Design and Technology:

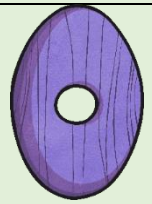
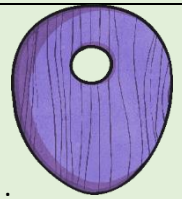
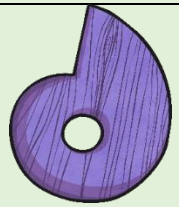
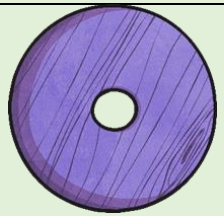
Yr3 Autumn term

Moving toys (Mechanisms)

National Curriculum subject content:
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 ✓ investigate and analyse a range of existing products ✓ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Technical knowledge ✓ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages
National Curriculum theme:
✓ Design ✓ Make ✓ Evaluate ✓ Technical knowledge ✓ Mechanisms

Key Vocabulary:	
Cam	A rotating or sliding piece in a mechanical linkage.
Cam mechanism	A cam mechanism is made up of three components: a cam, slider and follower. The mechanism causes components to move. 
Design	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.
Dowel rod	A cylindrical shape made of wood, plastic, paper or metal.
Evaluate	To consider the effectiveness of a product.
Join	To link or connect.
Make	Combining materials and techniques to create a product.
Material	The matter from which a thing is or can be made.
Mechanism	A system of parts working together to create movement.

Tools and equipment needed:
Existing toys with cams
Thick card cams (TTS)
Thick card wheels (TTS)
Cams toy cardboard boxes (TTS)
Dowel (paper or wooden) (TTS)
Glue gun
Masking tape
Cardboard boxes from home (to practise)
Card/ cardboard for making figures and decorating

Technical Knowledge:			
Cam mechanisms			
 ellipse	 egg-shaped	 snail	 round

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Sequence of Learning:					
Objectives (key knowledge):					
To understand and use mechanical systems (cams) in their products.					
Lesson 1: Technical knowledge-Mechanisms LO: To investigate existing moving toys with cam mechanisms and know the key features and materials.	Lesson 2: Technical knowledge-Mechanisms LO: To learn what a cam mechanism is and movements made by the different shapes.	Lesson 3: Technical knowledge-Mechanisms LO: To make a cam mechanism and know the materials and parts needed.	Lesson 4: Design LO: To develop design criteria and create a design of a moving toy that includes a minimum of two cam mechanisms.	Lesson 5 and 6: Make LO: To make a toy that has minimum of two cam mechanisms.	Lesson 7: Evaluate LO: To test moving toys with the target audience and evaluate considering design criteria and views of the users.