



Mechanisms: Sliders and Levers

Prior Knowledge

Year 3 Children's Prior Knowledge

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<ul style="list-style-type: none"> To be able to use scissors to cut and shape paper and card To be able to create flaps using paper and card To be able to join two pieces of paper using a split pin 	<ul style="list-style-type: none"> To know that a slider moves from side to side or up and down Know that a lever moves in a curve or circle

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	Learning Objective	Activity	Key Knowledge (By the end of the lesson)		Vocabulary (Tier 3)
			Substantive (Knowledge)	Disciplinary (Skill)	
Lesson 1	L.O. 5 To be able to investigate a range of existing products. Evaluate existing products.	Children to investigate, analyse and evaluate books and, where available, other products which have a range of lever and linkage mechanisms. Explore different types of levers (e.g. fixed pivot and loose pivot) and linkages (e.g.	<ul style="list-style-type: none"> Know that a mechanism is a device used to create movement in a product. 	<ul style="list-style-type: none"> Investigate levers and linkages in existing products. 	Existing Products Lever Linkage Mechanism User Purpose

		<p>reverse motion linkage, push pull linkage, parallel motion) using prepared teaching aids and label these in books.</p> <p>Questions to develop children's understanding: Who might it be for? What is its purpose? What do you think will move? How will you make it move? What part moved and how did it move? How do you think the mechanism works? What materials have been used? How effective do you think it is and why? What else could move?</p>			
Lesson 2	<p>L.O. 3 To be able to select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], with developing accuracy</p> <p>Practise making levers and linkages</p>	<p>Show the children different types of linkages and how they work. Children to make different linkages. Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques.</p> <p>-Practise making different types of levers (e.g. fixed pivot and loose pivot) and linkages (e.g. reverse motion linkage, push pull linkage, parallel motion) using prepared teaching aids to support.</p> <p>LA - Practice making side to side linkage. All - Focus on making Reverse Levers. HA - Attempt alternative lever with the aid of a help sheet.</p>	<ul style="list-style-type: none"> ● Know that a loose pivot uses a paper fastener to join card strips together. ● Know that a fixed pivot uses a paper fastener to join card strips to the backing card. 	<ul style="list-style-type: none"> ● To use paper fasteners to make a linkage. 	<p>Lever Linkage Fixed Pivot Loose Pivot Cut Measure Assemble</p>

		Stick pictures of their attempts in their book.			
Lesson 3	<p>L.O. 1 To be able to use research and develop design criteria to begin to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</p> <p>L.O. 2 To be able to generate, develop, model and communicate their ideas through discussion, annotated sketches</p> <p>Design an information page about The Stone Age incorporating a lever or linkage.</p>	<p>Discuss and formulate design criteria (must include sideways linkage from KS1 and reverse linkage from KS2) for their non fiction (short) information book about either bronze, iron or stone age.</p> <p>Create a design for their own product. Use annotated sketches to record their design. Include colours of card, levers and linkages to be used in their final product.</p>	<ul style="list-style-type: none"> To know that a product show be made to the design criteria to be successful 	<ul style="list-style-type: none"> Develop and follow simple design criteria. Design innovative, functional and appealing products that are fit for purpose and aimed at a target market. Use annotated sketches to develop and communicate their ideas. Generate a range of design ideas and clearly communicate final designs. 	<p>Sideways linkage Reverse linkage Non fiction information book Design Criteria Annotated Sketches</p>
Lesson 4	<p>L.O. 3 To be able to select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], with developing accuracy.</p> <p>Make a lever or linkages</p>	<p>Begin to make the lever and linkages with chosen card for their final product by selecting and cutting their chosen materials ready.</p>	<ul style="list-style-type: none"> Know how to made make a linkage 	<ul style="list-style-type: none"> Select and use the necessary tools and equipment to create a linkage,safely with some accuracy 	<p>Equipment Marking out Cut Shape Materials Lever Linkage</p>
Lesson 5	<p>L.O. 4 To be able to select from and use a wider range of materials and components, including construction materials, textiles and ingredients to begin to consider their functional properties and aesthetic qualities.</p>	<p>Continue making their design with their chosen card and assembling, joining and combining materials to make their chosen types of lever/linkage.</p>	<ul style="list-style-type: none"> Know that careful selection of colour can enhance a product 	<ul style="list-style-type: none"> Select and use different and appropriate finishing techniques to improve the appearance of a product 	<p>Finishing techniques Constructions Materials Lever Linkage Aesthetic Qualities Assemble Join Combine</p>

	Make information page about the Stone Age using the linkage or lever previously made				
Lesson 6	<p>L.O. 6 To be able to evaluate their ideas and products against their own design criteria and begin to consider the views of others to improve their work.</p> <p>Evaluate the product against the design criteria</p>	To evaluate their lever and linkage story book using the design criteria developed in Lesson 3.	<ul style="list-style-type: none"> • Know that evaluating a product against the design criteria can 	<ul style="list-style-type: none"> • Use an evaluation web to see if the product meets the design specification 	Evaluate Design Criteria Assess User