

Design Technology Year 2 Autumn Mechanisms

What do you want children to learn (link to NC) Wheels and Axles

Technical Knowledge & Understanding

Explore and use wheels, axles and axle holders.

Distinguish between fixed and freely moving axles.

Know and use technical vocabulary - wheel, axle, axle holder, chassis, body, cab, parallel, mechanism, dowel.

Designing

Generate initial ideas and simple design criteria through talking and using own experiences.

Develop and communicate ideas through drawings and mock-ups.

Making

Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing. Use junior hacksaw and bench hooks.

Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.

Evaluating

Explore and evaluate a range of products with wheels and axles.

Evaluate their ideas throughout and their products against original criteria.

Prior Learning

Experience in push and pull mechanisms in science and using the vocabulary wheel and axle. Cutting and joining techniques using glue and scissors. Began to evaluate their projects against class design criteria.

Focus Tasks / Key Questions

1. Explore and evaluate a range of wheeled products such as toys and everyday objects. *How do you think the wheels move? How do you think the wheels are fixed on? Why do you think the product has this number of wheels? What position does the wheel need to be in for it to rotate?*
2. Demonstrate different ways of making axle holders and stress the importance of making sure the axles run freely within holders.
3. Ensure that the children are taught how to mark out, hold, cut, and join materials and components correctly. (E.g. dowel).
4. Discuss what they will be designing, making and evaluating and identify a user and purpose for the product and generate criteria.
5. Draw and label design using correct vocabulary for selected materials according to the characteristics.

Key Vocabulary

Vehicle, wheel, axle, holding, chassis, body, cab, assembling, cutting, joining, shaping, finishing, fixed, free, moving, mechanism, names of tools; hacksaw, bench hook, materials; dowels cotton reel, card disc, washer, wooden wheel/MDF. Design, make, evaluate, purpose, user, criteria, functional.

Learning Outcomes/ Assessment Opportunities

6. Make their wheel and axle product using their design ideas and criteria as an ongoing guide.
7. Evaluate their finished product, communicating how it works and how it matches their design criteria, including any changes they made.

GDS/ Challenge

Using correct measurement and marking out correctly when making. Demonstrating their understanding of independent problem solving and resilience.

Health and Safety

Children to be taught how to correctly use a hacksaw with a bench hook (tucking thumb in, using correct stance and body weight).