

Year 6 – Mechanisms

Can I research and design a fairground ride?

Design and Technology

Design Brief

To design, make and evaluate a prototype for a carousel ride to entertain younger children.

Key Skills

- Create a bird's eye view sketch to show the plan and layout of your fairground prototype.
- Create an electrical circuit diagram within the cross-section structure plan.
- Use what I have found from other mechanisms to help me design a pulley system for the fairground ride.
- Communicate ideas by labelling my design and identifying what materials and components I will need.

What I Should Already Know

- How do draw a scientific diagram for an electric circuit.
- Electrical components can be added into a structure to add light, sound or motion.
- How to create a working electrical circuit for a bulb, buzzer or motor.
- How to choose tools and materials that are appropriate to the task
- How to measure and mark accurately for cutting.

Key Vocabulary

structure	This supports its own weight plus a load.
motor	An electrical component which produces motion or action.
rotate	To move in a circle around an axis.
transmit	To transfer movement from one part to another.
pulley	A grooved wheel for a drive belt.
drivebelt	This connects and drives pulleys to move.
spindle	A rod on a motor for a pulley to fit on.



Key Information

- Towards the end of the Victorian era, there were many different types of mechanised rides and attractions, such as, carousels, roller coasters and Ferris wheels.
- Nearly 125 years ago, the first Ferris wheel was seen at the fairs. The first wheel was invented and named after George Washington Ferris and was a very popular ride. Nowadays, modern electric motors are used to operate them.
- An electric motor is a device used to convert electricity into mechanical energy. The basic idea of an electric motor is simple: you put electricity into it at one end and an axle (metal rod) rotates at the other end giving you the power to drive a machine.
- Motors are used in a wide range of applications, such as fans, power tools, appliances, electric vehicles, and hybrid cars.

Links to other Learning

- Science - Electrical circuits
- PSHE- Personal safety
- Art - Sculpture
- Geography - Our changing world
- History - Victorians
- D & T - mechanisms all year groups

Key Questions

- Appearance/aesthetics - how will it look?
- Cost - will your design be cost-effective?
- Customer - how will you make your ride appealing to children?
- Environment - will you use sustainable materials?
- Size - how big or small is it? What will influence your design choices?
- Safety - how does your design consider the safety of the rider? Does it meet the prototype design specification?
- Function/purpose - how will it be thrilling and fun? How does your pulley system work?
- Materials - what materials will you use and why?
- Manufacture - how will you create your pulley system? What would you change if you were to make this again?

