



## Medium Term Planning

### Subject: Design and Technology



<b>Term and Year:</b>	Autumn Term 2 - 2021 – Year 5 and 6
<b>Teacher:</b>	Mr. Churchill and Mrs. Appleby
<b>Subject:</b>	Design and Technology
<b>Key Themes:</b>	Mechanical Systems - Pop-Up Book
<b>Memorable Experience:</b>	
<b>Vocabulary that will be taught:</b>	aesthetic design brief function input mechanism motion output linkage pivots sliders

#### **National Curriculum Objectives:**

##### **Key Stage Two:**

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts.

When designing and making, pupils should be taught to:

##### **Design**

- 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
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

##### **Make**

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

##### **Evaluate**

- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

##### **Technical knowledge**

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

**Design & Technology skills that will be taught and assessed:**

**Design:**

- Planning using storyboards and designs, communicating through annotated illustrations, identifying where and how the mechanisms will operate as part of the design

**Make:**

- Making functional components, using layers and spacers to construct pages, cutting and assembling with accuracy

**Evaluate:**

- Revisiting and reflecting on progress at numerous points throughout the project

**Technical Knowledge:**

- Consolidating knowledge on sliders, levers and linkages, identifying inputs and outputs, utilising methods of paper modelling and folding to improve resilience during use

<b>Focus of each lesson 'Can I...' Statement(s)</b>		<b>Activities/Key points</b>
Lesson 1	<p><b><u>Learning Objective:</u></b> Can I design a pop-up book?</p> <p><b><u>Success Criteria:</u></b></p> <ul style="list-style-type: none"> <li>• I can design a book made up of a front cover and four pages and include a mixture of structures and mechanisms within it.</li> </ul>	<p>The children decide on a short story for the subject of their books based on well-known characters; a story from their imagination or a section from a book they have read. The children divide their chosen story into four key scenes, writing a story 'caption' for each page. These captions must then be demonstrated in some way (eg. Jack and Jill are walking up the hill (turn the lever clockwise to walk them up – the lever will swing on a pivot). Each child should produce a suitable plan for each page, naming each type of mechanism, input and output accurately.</p> <p>Children to then peer assess the work of a partner – commenting on things that work well and ideas for improvements.</p>
Lesson 2	<p><b><u>Learning Objective:</u></b> Can I follow my design brief to make my pop-up book?</p> <p><b><u>Success Criteria:</u></b></p> <ul style="list-style-type: none"> <li>• I can use paper, card and glue to make my book structure.</li> <li>• I can make mechanisms and/or structures as detailed in my design template by using sliders, pivots and folds to produce movement.</li> </ul>	<p>The children begin making their books based on the design template they completed in their previous lesson.</p> <p>Pupils will make the structure of their books then, referring to their design sheets, pupils will begin to create the mechanisms and/or structures they want on each page - labelling lightly in pencil where they want them to go on each page.</p>

Lesson 3	<p><b><u>Learning Objective:</u></b> Can I use layers and spacers to cover the working of mechanisms?</p> <p><b><u>Success Criteria:</u></b></p> <ul style="list-style-type: none"> <li>• I can complete the mechanisms and structures as detailed in my design template</li> <li>• I can make my book look neater and more attractive by using layers using spacers to hide relevant parts of my mechanisms</li> </ul>	<p>Children will continue to create their pop-up books; assembling the components necessary for all their structures/mechanisms and hiding the relevant parts of the mechanisms with more layers using spacers where needed.</p>
Lesson 4	<p><b><u>Learning Objective:</u></b> Can I create a high-quality product suitable for a target user?</p> <p><b><u>Success Criteria:</u></b></p> <ul style="list-style-type: none"> <li>• I can complete the surface decoration of my pop-up book by adding pictures and captions</li> <li>• I can consider the preferences and needs of the user</li> <li>• I can create a book that is neat, accurate and securely assembled</li> </ul>	<p>Children complete the surface decoration of their books, considering a range of materials and colour combinations suitable for the story and user. They should check that the captions fit in well with the scene they are creating.</p> <p>In their final product, the children should have used a range of mechanisms and structures to illustrate their story and make it interactive for the users whilst using layers to hide mechanical elements and illustrating the story through the use of appropriate materials and captions.</p> <p>In small groups, the children will showcase their creations as a 'book review', explaining what they have designed and how they have made each mechanism and structure.</p>