

DT

Mechanisms Year 2

National curriculum	Vocabulary
<p>Design To design purposeful, functional, appealing products for themselves and other users based on design criteria. To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> <p>Make To select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] . To select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p> <p>Evaluate To evaluate their ideas and products against design criteria To explore and evaluate a range of existing products Technical Knowledge To build structures, exploring how they can be made stronger, stiffer and more stable. To explore and use mechanisms (for example, levers, sliders, wheels and axles), in their product</p>	<p>cut model score criteria assemble improve join secure evaluate product wheel design axel movement mechanism</p>

Investigate Technical knowledge	Design	Make	Evaluate
------------------------------------	--------	------	----------

Year 2 – DT Skills

<p>-investigate wheels and axels</p>	<p>-Identify simple design criteria -Make simple drawings and label parts -model ideas</p>	<p>-Begin to select tools and materials; use vocab' to name and describe them -Measure, cut and score with some accuracy -Use hand tools safely and appropriately -Assemble, join and combine materials in order to make a product -Use finishing techniques, including those from art and design</p>	<p>-Evaluate against their design criteria</p>
--------------------------------------	--	---	--

			<p>What did I do well? How could I make an improvement? Does my mechanism work?</p>
---	---	--	---

Learning Objective	Lesson outline
<p>Lesson 1: Investigate</p> <p>LO: To know which products use wheels and axels</p> <p>DT Skills: investigate wheels and axels</p> <p>Identify simple design criteria</p>	<p>Recap mechanisms from Y1 (sliders and levers). How else can parts move? Show pupils toy car. How does this product move? Teach pupils how wheels and axels work.</p> <p>ARE - Explore a range of existing products using wheels and axels. Demonstrate understanding of how they work by modelling and discussing this within small groups.</p> <p>WTS – adult demonstration to support understanding.</p>

	<p>GDS – Use technical vocabulary in the correct context.</p> <p>Generate design criterion as a class. This should include; moving wheels by use of an axel, secure wheels and appealing.</p>
<p>Lesson 2: Practical Skills</p> <p>LO: To know how wheels and axels work together</p> <p>DT Skills: The correct technical vocabulary for the projects they are undertaking</p> <p>-investigate wheels and axels</p>	<p>Recap what the purpose of an axel is. How does it help wheels move? Recap design criteria. Discuss different materials used for axels and recap how the heavier the vehicle is, the stronger the axel must be. Discuss how long or short the axels need to be and how the incorrect size could impact the purpose of the axel.</p> <p>ARE/GDS - Children to experiment with a range of materials to discover which makes the best axel for their moving vehicle. (straws, pipe cleaners and wooden dowel).</p> <p>GDS – Experiment different ways of securing the wheels to the axels.</p> <p>WTS – Adult support when needed.</p>
<p>Lesson 3: Design</p> <p>LO: To design a moving vehicle</p> <p>DT Skills: -Make simple drawings and label parts</p> <p>-model ideas</p>	<p>Recap design criteria and explain how wheels and axels work. Explain to pupils that they will design and make a moving vehicle. Show pupils and image of various examples. What materials have been used? Highlight the use of wheels and axels to make it move.</p> <p>ARE - Design a moving vehicle. Make a list of materials and tools needed. Use technical vocabulary to label designs.</p> <p>Children could model their ideas using construction toys or art straws and card to demonstrate wheels and axels mechanism. Teachers to model this beforehand.</p> <p>WTS – Word bank provided for key vocabulary.</p> <p>GDS – Use technical vocabulary accurately when discussing their designs. Explain clearly the method and materials they will use, giving reasons for these choices.</p>
<p>Lesson 4: Make</p> <p>LO: To make a moving vehicle</p> <p>DT Skills: Begin to select tools and materials; use vocab' to name and describe them</p> <p>-Measure, cut and score with some accuracy</p> <p>-Use hand tools safely and appropriately</p> <p>-Assemble, join and combine materials in order to make a product</p>	<p>Explain to pupils which materials they will be given to make their vehicles (cardboard, wheels, dowel, elastic bands, blue tac, tape etc). Recap key aspects of their designs and what the design criteria is.</p> <p>ARE - Using a range of tools and materials, make a moving vehicle with working wheels and axels. Pupils will also need to use art and design techniques to make their product look appealing.</p> <p>WTS – Adult support provided when required.</p> <p>GDS – Evaluate product continuously throughout the making process and adapt/improve product accordingly.</p>
<p>Lesson 5: Make</p> <p>LO: To make and embellish a moving vehicle</p>	<p>Evaluate their product so far. What went well last lesson? What are they happy with? How could it be improved/altered this lesson? How could they make their product look more</p>

<p>DT Skills: Assemble, join and combine materials in order to make a product</p> <p>-Use finishing techniques, including those from art and design</p>	<p>appealing? Discuss options (e.g. add paint, change the shape of the vehicle etc)</p> <p>ARE - Using a range of tools and materials, make a moving vehicle with working wheels and axels. Pupils will then use art and design techniques to make their product look appealing.</p> <p>WTS – Adult support provided when required.</p> <p>GDS – Evaluate product continuously throughout the making process and adapt/improve product accordingly.</p>	
<p>Lesson 6: Evaluate</p> <p>LO: To evaluate against a design criteria</p> <p>DT Skills: Evaluate against their design criteria</p>	<p>Discuss and evaluate their moving vehicle against the criterion to determine what was successful, what could be changed and why. Practical testing of vehicles to check moving parts. Do the wheels and axels work correctly? How easily does it move? Are the wheels secure? Does it look appealing? How could it be improved?</p> <p>WTS – number scale for ratings and multiple-choice answers for evaluation.</p> <p>GDS – In depth consideration of what worked well and why, as well as what they would change, how and why. Providing valid and genuine reasons based on their final product.</p>	
<p>Working towards</p>	<p>End of unit assessment Working at Age related expectations</p>	<p>Working at a greater depth</p>