

Pentecost 2
Design & Technology – Mechanisms: Y2

Scripture Link:

National Curriculum Objective:

Design, make and evaluate a _____ (product) for _____ (user) for _____ (purpose)

Link to topic- Rosa Parks-bus? (Kapow)

	Lesson 1	Lesson 2	Lesson 3
Learning intention for each lesson	I know what a mechanism is and can give examples.	I know what the mechanisms of wheels, axis and chassis are, look like and how they work.	I can create simple success criteria and start my design.
Recall and Retrieval	<ul style="list-style-type: none"> Wheels turn when they move Wheels are attached to an axle Wheels move on a vehicle not the frame some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles. 	<ul style="list-style-type: none"> Wheels turn when they move Wheels are attached to an axle I know that mechanisms are a collection of moving parts that work together as a machine to produce movement. I know there is always an input and an output in a mechanism. 	<ul style="list-style-type: none"> That drawing a design idea is useful to see how an idea will look. How to use my own ideas and the ideas and experiences of others to design something. How to use scissors to cut. I know there is always an input and an output in a mechanism.
Sequence of substantive knowledge throughout the lesson	<p>Evaluate:</p> <ul style="list-style-type: none"> I know that different materials have different properties and are therefore suitable for different uses. I know that mechanisms are a collection of moving parts that work together as a machine to produce movement. I know there is always an input and an output in a mechanism. I know that an input is an energy that is used to start something working. 	<p>Evaluate:</p> <ul style="list-style-type: none"> I know that a wheel needs an axle to move. I know that a wheel needs to be round to rotate and move. I know that an axle moves within an axle holder. 	<p>Make:</p> <ul style="list-style-type: none"> I know what fixed and free wheels are in a design process.

	<ul style="list-style-type: none"> I know that an output is the movement that happens as a result of the input. 		
Key Skills/disciplinary knowledge	Evaluate: I can explore and evaluate everyday mechanisms using wheels and axles to generate ideas and questions.	Evaluate: <ul style="list-style-type: none"> I can apply my understanding to every day examples – roller skates, Ferris wheel etc. I can describe how axles help wheels to move a vehicle. I can evaluate different designs. I can design and label a working wheel. 	Make: <ul style="list-style-type: none"> I can use my own ideas and the experiences of others to design something that moves for a unique purpose. I can build a stable structure. I can test elements of my design. I can adapt my design as necessary. I can make the wheel rotate..
Key Vocabulary	Design, design criteria, wheel, pods, axle, axle holder, frame, mechanism	Axle, axle holder, design, design criteria, pod, Frame, wheel	Mechanism, stable, strong, test
Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>			
Scaffolding	Pupils needing extra support: <ul style="list-style-type: none"> could use repetition and physical examples of products from the Activity: Levers and linkages. 	Pupils needing extra support: <ul style="list-style-type: none"> could benefit from having cards that say ‘wheel’ and ‘axle’ as well as a diagram so they can match the label to the correct part (see Activity: Label a wheel). Could need support to create their linkage systems. 	Pupils needing extra support: <ul style="list-style-type: none"> could benefit from discussing ideas with a partner; could have someone scribe their thoughts for them on the design sheet. should be encouraged to draw a simple linkage system; should be encouraged to label the pivots and motion themselves.
Challenge	Pupils working at greater depth: <ul style="list-style-type: none"> should challenge the children to find items from within the classroom that have levers and linkages, similar to those shown in the Activity: Levers and linkages. 	Pupils working at greater depth: <ul style="list-style-type: none"> should be encouraged to refer to the design of wheels when giving justifications, offering alternatives or solutions. should experiment in order for them to produce more creative linkages. 	Pupils working at greater depth: <ul style="list-style-type: none"> should include details of the size of each part, including joins and attachments; could be encouraged to explain how they will assemble these parts. should be able to devise their own linkage systems as well as more sophisticated versions.
Diversity Links			
Catholic Social Teaching Principles			

British Values			
Wider links			

Pentecost 2
Design & Technology – Mechanisms Y2:

	Lesson 4	Lesson 5	Lesson 6
Learning intention for each lesson	I can make my design.	I can adapt my design.	I can evaluate my design.
Recall and Retrieval	<ul style="list-style-type: none"> • that different materials have different properties and are therefore suitable for different uses. • that mechanisms are a collection of moving parts that work together as a machine to produce movement. • I know what fixed and free wheels are in a design process. 	<ul style="list-style-type: none"> • I know how to test my product. • That products can be made stronger or more rigid by making sure that parts and materials are properly joined together. • I know that some materials allow the wheel to move more freely on surfaces. • I know that it is important to test my design as I go along so that I can solve any problems that may occur. 	<p>I can talk about axles, wheels and chassis. I can talk about changes made during the making process.</p>
Sequence of substantive knowledge throughout the lesson	<p>Make:</p> <ul style="list-style-type: none"> • I know that the chassis is the frame or base on which the vehicle is built. • I know that a chassis should be strong and rigid enough to hold the vehicle. • I know that the chassis should include axle holders. These designed so that the axles do not have too much friction against them. • I know that the axle needs to be strong enough to hold the wheels, and fit freely in the axle holder. • I know that fixed wheels need to be firmly attached. If not, they need a stopper to prevent them from falling off. • I know that some materials allow the wheel to move more freely on surfaces. • I know that it is important to test my design as I go along so that I can solve any problems that may occur. 		

Key Skills/disciplinary knowledge	Make: <ul style="list-style-type: none"> I can use mechanisms of wheels and axles in their products (using materials such as tubes, dowel, cotton reels for the axles and chase etc.) I can mark and measure materials to use in a model or structure with developing accuracy, with help. I can choose appropriate resources and tools using specific vocabulary to name them. I can join materials and component in different ways. 	Evaluate: <ul style="list-style-type: none"> I can talk about changes made during the making process. 	Evaluate: <ul style="list-style-type: none"> I can discuss how closely their finished product meets the design success criteria identifying likes, dislikes, strengths and possible changes.
Key Vocabulary		Mechanism, stable, strong, test	Decorate, evaluation, test
Main teaching activity <i>If the school has another short term planning format, this does not need to be included.</i>			
Scaffolding	Pupils needing extra support: <ul style="list-style-type: none"> should talk through their plans before they start; could need support with the motor skills required for assembly. Could work simply with a more limited range of materials; could require assistance assembling features to their linkages. 	Pupils needing extra support: <ul style="list-style-type: none"> may need support measuring and cutting materials 	
Challenge	Pupils working at greater depth: <ul style="list-style-type: none"> should be encouraged to make predictions based on evidence. should work creatively, selecting materials from a wider range to create the desired effects; should assemble them independently. 	Pupils working at greater depth: <ul style="list-style-type: none"> should ensure that measurements and materials match their plans or be able to explain any changes made 	
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