

Year Group: 5	Term: Autumn	Topic: Mechanical Systems
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 through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. 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		
<ul style="list-style-type: none"> -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 an Aerospace Engineer. What does the job entail? What skills are needed in the job? Why do people need aerospace engineers? What day to day tasks would you undertake in this job? Gatsby Benchmark 4 - Linking curriculum learning to careers		
Topic Overview		
By the end of this unit, children will produce a suitable plan and structure for each page of their book. Children will assemble the components necessary for all their structures/mechanisms. Children will use a range of mechanisms and structures to illustrate their story, make it interactive for the users and use appropriate materials and captions to illustrate the story.		

Possible Visits/Visitors

Visit to library/EYFS classroom to explore pop up books. Visit from an author.

Essential Subject Skills to be covered

- Design a pop-up book which uses a mixture of structures and mechanisms.
- Name each mechanism, input and output accurately.
- Follow a design brief to make a pop-up book, neatly and with focus on accuracy.
- Make mechanisms and/or structures using sliders, pivots and folds to produce movement.
- Use layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.
- Evaluate the work of others and receiving feedback on own work.
- Suggest points for improvement.

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 developed analytical and evaluative skills by looking at other products and using their skills to inform their work. They will have explored various materials and mechanisms 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. They will adapt and refine their work throughout the design and making process.

Learning Intentions (for use in self assessment at end of topic)

- To design a pop-up book
- To follow my design brief to make my pop up book
- To use layers and spacers to cover the working of mechanisms
- To create a high-quality product suitable for a target user

Sequence of lessons

- After choosing an appropriate story to base their pop-up book on, children draw out the pages, write the captions and specify the mechanisms they will use and the resulting movement they envisage
- Children create the structure of their books, including the pop-up features, and begin to make their mechanisms

- Children secure their mechanisms onto the pages and give their books a professional finish, using layers and spacers to hide the mechanisms
- Children add the finishing touches to their books, adding illustrations, colour and writing captions

Suggested Strategies for Recording Learning

- Design and sketch ideas
- Market research into target audience
- Write comments/teacher to write verbal feedback.
- Annotate ideas
- Photograph work