

Caroline Haslett Primary School - DT		
Topic: Construction and materials	Year 5 - Autumn term	Moonbuggy

Knowledge	Vocabulary
<ul style="list-style-type: none"> The Lunar Rover Vehicle (LVR) was a battery powered four wheeled rover used on the moon during the last three missions of the American Apollo programme (15,16 and 17). It could carry one or two astronauts with their equipment and samples. A circuit is a complete path around which electricity can flow. It must include a source of electricity such as a battery. The wheel and axle rotate together to allow the transfer of force to move a load. A chassis is the base of a car, carriage, or other wheeled vehicle. 	<ul style="list-style-type: none"> Axle - a rod which passes through the centre of a wheel (fixed or rotating) Chassis - a load bearing frame Dowel - a cylindrical rod Mechanism - a system that transforms input forces and movement into a desired output forces/movement. Motor - a machine that gives power for another device with moving parts. Component - a part of a machine or vehicle. Prototype - a model that designers generate ideas from. Annotated diagram - a descriptive diagram which highlights specific features.
Design, make, evaluate.	
<ol style="list-style-type: none"> Respond to the question 'what is a Lunar Rover'? Draw annotated diagrams. Build a prototype using identified features and create an annotated diagram. Design - following own criteria e.g. must seat two astronauts, carry three moon rocks and travel in a straight line. Make - applying skills. Does your Lunar Rover incorporate all features? Is it a moving vehicle using an electrical circuit? 	
Skills <ul style="list-style-type: none"> Cut materials with precision. Finish with appropriate tools, such as sandpaper. Create a circuit that employs a number of components including a motor. 	

Skills	
Design	<p>Begin to consider the needs/wants of individuals/groups when designing, and ensure the product is fit for purpose.</p> <p>Create their own design criteria.</p> <p>Have a range of ideas.</p> <p>Produce a logical, realistic plan and explain it to others.</p> <p>Use cross-sectional planning and annotated sketches.</p> <p>Make design decisions considering time and resources.</p> <p>Clearly explain how parts of the product will work.</p> <p>Model and refine design ideas by making prototypes.</p>
Make	<p>Use selected tools/equipment with a good level of precision.</p> <p>Produce suitable lists of tools, equipment/materials needed.</p> <p>Select appropriate materials, fit for purpose; explain choices, considering functionality.</p> <p>Create and follow a detailed step-by-step plan.</p> <p>Explain how the product will appeal to an audience.</p> <p>Mainly accurately measure, mark out, cut and shape materials/components.</p> <p>Mainly accurately assemble, join and combine materials/components.</p> <p>Mainly accurately apply a range of finishing techniques.</p> <p>Use techniques that involve a small number of steps.</p> <p>Begin to be resourceful with practical problems.</p>
Evaluate	<p>Evaluate quality of design while designing and making.</p> <p>Evaluate ideas and finished product against specification, considering purpose and appearance.</p> <p>Test and evaluate the final product.</p> <p>Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose.</p> <p>Talk about some key inventors/designers/engineers/ manufacturers of ground-breaking products.</p>
Mechanisms	<p>Refine product after testing.</p> <p>Grow in confidence about trying new/different ideas.</p> <p>Use cams to create movement.</p>
Construction and material	<p>Select materials carefully, considering intended use of the product, the aesthetics and functionality.</p> <p>Explain how the product meets design criteria.</p> <p>Measure accurately enough to ensure precision.</p> <p>Ensure the product is strong and fit for purpose.</p> <p>Begin to reinforce and strengthen a 3D frame.</p> <p>Finish with appropriate tools, such as sandpaper.</p> <p>Cut materials with precision.</p> <p>Create a circuit that has a number of components, including a motor.</p>

