



Jerry Clay Academy Subject Knowledge Organiser

Subject: D&T Year Group: 5 Term: Summer

Core Learning of This Unit:

The children will create a **moving structure (potentially battery powered or linked to forces in Science) e.g. a moon buggy** as part of their **Life Through A Lens** theme.

As part of this project, pupils should generate ideas through brainstorming and identify a purpose for their product; Draw up a specification for their design; develop a clear idea of what has to be done, planning how to use materials, equipment and processes; use results of investigations, information sources, including ICT when developing design ideas; select appropriate materials, tools and techniques; measure and mark out accurately; use skills in using different tools and equipment safely and accurately; cut and join with accuracy to ensure a good-quality finish to the product ; evaluate a product against the original design specification; evaluate it personally and seek evaluation from others.

Prior Learning:

- Select appropriate tools and techniques for making their product
- Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques
- Join and combine materials and components accurately in temporary and permanent ways
 - Use simple graphical communication techniques
- Evaluate their work both during and at the end of the assignment
 - Evaluate their products carrying out appropriate tests

National Curriculum Statements:

- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design
- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
 - select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- apply their understanding of how to strengthen, stiffen and reinforce more complex structures

Key Vocabulary:

Compass
Protractor
Ergonomics
Investigation
Model
Modify
Product analysis
Risk assessment
Specification
Acrylic
Perspex
Polystyrene
Pulley
Gear
Lever
Pivot
Tension
Spring
Layering
Mechanism

Significant People

Nicolas-Joseph Cugnot is widely credited with building the first full-scale, self-propelled mechanical **vehicle** or **car** in about 1769; he created a steam-powered tricycle. He also constructed two steam tractors for the French Army, one of which is preserved in the French National Conservatory of Arts and Crafts.

The **Lunar Roving Vehicle (LRV)** is a battery-powered four-wheeled rover used on the Moon in the last three missions of the American Apollo program (15, 16, and 17) during 1971 and 1972. They are popularly known as "**Moon buggies**", a play on the words "dune buggy".