

Y2 Wheeled Toy	
Links made with other subjects	<p>Science: uses of materials: Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Mathematics: measurement: movement and turns and geometry: position and direction</p> <p>History: The Great Fire of London.</p>
The BIG Question	How far will your toy go?
The BIG Outcome	To create a simple rolling toy for themselves or someone else.
DT objectives (link to NC)	<p>Design</p> <ul style="list-style-type: none"> • Design purposeful, functional, appealing products for themselves and other users based on design criteria • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology <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 and ingredients, according to their characteristics <p>Evaluate</p> <ul style="list-style-type: none"> • Explore and evaluate a range of existing products • Evaluate their ideas and products against design criteria <p>Technical knowledge</p> <ul style="list-style-type: none"> • Build structures, exploring how they can be made stronger, stiffer and more stable • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.
Prior knowledge What prior knowledge is needed for children to be successful in this unit?	<p>This unit builds on children's experiences of joining and combining materials and using moving joints</p> <ul style="list-style-type: none"> • Pupil will have learnt how to join and combine materials • Experience of discussing their ideas. • Pupils will have knowledge of how to make a prototype based on existing products
Future learning Consider the conceptual knowledge within a subject that pupils need for future learning not just the recall of facts but the importance of concepts	<p>This unit gives prior knowledge to:</p> <p>Y3 – Design and make a moving robot using pneumatics</p> <p>Y4 – Design and make a story book using a range of mechanisms</p> <p>Y5 – Design and make a moving vehicle using a battery</p> <p>Y6 – Design and make a fairground using electronic systems</p>
Resources	<ul style="list-style-type: none"> • toy vehicles, models, pictures of vehicles, video of vehicles moving • various types of wheels, including wooden and plastic wheels, cotton reels and card discs • collage materials • straws, doweling and plastic tubing, reclaimed boxes, card, clothes pegs, single-hole punch or card punch, thin corrugated plastic sheet

DT Scheme of Work

Vocabulary/ Glossary	<p><u>Designing</u>: purpose, ideas, discuss, explore, predict, guess, survey, table, venn diagram, most/least common</p> <p><u>Making</u>: joining, combining, connecting, testing, punching</p> <p><u>Knowledge and understanding</u>: vehicle, wheels, chassis, axles, doweling, hole punch, logo, distance</p> <p><u>Types of movement</u>: wheels, axles</p>
Knowledge	<p>The knowledge that children will learn and remember:</p> <ul style="list-style-type: none"> to know that vehicles have different purposes to know that vehicles are made up of different parts to know how to make simple drawings and label parts to know what wheels and axels are and how they are used (wheel is attached tightly to the axle and the axle is free to rotate, or – the axle is fixed with the wheel free to rotate around it) to know how to identify which mechanism is suitable for the intended purpose to know how to join wheels and axles effectively and explain how they work to know how to use materials, tools and equipment safely to know how to choose and use appropriate finishing techniques to know how to measure and cut accurately to know how to assemble, join and combine materials in order to make a vehicle to know how to construct a vehicle which functions to know how to identify aspects of their design that they could have improved upon demonstrate an understanding of the process of evaluation
SEND expectations	<p>Children will have created a vehicle which represents their original ideas with support.</p>
Questioning Questions you can pose to deepen, consolidate and challenge pupil's understanding	<ol style="list-style-type: none"> 1. <i>Who is your wheeled toy for? (audience)</i> 2. <i>What is the purpose of your wheeled toy? (persuade, inform, entertain)</i> 3. <i>Which subject does your wheeled toy link to (Fire Engine – Great Fire of London)? (theme/ topic area)</i> 4. <i>How will you decorate your wheeled toy (persuade/ inform/entertain) to appeal to your audience?</i> 5. <i>Which mechanisms (axel/wheels) will you use?</i> 6. <i>How will your wheeled toy move? Where will you add the moving mechanism?</i> 7. <i>Does your product do what you intended it to do? (fulfil its purpose)</i>
Suggested activities	<p>Provide opportunities for children to examine vehicles eg lorries, prams, cars, vans, ambulances, caravans, fire engines, tractors, buses, carnival floats.</p> <p>Discuss with the children the different features of the vehicles, eg Why do vehicles have wheels? Do they all have the same number and size of wheels? Why are vehicles different shapes? Which vehicles have parts that move, light up or make a noise?</p> <p>Ask the children to identify the different parts of vehicles – wheel, axle, chassis, body, cab.</p> <p>Children could make simple freehand drawings of vehicle and label parts appropriately.</p> <p>Ask the children to practise joining wheels and axles to allow movement.</p> <p>The children could try out different ways of making axle holders eg using clothes pegs, punched holes in card or boxes, using large drinking straws.</p>

DT Scheme of Work

The children could try out different finishing techniques eg collage, paint, cut-out shapes to stick on, computer-generated graphics or text to print out and stick on.

Using pictures from books or magazines ask children to describe a vehicle and the type of person who would drive it. Concentrate on the character of the person. They could then design a vehicle for a person they know.

Discuss what the vehicle is designed for eg to carry things such as an animal or postal deliveries. *Why is it needed to carry things? What other functions does it have?*

Encourage the children to consider type and size of vehicle, size and number of wheels, how it might be finished, what extras to add.

Ask the children to decide what their vehicle will include – set the design criteria and record them.

Encourage the children to collect everything they will need including tools and joining components. What will you need? What materials will work well for this? How much do you need? What else can you use?

Provide opportunities to create different labels or logos for the vehicle.

Discuss the order in which the children will do things.

Encourage the children to evaluate against their design criteria.