Year Group: 5	Unit: Moving Toys
National Curriculum Aims The national curriculum for design and technology aims to ensure that all pupils: ➢ develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world ➢ build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users ➢ critique, evaluate and test their ideas and products and the work of others	**Technical knowledge** ➢ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages **Product Outcome** Design a toy using a cams mechanism
Prior Learning: joining materials, creating a moving buggy,	

Curriculum	Learning Intention/possible activities	Knowledge and Key Vocabulary
Investigate and Evaluate ➢ investigate and analyse a range of existing products	**What is a cams mechanism?** Investigate and analyse a range of existing products **How can a different shaped cam affect the movement of the follower?** Explore the various cams and the patterns of movement they create.	**Knowledge:** - To know and name 4 parts of a cams mechanism: follower, slider, cam and shaft - By offsetting the shaft on a circular cam, the follower will move up and down - Linear motion is a movement in a straight line - Rotary motion is a circular movement
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	**How do designers know what will appeal to their audience?** Complete environment survey for the school. Research areas of sustainability to influence audience. **How can my research help me?** Design a cams toy, informed by the results of my survey. **Which cam will result in the best movement for my toy?** Create an exploded diagram of my mechanism Design and test my cams mechanism by making a prototype.	**Vocabulary:** Circular, eccentric circular, cam, follower, slide, shaft, Aesthetic, functional, rotary, linear

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 according to their functional properties and aesthetic qualities	**How can I ensure my finished product look appealing?** Make final product using a range of materials and tools.	
Evaluate ➢ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ➢ understand how key events and individuals in design and technology have helped shape the world	**Does my product meet my design criteria?** Evaluate final product against design criteria.	
Thinking Deeper: What type of toy might a designer aim to create next? Consider other current topics regarding sustainability within our school and wider community.		

Links to other subjects:
• Subject Specific links- mathematics (measuring), Reading (research), Art,
• Personal Development – resilience
• SMSC – social – working children from the Eco Committee during the design process
• Cultural Capital – gaining an understanding into how everyday products are designed and produced.
• Careers –market research, designers
• British Values – mutual respect when evaluating toys created
• Equality – considering marketing to an inclusive audience