



Year group: Year 2
Term: Summer
Subject: Design Technology – Mechanisms –
Wheels and Axles – A moving vehicle

Prior learning

EYFS

Early experiences of working with paper and card to make simple flaps and hinges.
Experience of simple cutting, shaping and joining skills using scissors, glue and masking tape

Year 1 – Sliders

The children will know that a slider is a mechanism that creates up and down or side to side movement.

What comes next?

Year 3 – Levers and linkages

The children will have experience of a range of lever and linkage mechanisms. They will be taught the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques.

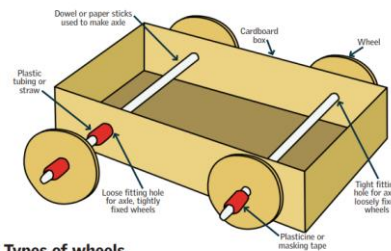
Notes and guidance

Using construction kits with wheels and axles, ask children to make a product that moves.
Demonstrate to children how wheels and axles may be assembled as either fixed axles or free axles.
Show different ways of making axle holders and stress the importance of making sure the axles run freely within the holders.
Ensure that children are taught how to mark out, hold, cut and join materials and components correctly.
Using samples of materials and components they will use when designing and making, ask the children to assemble some examples of wheel, axle, axle holder combinations.

Key vocabulary

Vehicle Wheel Axle Chassis

Two different ways to fix wheels



Types of wheels

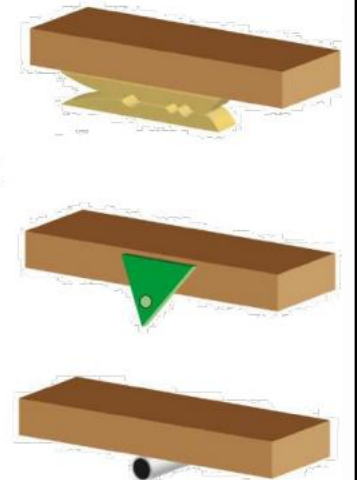


Ways to hold moving axles

Use **pairs of clothes pegs** glued with PVA to the underside of a box. Check the peg holes are large enough to allow axles to move freely. Make sure they are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.

Use **card triangles** with holes for the axle. Check the holes are large enough to allow the axle to move freely. Make sure opposite triangles are aligned carefully so the vehicle moves in a straight line when the wheel and axle mechanism is added.

Use **large paper/plastic straws** fixed with masking tape to the underside of a box. Check straws are positioned carefully so the vehicle will move in a straight line when the wheel and axle mechanisms are added. Make sure the straw hole is large enough to allow the axle to move freely. The wheels must be fixed tightly to the axle.



Substantive Knowledge

To know the terms wheel, axle and chassis and understand their function.
To know what a fixed and a freely moving axle is.

Disciplinary Knowledge

To know that designers sometimes draw and label their ideas before making their design.
To know that designers evaluate their work to ensure it is fit for purpose.

Procedural Knowledge

To be able to select and use tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.
To know how to select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.

Links to other curriculum areas

History – Victorian era – cars invented
Science – materials
English – Around the World in 80 days.

End Points

- To be able to use creativity and imagination to create high quality products.
- To master the use of a range of design technology tools and techniques.
- To be able to design, make and evaluate their products referring to whether it is fit for purpose and meets the design criteria.



DESIGN



Key vocabulary definitions.

- Vehicle — Something that carries people or things from one place to another, like a car, bike, or bus.
- Wheel — A round part that turns and helps a vehicle move.
- Axle — A rod that goes through the wheels and helps them turn.
- Chassis — The frame or base of a vehicle that holds all the parts together.