Manor Primary School

Design Technology Year 2:Designing and making a pop-up book (The Three Little Pigs whodunit) Focus: Mechanisms and linkages-control

Overview of the Learning:

In this unit children research the content of the book and design and make a book that is finished to a high standard, with pages that incorporate moving parts, including linkages and levers. (3 pigs Whodunit from science work)

Children gain an understanding of linkage-type mechanisms through investigating a range of products *eg books or greetings cards*. Through focused practical tasks, children develop further skills and understanding relating to the construction and assembly of a range of simple mechanisms that can be incorporated into a book with moving parts. The children develop their ability to work in groups as they make decisions about the book and share out tasks.

Core Aims

Investigate and analyse a range of existing products.

To research and develop design criteria to inform the design of innovative, functional, appealing pop up books 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 prototypes

To select and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.

To select and use a wider range of materials and components, materials, according to their functional properties and aesthetic qualities
evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.

Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.

Understand and use mechanical systems in their products [for example, levers and linkages]

Pupils should be taught to….

- observe and explore to generate ideas, define problems and pose questions in order to develop investigations and products.
- Take ownership of the whole design process: carrying out research into existing products, designing, creating models, making improvements, creating an end product and evaluating.
- 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 will be taught about making a pop-up book.

- To create a range of moving mechanisms: levers and slider mechanisms, wheel mechanisms.
- To understand their purpose and suitability.
- To construct a pop-up book understanding how it has been put together.

Expectations

Children can:

Examine a range of existing pop-up books and identify the purpose, suitability appearance and function and how the books have been assembled.

Name and identify a range of mechanisms, their purpose and suitability for the task.

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

Create a design specification for their own pop-up book.

To evaluate the pop-up book against the design specification and the needs of the end user.

Suggest improvements during and after the design and making process.

Manor Primary School

Science Year 2: Designing and making an electrical game: Focus Structures and electrical components

Overview of the Learning:
In this unit, children learn how to investigate, design and make an electronic game. They learn that designers must address a range of needs when designing the game *e.g appearance, safety, entertainment how it will work.* Children learn about circuits and switches and how they can be made/adapted. They learn to evaluate their products critically against design criteria and identify what to do to improve them.

Core Aims

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 [for example, cutting, shaping, joining and finishing]

select from and use a wide range of materials and components, including construction materials and circuits according to their characteristics

Evaluate

explore and evaluate a range of existing products

evaluate their ideas and products against design criteria

Pupils should be taught to…

- 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 electronic games 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.

Technical knowledge build structures, exploring how they can be made stronger, stiffer and more stable explore and use circuits in 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! Reference source not found.** **Pupils should be taught about making an electronic game:** • To understand how circuits work and the components that are needed, • To understand how circuits are used within an electronic board game. • To understand how to make and use a switch and understand the purpose.

Expectations

Children can:

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

Carry out market research 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 game using the market research.

To use a circuit including switches to make their game.

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

Suggest improvements during and after the design and making process.

Design Technology Year 2:

Sustainability: Designing & Making a desk tidy Focus Structures

Overview of the Learning:

This unit allows children to look at structures and stability, investigating 3D shapes and their nets, joining materials to make them stronger and how containers are used for different purposes. A focus of this unit is sustainability by reusing packaging containers that would otherwise be thrown away. The appearance of the finished products could provide a strong link with art

Core Aims

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 [for example, cutting, shaping, joining and finishing]

select from and use a wide range of recycled materials and components, including construction materials and textiles according to their characteristics

Evaluate

explore and evaluate a range of existing desk tidy products

evaluate their ideas and products against design criteria

Technical knowledge

build structures, exploring how they can be made stronger, stiffer and more stable in their 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, creating a prototype, making improvements, creating an end product 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 results of their market research. Communicate and model in order to explain and develop ideas, share findings and conclusions.
- To understand how structures can be strengthened.
- To continually make systematic evaluations when designing and making, to bring about improvements in processes and outcomes
- To know how to add a high quality finish to ensure the product is aesthetically pleasing.

Pupils should be taught about making a desk tidy.

	♦ To understand how recycled materials can be used within designs and understand the benefits this has on the environment. ♦ To examine the work of others who use recycled materials. ♦ To understand how a range of recycled materials can be joined together in order to construct a range of desk tidy structures. ♦ To use techniques to strengthen their structures.

Expectations

Investigate how recyclable materials are used within designs.

Examine a range of existing desk tidies and identify the purpose, suitability appearance and function and how the structures have been assembled.

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

Create a design specification for their own desk tidy using their research.

Understand how to strengthen, join and cut materials in order to assemble their final product.

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

Suggest improvements during and after the design and making process.

To seek feedback from others during the evaluation process.