



# Mechanisms

## Wheels and Axles

Y2

In this unit, we will design, make and evaluate a box car.

### Knowing More Remembering More:

#### Remembering previous learning

What is a mechanism? Mechanisms are the parts that make an object work

### Skills

I will be able to:

#### Design:

- 2.1 Use drawings to record ideas as they are developed.
- 2.3 Use kits/reclaimed materials to develop more than one idea
- 2.4 Describe my models and drawings of ideas

#### Make:

- 2.6 Select materials from a limited range that will meet the design criteria.
- 2.8 Select and name the tools needed for making
- 2.9 Use suitable finishing techniques

#### Evaluate:

- 2.11 Explore existing products and investigate how they have been made.
- 2.13 Talk about my design and what I am making.
- 2.15 Suggest how my finished product could be improved.

### Vocabulary

#### Technical vocabulary

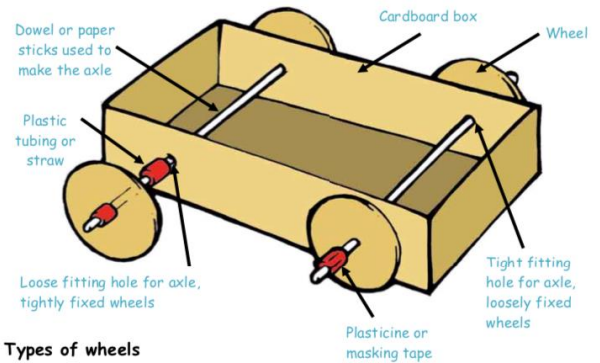
vehicle, wheel, axle, axle holder, chassis, body, cab, fixed, free-moving, mechanism,

#### Process vocabulary

Assembling, cutting, joining, shaping, finishing, design, make, evaluate, purpose, user, criteria, functional  
Names of tools, equipment and materials used

### Techniques:

#### Example of two different ways to fix wheels



#### Types of wheels



#### Ways to hold free 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.



### Inspiring Individuals



Karl Benz

### Knowing More Remembering More:

What is a wheel? A wheel is a circular object that revolves on an axle and is fixed below an object to help it move across the ground.

What is an axle? An axle is a rod that enables a wheel to rotate.

What is a chassis? A chassis is the frame or base on which a vehicle is built.

What is an axle holder? The part that an axle can fit in and rotate.

What is a fixed axle? An axle which is fixed to the chassis. The wheels move on their own.

What is friction? Friction is when two things rub against each other.