



St James' Church of England Primary School

Design & Technology Overview Sheet



Year 2 – Mechanisms: Fairground Wheel



Rationale: Pupils who are **secure** will be able to:

- Design and label a wheel.
- Consider the designs of others and make comments about their practicality or appeal.
- Consider the materials, shape, construction and mechanisms of their wheel.
- Label their designs.
- Build a stable structure with a rotating wheel.
- Test and adapt their designs as necessary.
- Follow a design plan to make a completed model of the wheel.

Learning Objectives:

- Explore and evaluate a range of existing products
- Generate, develop and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
- Explore and use mechanisms in their products
- Design purposeful, functional, appealing products for themselves and other users based on design criteria
- Build structures exploring how they can be made stronger, stiffer, and more stable
- Select from and use a range of tools and equipment to perform practical tasks.

Overview:

Lesson 1: Design a Ferris wheel – To explore wheel mechanisms and design a wheel
Lesson 2: Planning the build – To select appropriate materials
Lesson 3: Building the frame and wheels – To build and test a moving wheel
Lesson 4: Adding pods and decoration – To make and evaluate a structure with a rotating wheel

Cross Curricular Links

Resources

• Presentation: Ferris wheel images (see Main event) • Laptops or tablets with access to Microsoft Office (for the extension activities) • Paper and pencils or whiteboards and pens • Link: 'Bob the Builder - Spring City Wheel - Season 19, Episode 36' on VideoLink • Materials for the children to create their wheels, such as lolly sticks, dowel, straws, cocktail sticks, cardboard, split pins, cotton reels, paper straws, yoghurt pots – arrange on tables for children to access. • Materials for the children to build their Ferris wheels, such as lolly sticks, straws, dowel, cotton reels, pipe cleaners, card, paper, cocktail sticks, play dough • Tape • Glue • Scissors • (Optional) Support sheet – Ferris wheel guide – as required

Impact/Assessment

Most Children will: • Designing and labelling a wheel, considering the designs of others and making comments about their practicality or appeal. • Considering the materials, shape, construction and mechanisms of their wheel and labelling their designs. • Building a stable structure with a rotating wheel and testing and adapting their designs as necessary. • Following a design plan to make a completed model of the wheel.

More Able Children will: • Explaining the function of each part of a Ferris wheel when creating their design and incorporating the most practical aspects of other designs, as well as suggesting improvements. • Selecting appropriate materials for each component in their wheel design while justifying their choices. • Making predictions based on evidence and make sure that their structure rotates smoothly, without resistance. • Producing a high quality working model of the wheel adapting, with rotating pods and decoration, explaining any changes made.