Year Group: 3	**Term:** Spring	**Topic:** Mechanisms
NC Links		
To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. To generate, develop, model and communicate their ideas. To understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].		
Other Curriculum Links		
Science; Computing		
Links to Caedmon Curriculum Drivers		
Aspirations and Careers -embracing challenges that help us to grow -understanding that resourcefulness can help us to be the best version of ourselves -understanding how our learning links to the wider world -having an awareness of the local labour market		
Links to Rights Respecting		
Article 28 – Every child has the right to an education. Primary education must be free and different forms of secondary education must be available to every child. Discipline in schools must respect children's dignity and their rights.		
Links to North East Ambition		
Link a lesson to the career of a Mechanical Engineer. What does the job entail? What skills are needed in the job? What mechanical equipment, products and systems would you work with? Gatsby Benchmark 4 - Linking curriculum learning to careers		
Topic Overview		
By the end of this topic, children will draw diagrams with correct labels, arrows and explanations. Identify the definitions of key terms. They will use a design criteria as a starting point and communicate their ideas in various ways. Children will select appropriate equipment and materials then assembly their pneumatic system within the housing to create the desired motion.		
Possible Visits/Visitors		

Visit from a people who works in the field e.g. mechanical engineer
Essential Subject Skills to be covered
Design a toy that uses a pneumatic system. Develop design criteria from a design brief. Generate ideas using thumbnail sketches and exploded diagrams. Learn that different types of drawings are used in design to explain ideas clearly. Create a pneumatic system to create a desired motion. Build secure housing for a pneumatic system. Use syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy. Select materials due to their functional and aesthetic characteristics. Manipulate materials to create different effects by cutting, creasing, folding and weaving. Use the views of others to improve designs. Test and modifying the outcome, suggesting improvements. Understand the purpose of exploded-diagrams through the eyes of a designer and their client.
Overall Learning Outcomes
By the end of this unit, children will have approached a design brief and developed an idea for a product based on this. They will have explored various materials and discussed the properties of them. They will discuss their ideas through talk and writing. They will develop a range of techniques then make their product safely. They will evaluate their product and discuss strengths and weaknesses of their work.
Learning Intentions (for use in self-assessment at end of topic)
• To understand how pneumatic systems work • To design a toy that uses a pneumatic system • To create a pneumatic system • To test and finalise ideas against design criteria

Year Group: 3	**Term:** Autumn	**Topic:** Mechanisms
Sequence of lessons		

• Children to begin by learning what a pneumatic system is and how it works; use practical ways to demonstrate this (e.g. balloons, sandwich bags etc). • Children use their understanding of pneumatics to design their own pneumatic toys through thumbnail sketches and exploded diagrams • Children create a working pneumatic system and casing for their toys • Pupils add decorations and assemble the final components to complete their pneumatic toys • Children evaluate their product
Suggested Strategies for Recording Learning
• Design and sketch ideas • Write comments/teacher to write verbal feedback. • Annotate ideas • Photograph work • Make and test different mechanisms and discuss findings