



Year 5 DT Knowledge Organiser: Mechanical Systems – Moving Toys



Subject Specific Skills

- Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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
- understand how key events and individuals in design and technology have helped shape the world
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

Prior Learning

- Understand what structures are and how they can be made stronger, stiffer and more stable.
- Experience of using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials.

Key Vocabulary

Mechanism : A system of parts working together in a machine.

Linkage system: A group of parts connected to make something work.

Convert: Change the form of something.

Rotary movement: Turning around in a circle.

Linear movement: Going up and down.

Dowelling: Cylindrical rods.

Pulleys: A wheel with a grooved rim around it. **Levers**: A rigid bar resting on a pivot.

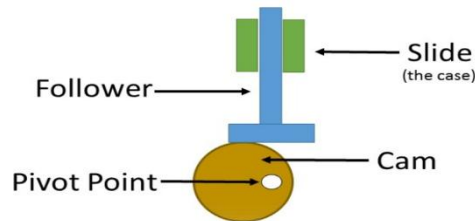
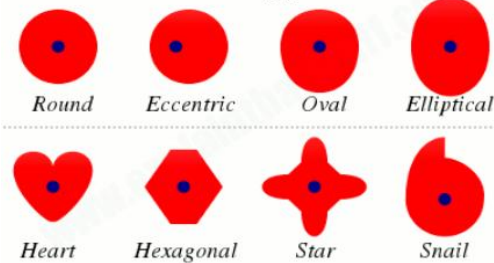
Cam: A mechanism that changes one sort of movement to another.

Follower: The device that follows the movement of the Cam.

Technical Knowledge:

Explore cam mechanisms and how they move.

Some common types of cams

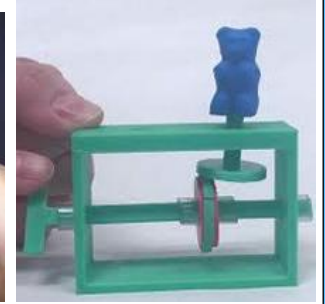


Design:

- Use research and develop design based on Cams and their different movements.
- Evaluate the key designs of individuals in design and technology has helped shape the world.
- Generate, develop, model and communicate our ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces.
- Confidently select appropriate Cams, tools, materials, components and techniques and use them.
- Draw up a specification for our design- link with Mathematics and Science.
- Plan the order of our work, choosing appropriate Cams, materials, tools and techniques.
- Aim to make and to achieve a quality Cam product

Make:

- Accurately apply a range of finishing techniques, including those from art and design
- Suggest alternative methods of making Cam if the first attempts fail.
- Identify the strengths and areas for development in our ideas and products.
- Use tools safely and accurately.
- Demonstrate when to make modifications as we go along. - Construct Cam using permanent joining techniques



Evaluate:

- Evaluate our products, identifying strengths and areas for development, and carrying out appropriate tests.
- Evaluate our work both during and at the end of the assignment.
- Record our evaluations using drawings with labels.
- Evaluate against our original criteria and suggest ways that our product could be improved