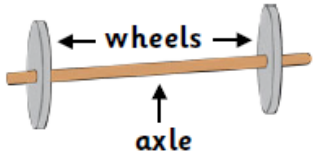
Emscote Infant School Knowledge Organiser Year 2 DT

Spring Term Vehicles Mechanical and Electrical Systems

Technical Knowledge

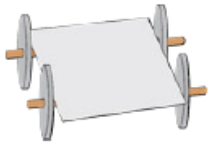
A **mechanism** is something that creates movement.

Wheels and **axles** are parts of mechanisms that can help vehicles to move.



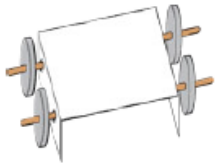
Axles need to be attached to a **chassis**.

Here, the axles are **fixed** underneath the chassis. The axles cannot turn round.



The wheels are **free** from the axle (placed on it but not attached) so that they can rotate.

Here, the axles are **free** from the chassis. The axles are put through holes in the chassis so that they can turn around. The wheels are **fixed** to the axle so they turn when it does.



Vocabulary

chassis - the main frame of the vehicle

wheel - a circular object that can rotate or roll

axle - a rod that is attached to the wheels

fixed axle - the axle is attached to the chassis, the wheels are free

free axle - the axle is not attached to the chassis, the wheels are fixed

Examples

Here are some objects that use mechanisms with wheels and axles:


Ferris wheel


Roller skate


Wheelchair


Toy tractor

The Design Process

Axles

What material will your axles be made from? **They need to be strong enough to support the wheels.**

Wheels

Will your wheels be free from the axle or fixed to the axle? **If they are fixed, make sure they are securely attached.**

Chassis

The chassis should be strong and rigid enough to support the vehicle and mechanism. What materials will you use to make the body of the vehicle? How will you join the different parts together?

Evaluation

- How well do the wheels and axles work?
- Does the vehicle move smoothly?
- What materials did you use and why? Would you make different choices if you made it again?
- What worked well during the making process? What didn't work well?
- What else could you do to improve your vehicle?