

Year Group: 2	Unit: Mechanical Systems – Wheeled vehicles
<p>National Curriculum Aims The national curriculum for design and technology aims to ensure that all pupils:</p> <ul style="list-style-type: none"> ➤ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world ➤ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users ➤ critique, evaluate and test their ideas and products and the work of others 	<p>Technical knowledge</p> <ul style="list-style-type: none"> ➤ explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. <hr/> <p>Product Outcome Make a moveable vehicle</p>

Prior Learning: Early experiences of working with paper and card to make simple flaps and hinges. Experience of simple cutting, shaping and joining skills using scissors, glue, paper fasteners and masking tape.

Curriculum	Learning Intention/possible activities	Knowledge and Key Vocabulary
<p>Investigate and Evaluate</p> <ul style="list-style-type: none"> ➤ explore and evaluate a range of existing products 	<p>What is a vehicle? Examine pictures of vehicles and toy vehicles and discuss the names of different vehicles.</p> <p>What is this vehicle used for? Examine pictures of vehicles and toy vehicles and discuss the purposes of different vehicles.</p> <p>What features can you see on a vehicle? Label the parts of a vehicle.</p> <p>How does a car move? Examine, name and understand the terms axle, wheels and chassis. Know the difference between a fixed and free axle.</p>	<p>Knowledge:</p> <ul style="list-style-type: none"> – Know that a mechanism is a device used to create movement in a product. – A lever is a rigid bar which moves around a pivot. – Name at least 2 everyday products which use levers. – A slider is a rigid bar which moves backwards and forwards along a straight line. – A slider does not have a pivot point.
<p>Design</p> <ul style="list-style-type: none"> ➤ design purposeful, functional, appealing products for themselves and other users based on design criteria 	<p>What different materials do you think we could use for the axles and wheels? Show a range of materials and discuss suitable materials for wheels, chassis and axle.</p>	<p>Vocabulary: slider, lever, pivot, slot, bridge/guide card, masking tape, paper fastener, join pull, push, up, down, straight, curve, forwards, backwards design, make, evaluate, user, purpose, ideas, design criteria, product, function</p>

<ul style="list-style-type: none"> ➤ generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology 	<p>How can I create and decorate the body of a vehicle? Show a range of materials and discuss suitable materials for the body of a vehicle e.g cartons, cereal boxes. Discuss combining boxes.</p> <p>What kind of vehicle can I make and how? Design a vehicle using set criteria. The vehicle must have wheels that make the vehicle move, axles and a body.</p>	
<p>Make</p> <ul style="list-style-type: none"> ➤ select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] ➤ select from and use a wide range of materials and components, including construction materials, textiles according to their characteristics 	<p>Can I follow a design to make a working wheeled vehicle? Follow designs to create a wheeled vehicle.</p> <p>How can we make sure we are working safely and sensibly when we are making our vehicles? Use tools safely and understand why this is important.</p>	
<p>Evaluate</p> <ul style="list-style-type: none"> ➤ evaluate their ideas and products against design criteria 	<p>What was the most difficult part to make on the vehicle? Evaluate a finished product, discussing the things that went well and the things that could be improved.</p>	

Thinking Deeper: How are vehicles modified to ensure disabled access?

Links to other subjects:

- Subject Specific links- Geography – transport surveys
- Personal Development – Health and Safety rules, keeping safe when using a selection of materials
- SMSC – social – Ability to enquire and communicate ideas, designs and evaluations. Work independently and collaboratively to develop products
- Cultural Capital – identify transport use in the local area.
- Careers – what vehicles are used in careers? Ambulance, royal mail trains, planes and automobiles, delivery vans, busses
- British Values – Rule of Law - Health and safety laws. Laws of traffic on the roads.
- Equality – disabled access to vehicles and why this is important. What amendments need to be made to vehicles to ensure wheelchairs users can access vehicles?