Design and Technology — Year 2 — Mechanisms - Wheels and Axles

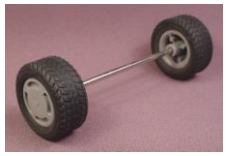
Prior Learning

In EYFS and Year 1 the children have assembled vehicles with moving wheels using construction kits. In addition they will have explored moving vehicles through play.

In year 1 DT they developed an understanding of basic mechanisms including levers and sliders and will have some basic understanding of simple forces including-push and pull.

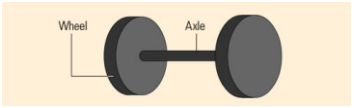
They will have some understanding of how to design, make and evaluate a product for a target audience. Alongside this their technical knowledge of structure and strength will have developed.

Wheels and Axles in the real world

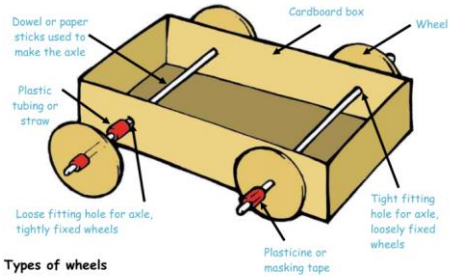





Wheel and Axles



This is a simple machine with two circular wheels joined at the centre by a cylinder/rod (axel).



Key Vocabulary

mechanism: a system of parts working together in a machin.
wheel:: a circular object that revolves on an axle and is fixed below a vehicle or other object to so it can move easily over the ground.
axle: a rod that enables a wheel to rotate. The wheel can rotate freely on the axle or be fixed to, and turn with, the axle.
chassis:the frame or base on which a vehicle is built.
axle holder: the component through which an axle fits and rotates.
fixed axle: an axle which is fixed to the chassis. The wheels move alone.
friction: a force which is created when two things rub together.

Intended Outcomes

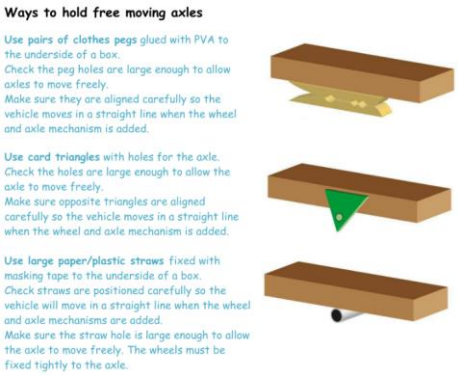
1. **To identify wheels and axles in the real world.**
2. **To explain that when a wheel and axles are joined they form a simple mechanism that provides movement.**
3. **To know and use technical vocabulary relating to wheels and axles.**
4. **To create simple wheels and axles and explore the different ways these can be made and move.**
5. **To evaluate how effective their moving product is and explain why the strengths/ weaknesses of their wheel/axle mechanism.**

Exploration

- Explore different size wheels
- How wheels move when the axle is not in the center of the wheel.
- Experiment with horizontal and diagonal axles to see how the wheels move.
- Learn about fixed and free axles.

Free axles-The axles move with the wheels.Loose fitting axle holder with tight fixed wheels.
Fixed axles- The axles are fixed to the chassis. The wheels move alone. Tight fitting axle holder with loose fitting wheels.

Mechanisms



Helpful Videos and Tips

https://www.youtube.com/watch?v=vYoWCn5r3rQ

https://www.youtube.com/watch?v=ndT35aqDfAQ

https://www.youtube.com/watch?v=Lpey_cCqS_I