing and making a weather station

Overview of the Learning:

In this unit, children learn how to build their own school weather station which can record temperature, rainfall, air pressure and wind speed and direction. Pupils can then compare weather conditions in their own locations with the weather conditions in other areas studied globally.

Children will learn to take readings from their instruments and create their own weather log

Core Aims

- Develop an understanding of meteorology and the designs behind weather stations.
- use research and develop design criteria to inform the design of innovative, functional, 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
- 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
- investigate and analyse a range of existing products
- evaluate 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
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products.

Pupils should be taught to develop knowledge, skills and understanding by exploring and developing ideas ...

- Observe and explore and generate ideas, define problems and pose questions in order to develop investigations and products.
- To identify the needs of the end user by exploring existing designs and how they work.
- Apply practical skills to design, make and improve products safely, taking account of users and purposes.
- Children will become familiar with how to create a design specification with the needs of the end user in mind taking into consideration the results of their market research. Communicate and model in order to explain and develop ideas, share findings and conclusions.
- To continually make systematic evaluations when designing and making, to bring about improvements in processes and outcomes
- To carry out meteorological tests to assess the success of the weather station.

Pupils should be taught about making weather stations:

- To understand the purpose of a weather station.
- To understand the components and how they each work.
- To make their own weather station incorporating different components

Expectations

Children can:

Examine weather stations and understand how they are used within meteorology.

Understand the different components that make up a weather station.

Identify the suitability of materials ensuring they are fit for purpose.

Create a design specification for their own weather station.

To evaluate the design the needs of the end user.

Suggest improvements during and after the design and making process.

To test the suitability of the product by carrying out weather tests.

Manor Primary School Science Year 4: Designing and Making torches

Overview of the Learning:

Children will apply their knowledge about electric circuits that they acquire in science in a purposeful way by designing and making a simple torch. While all the designing and making skills will be used, there will be a particular emphasis on defining a set of clear specifications for the torch by considering who will use it and the conditions under which it might be used. The children also consider how the torch can be controlled by designing and making their own switch.

Core Aims

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 [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

Pupils should be taught to develop their design and making skills They will:

- Observe and explore and generate ideas, define problems and pose questions in order to develop investigations and products.
- Take ownership of the whole design process: carrying out market research, designing, making improvements, creating an end product and evaluating.
- To identify the needs of the end user by exploring the existing market and asking questions about what bags are popular and why and where there are gaps in the market which could generate a profit.
- Apply practical skills to design, make and improve products safely, taking account of users and purposes.



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

To apply understanding of circuits and 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.

- Children will become familiar with how to create a design specification with the needs of the end user in mind taking into consideration the results of their market research. Communicate and model in order to explain and develop ideas, share findings and conclusions.
- To continually make systematic evaluations when designing and making, to bring about improvements in processes and outcomes **Error!**
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What pupils will be taught about making torches. :

- To identify the qualities of a range of materials thinking about the, suitability and aesthetic qualities
- To understand how a torch is made and how they work.
- To understand how to make a circuit and use switches to control it.
- To create a safe circuit which is suitable for a torch.

Expectations

Children can

Examine a range of existing products and identify the purpose, suitability appearance and function and how the torches have been assembled.

Carry out market research including questionnaires to find out about the products that are available to buy, gaps in the market and the needs of the end user.

Identify the suitability of materials ensuring they are fit for purpose.

Create a design specification for their own torch using the market research.

To use circuits and switches to control the torch.

To make the torch considering the materials used/ suitability and aesthetic qualities.



To evaluate the torch against the design specification and the needs of the end user.

Suggest improvements during and after the design and making process.

Manor Primary School

Design Technology Year 4: Designing and Making Bread Products and Packaging.

Overview of the Learning:

In this unit of work children will investigate a range of bread products and find out where they come from around the world and how they are made. Children will be taught how to make a basic bread recipe and design and make their own bread product. Children will be given the opportunity to evaluate their product and make improvements.

Core Aims

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 and recipes.

Make

select from and use a wider range of tools and equipment to perform practical tasks

[for example, mixing, combining, kneading and shaping], accurately select from and use a wider range of 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

Pupils should be taught to develop their design and making skills They will:

Observe and explore and generate ideas, define problems and pose questions in order to develop investigations and products.

Take ownership of the whole design process: investigating existing products, designing, preparing and making a **RANGE** of bread products, designing an end product, making improvements and evaluating

Apply practical skills to design, make and improve products safely, taking account of users and purposes.

Children will become familiar with how to create a design specification with the needs of the end user in mind taking into consideration the products they have examined.

Communicate and model in order to explain and develop ideas, share findings and conclusions.

To continually make evaluations when designing and making, to bring about improvements in processes and outcomes

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understand how key events and individuals in design and technology have helped shape the world

Cooking and Nutrition

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.

Pupils should be taught about bread.

To identify a range of bread products and discuss the characteristics and qualities.

To identify where these products come from.

How to mix, combine, knead and shape ingredients.

Expectations

To taste test and examine a range of bread products thinking about the colour, texture, flavour, appearance.

Examine a range of existing bread products and identify how they have been made and their qualities. (taste, texture, appearance)

Create a design specification for a bread product thinking about the end user.

To be able to combine, mix, knead and shape ingredients for their product.

To present and evaluate their product with the views of the end user in mind.

To re-make the product considering improvements.

To design and make packaging for their bread product thinking about the purpose.

To market ideas and present to potential end users.



