

Year group:
Year 6



Term:
Autumn

Electrical
systems

National Curriculum: 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 ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, pattern pieces and using CAD. Select from a wide range of tools and equipment to perform practical tasks, cutting, shaping, joining and finishing accurately. Select from a wider range of materials and components according to their functional properties and aesthetic qualities. Evaluate their ideas and products against their own design criteria. Understand and use electrical systems and in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors). Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Investigate and analyse a range of existing products.

Key Knowledge and skills

Create circuits using electronics kits that employ a number of components (such as LEDs and range of switches).

Create an accurate pattern, showing fine detail.

Use a range of visual elements to reflect the purpose of the work.

Understand how electricity is used to drive products and how a motor when connected in an electrical circuit can be used to make things rotate.

Employ a pulley and belt system within my product and understand and use mechanical systems.

Gather information about switches and use the most suitable one in my product.

Design, evaluate and modify a toy fairground ride.

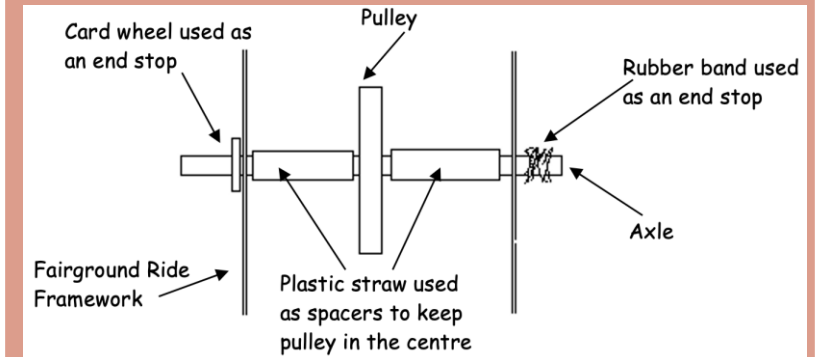
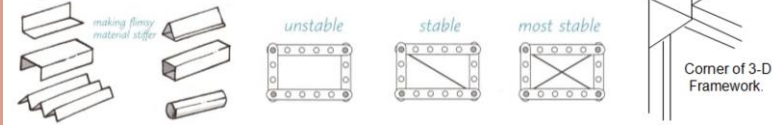
Consider the needs of users.

Vocabulary

Electric circuit	Path through which an electric current passes.
Drive belt	The belt which connects and transfers movement between pulleys.
Pulley	A grooved wheel over which a drive belt can run.
Switch	A device which makes or breaks a circuit.
Input	Changes which are inserted into a system which activate a process.
Output	Information produced by the electrical circuit and perceived by the user.
Mock up	A prototype model made with low cost materials or temporary joints.

Techniques:

Techniques for reinforcing structures



Evaluate

How did you create a strong and stable framework?

How will you make it bright and colourful to be appealing for young children?

How did you attach the electrical circuit and mechanisms?

What type of electrical circuit did you use and why?

Outcome

To design and make a toy fairground ride for sale in a museum shop.

Range of switches

