

Design & Technology Unit Plan Year 3- Summer 1 Mechanisms (Mechanical Poster)

Year 3 Spr 2	Concept	Subject Skill (Learning Objective)	Subject Knowledge	Pedagogical Content (how you will teach)
Day 1	Investigate	<p>I am learning to use research and exploration to identify and understand user needs</p> <p>I am learning to build structures, using an increasing range of methods to make them stronger, stiffer and more stable.</p> <p>I am learning to make a product using levers, linkages and pivot points, developing my understanding of mechanical systems.</p>	<p>I can explore a range of different mechanical systems in order to refine a design brief</p> <p>I can identify mechanical systems, naming the different parts and how this creates different movements</p>	<p>What is a mechanical poster? What are levers and linkages?</p> <p>Introduce the design brief, explaining that you have received a letter from the Nottingham Caves, asking for our help. They want to advertise the caves to encourage more children like Hogarth to visit. They think their posters that they currently use aren't exciting enough. They want us to create posters, which are interactive. <i>What does interactive mean?</i> Talk through with the children what this means. Talk through with the class that we need parts of the poster that can be moved by the children. If we need something to move, we need to use mechanisms. Introduce design brief- to create an advertising poster with a mechanical system.</p> <p>Use the PPT to introduce mechanical systems. The PPT will show the different types of movements that can be made, as well as introducing to the children levers and linkages. Have the teacher example made (use document to support). Show to the children and ask them to think about how it moves, where the levers and linkages are etc.</p> <p>Explain to the children that they will explore how levers and linkages can create moving elements for their posters.</p> <p>As a carousel, have on each table one of the making levers and linkages activity sheets. Children to make the mechanical system following the instructions on the sheet and then evaluate it on the mechanism exploration sheets. Children to then swap tables and repeat (have the children rotate at least 3 times so that they have a go at, and evaluate at least 3 different mechanical systems).</p> <p><i>Plenary- which mechanical systems worked well? How did they move? How were levers and linkages used? What type of movement did the mechanical system create</i></p> <p>Conclude the lesson by refining the design brief to include further specifications based on their exploration findings, e.g. should include a mechanical system using both levers and linkages. There should be at least two different moving elements where the mechanical system creates a different type of movement, must be appealing and informative</p>
Day 2	Design Investigate	<p>I am learning to generate ideas for an item, considering its purpose, taking into account the design criteria</p> <p>I am learning to use annotated sketches and cross sectional drawings to communicate my ideas</p>	<p>I can design a mechanical poster to advertise Nottingham City caves</p>	<p>Can you design a mechanical poster?</p> <p>Revisit the design brief. Explain that we know we need to have mechanical systems (levers and linkages) to create at least two different moving elements (refer to class's refined design brief if this is different). <i>As well as this, what does a poster need to do?</i> Talk about what advertising posters need to do, how they will catch the attention of the reader etc.</p> <p>Model designing an advertising poster modelling your thought process to ensure that you meet the design brief but also create an appealing advertising poster.</p> <p>Children to design their own advertising poster, labelling the moving elements. Then, children to draw the mechanical system for each of their moving elements, labelling the levers and linkages etc.</p> <p><i>Plenary- share your design. What movement will you create and how? What mechanical system will you use?</i></p>
Day 3	Make	<p>I am learning to make a product using levers, linkages and pivot points, developing my understanding of mechanical systems.</p>	<p>I can make mechanical systems (including levers and linkages) to create an advertising poster with moving elements</p>	<p>Can you make a mechanical poster?</p> <p>Children to make their mechanical posters using mechanical systems (levers and linkages)</p> <p><i>Plenary- How does your poster move? How well do your mechanical systems work? What challenges did you face? How did you overcome these?</i></p>

Day 4	Evaluate	I am learning to test and evaluate my own product against the original design criteria, suggesting ways to improve it	I can test and evaluate my own product	<p>How well did you meet the design brief?</p> <p>Recap design brief. For each statement, ask the children to test their poster to see if it meets these criteria. Children to discuss with their partner each statement to support their evaluation with it.</p> <p>Children to evaluate own work using the evaluation sheet.</p> <p>Plenary- <i>how could you develop it further?</i></p>

Resources

Design brief document, existing product evaluation, activity sheets, card, split pins, masking tape, evaluation of own work sheet,

Vocabulary

Design, criteria, design brief, sketch, mechanism, lever, linkages, mechanical system, movement, oscillating, rotatory, reciprocating, linear, strength, glue, assemble, appearance, evaluate, describe, likes, dislikes, improvements