



# LESSON PLAN

Date:	Subject:		Topic: BSKC		PoS Ref: Mechanisms	Teacher:									
Sequence of session in scheme of work:	Focus of the session: Knowledge and understanding of most popular vehicle steering mechanisms														
Expectations (Learning Outcomes):  <table border="1"> <thead> <tr> <th>Group Level</th> <th>Expectations</th> <th>AT/Minimum</th> </tr> </thead> <tbody> <tr> <td>All</td> <td>           Know the major types of steering system used in vehicles            Know the name and function of the major parts            Understand how the mechanism connects driver movement to wheel rotation         </td> <td>           5 5 5         </td> </tr> <tr> <td>Most</td> <td>           Can compare and contrast the mechanisms and operation of the three different types of steering mechanism            Explain how the mechanism design controls the "speed" of steering, the level of force required to change direction and the ability of the         </td> <td>           6 6 6         </td> </tr> </tbody> </table>				Group Level	Expectations	AT/Minimum	All	Know the major types of steering system used in vehicles Know the name and function of the major parts Understand how the mechanism connects driver movement to wheel rotation	5 5 5	Most	Can compare and contrast the mechanisms and operation of the three different types of steering mechanism Explain how the mechanism design controls the "speed" of steering, the level of force required to change direction and the ability of the	6 6 6	Equipment/resources needed:  Starter sheets Standard Steering rack (rack and pinion) Pedal Car (direct) Computer and projector with access to internet to demonstrate the worm and screw mechanism used on the Morgan 4/4 Analysis and Comparison sheets Steering specification sheet		
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<b>Skills to be developed:</b> Design analysis, effectiveness evaluation				<b>Assessment:</b> Knowledge and understanding of steering mechanisms, ability to apply knowledge and understanding to suggest modifications/ improvements assessed through worksheet											
<b>Differentiation:</b> By objective; worksheet				<b>Cross Curriculum Development (Literacy, Numeracy, Citizenship):</b> Science – theory of levers											

Lesson	Teaching and learning activity	Learning Outcomes	Individual/ SEN
<p><b>Starter</b></p> <p><b>Core</b></p>	<p>Which vehicle is the easiest for the driver to steer?  Starter sheet with pictures of 8 vehicles ranging from child's pedal tricycle to chieftain tank.  Students to list the vehicles in order of ease of steering and write an explanation of why they think that</p> <p>Collate priority lists on the board – ask each contributor to explain their reasoning  Bring out student criteria for judgement in terms of physical load, mechanism, speed of steering and method of effort input</p> <p>Introduce objectives – explain that the kart needs a steering mechanism that provides maximum turn with minimum movement and must require low effort input from the driver.  Give out worksheets and explain that students will fill them in for each of three mechanisms in use on vehicles  Explain the sections – Input effort, Speed of steering, methods of adjusting speed, method of adjusting effort of input.</p> <p>Go through each of the three mechanisms in turn, explaining the mechanism.  Discuss the mechanism for each – How does the effort get transferred to the wheels? How far does the steering control have to turn in order to turn the wheel fully? How could this be adjusted to speed up the steering/ lower the effort?</p> <p>For each mechanism, students work in pairs to discuss what they should complete the worksheet with.</p> <p>When students have completed the sheets – collate on the board and ask students to suggest a system that would be best for the kart. Ask,</p>	<p>Understanding that steering design requires consideration of the purpose for the vehicle, the mass and who will be driving it.</p> <p>Understanding of each type of steering mechanism, the structure and how the mechanism works , how it is adjusted and the speed of steering produced</p> <p>Personal understanding of the advantages and disadvantages of each system and how they are designed for a specific purpose and use range.</p>	<p>Starter sheet with priority table and explanation sections</p> <p>Mechanism sheets with writing table laid out</p>