



Year 5 – Autumn – Design & Technology – Pupil Knowledge Organiser

WHAT DO I ALREADY KNOW?		WHAT AM I LEARNING NOW?		
- Mechanical systems have an input, process and an output. - In a pneumatic system, the input is the air pressure, and the output is movement. - An axle helps a wheel turn smoothly. - Free axles are where the axles are connected to and move with the wheels. - Structures can be made more stable by giving them a wide base. - The weight of the structure needs to be evenly spread to make it secure.		- What is a cam mechanism? - Can we design a toy with a cam mechanism? - How do we strengthen the structure around a cam? - Can we plan the stages of make a cam mechanism? - Can we accurately make a prototype product? - Does our product meet the design specification?		
KEY KNOWLEDGE: MECHANISMS	KEY KNOWLEDGE: STRUCTURES	DESIGN, MAKE, EVALUATE	KEY VOCABULARY	
A cam turns rotary motion into linear motion. This movement (called reciprocating motion) is repeated and in a straight line. A crank is used to turn an axle which turns the cam. Cams come in different shapes and sizes. Each shape determines the movement of the follower.	Toys with cam mechanisms need sturdy frameworks to support the moving parts. Adding support structures like braces to frames can strengthen the toy's overall stability.	In Design and Technology, we follow a process: design Develop a design specification based on in-depth research. make Accurately assemble, join and combine materials and components. evaluate Learn from existing products. Critically assess the success of a product, based on the design specification and the views of others.	crank axle cam follower motion rotary linear force framework exploded diagram	A crank is a handle that you turn in a circle. A pin or shaft on which a wheel or pair of wheels turn. A specially shaped wheel that moves anything resting on its edge when turned. A lever which is moved by the rotary motion of a cam. Movement. Where objects move in a circular path or spin around a central point. Movement of an object in a straight-line path. A push or pull on an object which can cause an object to accelerate, slow down, remain in place, or change shape. A structure supporting or containing Something. A way of designing that shows all the parts of something spread out, so you can see how they fit together.