

Design and Technology Medium Term Plan

Year 2 Spring Term 2

How can you make a vehicle that moves on axles and wheels?

<u>Research</u> What is a vehicle and how it is made?	<u>Research</u> Explore chassis, axle and wheel	<u>Design</u> Design a vehicle which incorporates axles and wheels
	<u>Make it</u> Choose materials needed to make a stable vehicle	<u>Evaluate</u> Evaluate the vehicle against the original design and explain how it can be made more stable.

Substantive Knowledge

- Know that wheels help vehicles and objects move easily.
- Know that **axles** are rods that help wheels to **rotate**.
- Know how to use wheels and axles to create a stable moving vehicle.
- Know the difference between **fixed wheels** and **free wheels**
- Know that a **chassis** is the base frame of a vehicle.
- Know how to make my vehicle look attractive using **finishing techniques**.
- Know how my product has/ has not achieved its purpose.

Disciplinary Knowledge

Designing	Making	Evaluating
	<ul style="list-style-type: none"> • Choose tools and materials and explain why they have chosen them 	<ul style="list-style-type: none"> • Evaluate their work against their design criteria.

- Research independently and generate some ideas before thinking about resources.
- Order the main stages of making a product, continually referring to purpose and establish criteria for a successful product.
- Design a product and make sure that it meets the design criteria including looking attractive (if needed)
- When planning, explain their choices of materials and components, including function.

- Can identify and name a simple selection of hand tools (e.g. scissors).
- Build structures, exploring how they can be made stronger, stiffer and more stable.
- With help, measure, cut and score with some accuracy.
- Start to assemble, join and combine materials in order to make a product.
- Start to choose and use appropriate finishing techniques based on their own ideas

- Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.
- With confidence, talk about their ideas, saying what they like and dislike about their product.

Technical Knowledge

- Make a model stronger and more stable.
- Use wheels and axles, when appropriate to do so.

Need to know knowledge:

- That a moving vehicle needs a chassis
- That wheels make vehicles move
- That an axle holds wheels
- That axles rotate
- That a finishing technique improves the appearance of the vehicle

Vocabulary:

(including definitions)

Chassis

The chassis is the frame or base on which the vehicle is built

Fixed Axle

The axles will remain fixed to the chassis. The wheels move alone.

Free Axle

The axles move with the wheels. Loose-fitting axle holder, tightly fixed wheels

Wheel

Circular objects that roll on the ground, helping vehicles and other objects to easily move.

Mechanism

A system of parts working together in a machine.

Prior Knowledge:

Reception

Communication and Language - Speaking

- Offer explanations for why things may happen, making use of recently introduced vocabulary

Physical Development – Fine Motor Skills

- Use a range of tools, including scissors
- Begin to show accuracy and care when drawing

Expressive Arts and Design – Creating with Materials

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Share their creations, explaining the process they have used