

Manor Primary School

DT Year 6: Designing and making a solar structure

Overview of the Learning:

In this unit, children will learn about structures and solar powered devices. They will learn that structures can fail when loaded, and the use of techniques for reinforcing and strengthening structures. They are shown the strength of tubes as a construction material and textiles as a suitable cover for a framework. The main outcome of this unit will be the design and construction of a framework-type shelter for an identified purpose that lights up or uses a motor that is operated using solar powered cells

Core Aims

To build secure knowledge of the power of creative ideas and approaches in science and technology

To explore and explain our world, solve problems and bring about change.

To understand how information and valid evidence underpin ideas and practice in science and technology

To know how science and human needs interact to create new knowledge, technologies and products

To 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

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 according to their characteristics

Pupils should be taught to develop their designing and making skills work. They will:

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

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

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

Pupils should be taught about solar structures :

How to design and create their own structures.

Identify how to join and strengthen their structures.

Learn how solar panels work.

Identify the benefits and limitations of solar power (in link with the environment)



Explore and evaluate a range of existing products
evaluate their ideas and products against design criteria

Build structures, exploring how they can be made stronger, stiffer and more stable

Expectations

Children can:

Show an awareness of the design process.

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

Identify the suitability of materials ensuring they are fit for purpose (strong/ water resistant)

Create a design specification for their own solar structure.

To make a structure for a specific purpose with working solar powers to power electrical components.

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

Suggest improvements during and after the design and making process.



Manor Primary School

DT Year 6: Designing and making a designer bag

Overview of the Learning:

In this unit, children learn how products *e.g. bags* are designed for different purposes and people. They learn that designers must address a range of needs when designing bags *e.g. appearance, safety, comfort, practicality and size*. Children learn about making accurate patterns/templates and detailed working drawings. They develop making and finishing skills to enhance the quality of their bags. They learn to evaluate their products critically against design criteria and identify what to do to improve them.

Core Aims

- Develop an understanding of how research can be used to create a design specification to ensure products are functional, appealing and are fit for purpose, aimed at particular individuals or groups.
- Develop an understanding of how to use a wide range of tools including sewing machines to join pieces of material accurately.
- Develop an understanding of how to select from and use a wider range of textile materials according to their functional properties and aesthetic qualities
- Develop an understanding of how to strengthen, stiffen and reinforce their products using their knowledge of textiles and structures.
- Develop an understanding of the skills of evaluation when investigating and analysing a range of existing products as well as their own.
- To 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 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.
- Take ownership of the whole design process: carrying out market research, designing, creating a prototype, 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.
- 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

Pupils should be taught about making bags:

- To identify the qualities of a range of materials thinking about the, suitability and aesthetic qualities



- To create a prototype of a bag identifying how the pattern fits together and understand the importance of this in the design process.
- To use a sewing machine safely in order to create a high quality finished product.
- To understand how fastenings such as buttons, zips and press studs are attached for functional purposes.

Expectations

Children can:

Examine a range of existing bag products and identify the purpose, suitability appearance and function and how the bags 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 bag using the market research.

To create a pattern and prototype using their design specification.

To use a sewing machine to create a bag of their own design joining the seams neatly to create a high quality finished product.

To use attach fastenings to the bag.

To evaluate the bag 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 6: Perfect Pasta

Overview of the Learning:

Children will investigate pasta products and how they can be varied and adapted in order to be included as part of a healthy diet. Children will be taught a range of food preparation and cooking skills and techniques, which develop in complexity over time. They will design and make a new pasta product and gain knowledge and understanding of the design and make process. They will explore and understand the purpose of their product. They will also: write a design specification; produce a step-by-step plan for making their product as well as making a quality product and label and cost their product as part of the marketing process.

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 (including pasta machines and food processors) 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

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 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 pasta products , designing an end product, making improvements and evaluating

To identify the needs of the end user by exploring existing products and asking questions about what people would like to see in a pasta dish.

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 **Error! Reference source not found.**

To understand how to cost, package, advertise and market a product and the importance of these final stages.

Pupils should be taught about pasta.

How pasta can be part of a healthy and balanced diet.

To identify where pasta products come from.



	<p>To make a range of pasta sauces thinking about the nutritional value.</p> <p>To make fresh pasta using suitable equipment.</p> <p>How to prepare their own healthy pasta dish.</p>
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Expectations

- To understand how pasta dishes can be incorporated into a healthy diet.
- To taste test and examine a range of pasta products thinking about the colour, texture, flavour, appearance.
- To investigate techniques for making vegetable and cheese pasta sauces.
- To make fresh pasta using the correct equipment.
- To carry out market research and analyse the results in order to inform their own design ideas.
- Create a design specification for a healthy spaghetti dish thinking about the end user.
- To be able to mix, combine and prepare ingredients for their product.
- To package, cost and market their product to potential end users.
- To present and evaluate their product with the views of the end user in mind.

