



Knowledge Organiser	Subject: Design and Technology	Topic: Fairgrounds	Year:6
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<u>Key Knowledge</u> <u>Technical knowledge I have already learnt about structures</u> 'Structures' refer to how things are put together to make them strong and stable. Structures can be made from different materials like wood, plastic, metal, or even paper! Buildings, bridges, towers, and even chairs are all examples of structures that we see around us every day. Structures are important because they help things stay strong and not fall apart. Imagine building a tall tower with weak materials – it would wobble and collapse! By understanding how structures work, we can make sure our designs are safe and durable. Types of Structures There are different types of structures that serve different purposes: • Frame structures: think of a skeleton that gives support and shape to a building. E.G. A skyscraper • Shell structures: these are like the outer layer or skin of a structure that protects what's inside. E.G. A bicycle helmet	<u>Key Learning</u> What are Fairground Rides? Fairground rides are machines that move and have fun features designed for enjoyment. They can spin, go up and down, or slide around. Some popular examples include: • Carousel: A gently spinning ride with painted horses or other animals that go up and down. • Roller Coaster: A fast ride that goes up very high and drops down quickly. • Bumper Cars: Small cars that you can bump into other riders while driving around. Think of fairground rides like giant toys that use engineering and design to create thrills and excitement! How Do Fairground Rides Work? Fairground rides are built using different scientific principles, primarily focused on physics and engineering. Here are some important concepts to consider: • Forces: When you ride a fairground attraction, different forces are at play. For example, gravity pulls you down, while the wheels of a roller coaster track help keep the ride on course. Understanding these forces helps engineers design safe rides. • Motion: Each ride is designed to move in certain ways. Some rides spin (like the teacup ride), while others go up and down (like the drop tower). Motion is a key part of what makes the ride enjoyable. • Safety: Safety is crucial when designing fairground rides. Engineers use materials and designs that can withstand the speeds and forces involved. They also include safety features like seat belts and harnesses.	<u>Disciplinary Skills</u> • Generate ideas through brainstorming and identify a purpose for their product. • Draw up a specification for their design. • Select appropriate materials, tools and techniques. • Use skills in using different tools and equipment safely and accurately. • Evaluate a product against the original design specification. <table border="1" data-bbox="1261 587 2145 1310"> <tr> <th colspan="3">Key Concepts</th></tr> <tr> <td> 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. </td><td> 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. </td><td> 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. </td></tr> </table>	Key Concepts			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 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.
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Key Vocabulary

Prototype	A first or preliminary version of a device or vehicle from which other forms are developed.
Framework	An essential supporting structure of a building, vehicle, or object.
Rotating	Move or cause to move in a circle round an axis or centre.
Circuit	A roughly circular line, route, or movement that starts and finishes at the same place.
Construct	Build or make (something, typically a building, road, or machine).
Pulleys	A wheel with a grooved rim around which a cord passes, which acts to change the direction of a force applied to the cord and is used to raise heavy weights.
Components	A part or element of a larger whole, especially a part of a machine or vehicle.
Configuration	An arrangement of parts or elements in a particular form, figure, or combination.
Mechanisms	A system of parts working together in a machine; a piece of machinery.
Mark out	To measure and mark where a piece of material needs to be cut or shaped.
Reinforce	To make a structure or material stronger by adding another material e.g., a bridge can be made stronger using triangular bracing.



Linking Thinking Across Our Learning Journey

Early Years	Year One	Year Two	Year Three	Year Four	Year Five	Year Six
Once upon a time- Building structures	Playgrounds – Structures	Carnival hats - Structures	ROH Stage design – Structures	Story books – Mechanisms	Bridges- Structures	African instruments/ Fairgrounds- Constructing

