



Jerry Clay Academy
Subject Knowledge Organiser

Subject: D&T Year Group: 4 Term: Autumn

Core Learning of This Unit:

The children will create a **pneumatics project** as part of their **Who was the greatest hero? theme**. As part of this, pupils should be able to 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. Becoming more critical with analysis, children will be able to evaluate their work both during and at the end of the assignment (with their target audience) and evaluate their products by carrying out appropriate tests both during and at the end of the assignment.

Prior Learning:

- Select tools and techniques for making their product
- Measure, mark out, cut, score and assemble components with more accuracy
- Work safely and accurately with a range of simple tools
- Think about their ideas as they make progress and be willing change things if this helps them improve their work
- Use finishing techniques strengthen and improve the appearance of their product using a range of equipment

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
- understand and use mechanical systems in their products [for example, gears, pulleys, linkages]

Key Vocabulary:

Pneumatics (pneuma – Greek word meaning breath of life)

Chart/graphs

Bar chart (to show findings)

Components

Cross-section

Enlarged view

Information source

Motion

Net

Process /procedure

Pliers

Significant People

- The origins of **pneumatics** can be traced back to the first century when ancient Greek mathematician Hero of Alexandria wrote about his inventions powered by steam or the wind.
- German physicist Otto von Guericke (1602 to 1686) went a little further, inventing the vacuum pump.