

# Preston Primary School Knowledge Organiser

Topic: Design and Technology

Term: Spring 2

Year: Unit 4

Duration: 5 Weeks

**Mechanism:** Design, make and evaluate a functional and mobile product using mechanisms, such as axles and wheels.



In this Long Enquiry, the children will be making mobile vehicles, using a variety of tools and materials.

The Powerful Knowledge we will take away from this Learning Enquiry (what will be learning):



- I can explore and use mechanisms [such as axles and wheels].
- I can explore a variety of ways to make vehicles move.
- I can describe in detail the way in which an axle and chassis help a vehicle move.



- I can use a range of different methods to attach an axle to a chassis. [card triangles, cable ties and clothes pegs.]
- I can deconstruct and reconstruct an axle and wheel and describe how it works.



- I can design and make a working model where the direction of movement can be controlled. [e.g., a chassis with a pivoting axle].
- I can evaluate my product against the design criteria, the products appearance, and functionality.

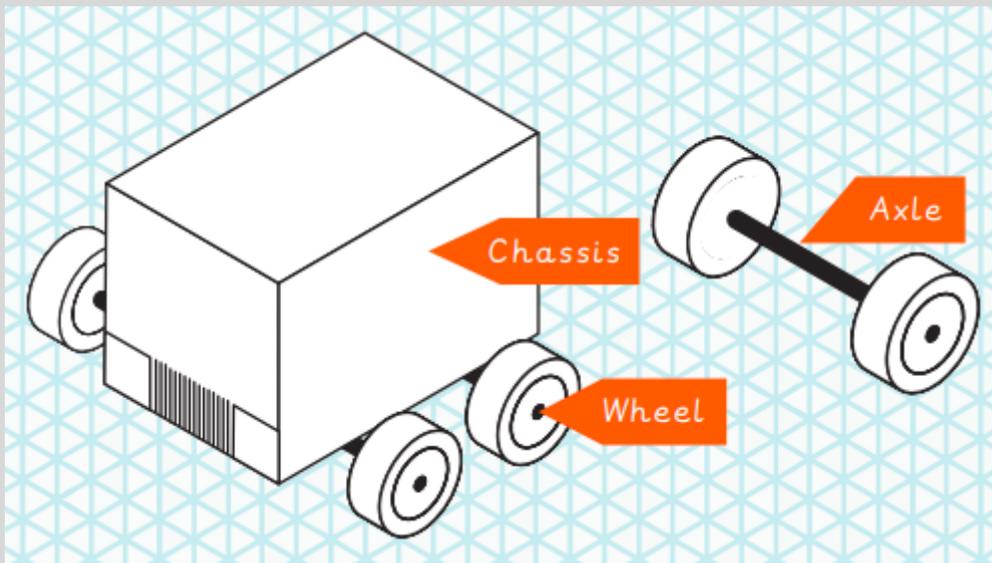
Our Key Vocabulary:

Word	Meaning
Design	Design is developing, planning and communicating your ideas about what you intend to make.
Make	To work with tools, equipment, materials, ingredients, and components to make quality products and dishes.
Evaluate	To reflect on ideas and products against the design criteria.
Design Criteria	The specific and concise requirements that a product must achieve to be successful. This is used to evaluate a product.
Mechanisms	The parts that make something work.
Axles	A rod or spindle that passes through the centre of a wheel or group of wheels.
Wheels	A circular object that revolves on an axle and is fixed below a vehicle to allow it to move.
Vehicle	A vehicle is a way of transporting or carrying people or goods
Mobile	Able to move freely or easily.
Pivot	To turn on a central point.
Chassis	The frame or base on which a vehicle is built.
Appearance	The product looks nice. It is attractive or interesting to look at.
Functionality	The product fulfils its practical purpose. It works.

### What I already know:

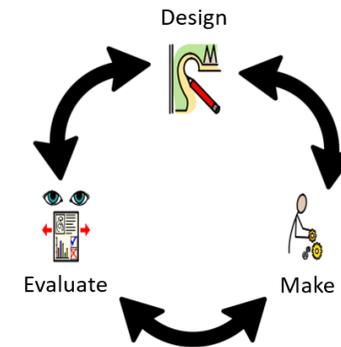
In Unit 3, the children would have learnt about the following bullet points. Have a discussion with your child about the following bullet points and what they could mean.

- I have learnt about different mechanisms, such as levers.
- I have deconstructed and reconstructed levers and described how they work.
- I have designed a purposeful, functional, and appealing product for myself, and other users based on my design criteria.
- I have measured, marked out, and cut paper, card, or other suitable materials to create levers. I have made labelled drawings of my design.
- I have started to evaluate my product both during the making process and after.
- I have evaluated their ideas and products against design criteria.



### The Continuous Cycle of Design, Make and Evaluate in Design and Technology:

The children will be learning about the Design, Make and Evaluate continuous cycle of Design and Technology. This cycle demonstrates that when we are designing or making a dish, we must constantly evaluate and adapt our design and dish to improve its success against the design criteria. Children will also evaluate their dish after they have made it; they will evaluate what challenges they faced, what they would improve next time and how they have met the design criteria. This encourages children to be reflective learners and critical thinkers.



### Key Parts of a Vehicle

The **wheels** need to be circular to balance the body of the **vehicle** so it can be **mobile**. The **wheels** need to be attached to an **axle**. The **axle** needs to fit inside the **axle holder** but must not be attached to the **axle** else the wheels will not be able to rotate. The **chassis** supports the weight of people or goods that are being transported or carried by the **vehicle**.