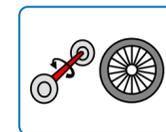


Year 1: Autumn Mechanisms: Making a Moving Storybook



Enquiry Question	How can we make a model move using levers and sliders?				
	Required Prior Knowledge		Knowledge to be taught		
Substantive Knowledge	<ul style="list-style-type: none"> The names and properties of construction materials like cardboard, bottle tops, tubes and straws. (Reception Autumn 1) Wheels helps a vehicle move smoothly (Reception Summer 2) 		<ul style="list-style-type: none"> A mechanism is the parts of an object that move together. A slider mechanism moves an object from side to side. A slider mechanism has a slider, slots, guides and an object. Bridges and guides are bits of card that purposefully restrict the movement of the slider. In Design and technology we call a plan a 'design'. 		
Disciplinary Knowledge					
Design	<ul style="list-style-type: none"> Explain how to adapt mechanisms, using bridges or guides to control the movement. Design a moving story book for a given audience. 				
Make	<ul style="list-style-type: none"> Follow a design to create moving models that use levers and sliders. 				
Evaluate	<ul style="list-style-type: none"> Test a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. Review the success of a product by testing it with its intended audience. 				
Vocabulary	assemble, design, evaluation, mechanism, model, sliders, stencil, target audience, template, test				
Teaching Sequence	<ul style="list-style-type: none"> Explore examples Make connections to previous learning Make closer observations through sketching 	<ul style="list-style-type: none"> Model key techniques for children to try Practise techniques/make a prototype 	<ul style="list-style-type: none"> Design own project 	<ul style="list-style-type: none"> Apply skills and knowledge learned to own project 	ASSESSMENT Evaluate own work
Learning Questions	What are sliders?	How do sliders make things move?	Can I design my own moving storybook?	Can I construct my own moving picture?	Can I evaluate my finished product?
Mastery Keys	➤ Can design and make a model that moves using levers and sliders.				



Enquiry Question	How can we make a model move using wheels and axles?				
	Required Prior Knowledge			Knowledge to be taught	
Substantive Knowledge	<ul style="list-style-type: none"> The names and properties of construction materials like cardboard, bottle tops, tubes and straws. (Reception Autumn 1) Wheels helps a vehicle move smoothly (Reception Summer 2) 			<ul style="list-style-type: none"> Wheels need to be round to rotate and move. For a wheel to move it must be attached to a rotating axle. An axle moves within an axle holder which is fixed to the vehicle or toy. The frame of a vehicle (chassis) needs to be balanced. Some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles. 	
Disciplinary Knowledge					
Design	<ul style="list-style-type: none"> Create clearly labelled drawings that illustrate movement.. Design a vehicle that includes wheels, axles and axle holders which will allow the wheels to move. 				
Make	<ul style="list-style-type: none"> Adapt mechanisms when: They do not work as they should; to fit their vehicle design; to improve how they work after testing their vehicle 				
Evaluate	<ul style="list-style-type: none"> Test mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move. 				
Vocabulary	axle, axle holder, chassis, diagram, dowel, equipment, mechanism, wheel				
Teaching Sequence	<ul style="list-style-type: none"> Explore examples Make connections to previous learning Make closer observations through sketching 	<ul style="list-style-type: none"> Model key techniques for children to try Practise techniques/make a prototype 	<ul style="list-style-type: none"> Design own project 	<ul style="list-style-type: none"> Apply skills and knowledge learned to own project 	ASSESSMENT <i>Evaluate own work</i>
Learning Questions	How do wheels move?	What stops wheels from turning?	Can I design my own moving vehicle?	Can I construct my own moving vehicle?	Can I evaluate my finished project?
Mastery Keys	➤ Can design and make a moving vehicle with wheels and axles.				



Enquiry Question	How can we make a functioning windmill?	
	Required Prior Knowledge	Knowledge to be taught
Substantive Knowledge	<ul style="list-style-type: none"> Castles often had features like towers, walls, battlements, drawbridges and gates. (Reception Summer 1) Different ways to join materials e.g. folding, taping, stapling, threading. (Reception Spring 2) 	<ul style="list-style-type: none"> A windmill harnesses the power of wind for a purpose like grinding grain or generating electricity. The three main parts of a windmill are the turbine, axle and structure. Cylinders are a strong type of structure and are the main shape used for windmills and lighthouses. Axles are used in structures and mechanisms to make parts turn in a circle. Different structures are used for different purposes. A structure is something that has been made and put together. The sails or blades of a windmill are moved by the wind. A structure is something built for a reason. Stable structures do not topple. Adding weight to the base of a structure can make it more stable.
Disciplinary Knowledge		
Design	<ul style="list-style-type: none"> Learn the importance of a clear design criteria. Include individual preferences and requirements in a design. 	
Make	<ul style="list-style-type: none"> Make stable structures from card. Follow instructions to cut and assemble the supporting structure of a windmill. Make functioning turbines and axles which are assembled into a main supporting structure. Find the middle of an object. Puncture holes. Add weight to structures. Create supporting structures. Cut evenly and carefully 	
Evaluate	<ul style="list-style-type: none"> Evaluate a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't. Suggest points for improvements. 	
Vocabulary	axle, base, centre, equal, evaluate, middle, rotate, rotor, rotor blades, sails, same, stable, strong, structure,	

test, weak, wind, windmill					
Teaching Sequence	<ul style="list-style-type: none"> Explore examples Make connections to previous learning Make closer observations through sketching 	<ul style="list-style-type: none"> Model key techniques for children to try Practise techniques/make a prototype 	<ul style="list-style-type: none"> Design own project 	<ul style="list-style-type: none"> Apply skills and knowledge learned to own project 	ASSESSMENT Evaluate own work
Learning Questions	What is a windmill?	How is the structure stable?	Can I design my own windmill?	Can I construct my own windmill?	Can I evaluate my finished project?
Mastery Keys	➤ Can design and make a functioning windmill with a stable structure.				