

Bomere and the XI Towns Federation Knowledge Organiser—SUBJECT

Topic: Cams

Class/Year Groups: Wrekin Y5/6

Term: Autumn

What you already know?

- Experience of axles, axle holders and wheels that are fixed or free moving.
- Basic understanding of different types of movement.
- Experience of cutting and joining techniques with a range of materials including card, plastic and wood.
- An understanding of how to strengthen and stiffen structures.

What you will learn:

Designing • Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources. • Develop a simple design specification to guide their thinking. • Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.

Making • Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team. • Select from and use a range of tools and equipment to make products that are accurately assembled and well finished. Work within the constraints of time, resources and cost.

Evaluating • Compare the final product to the original design specification. • Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. • Consider the views of others to improve their work. • Investigate famous manufacturing and engineering companies relevant to the project.

Technical knowledge and understanding • Understand that mechanical systems have an input, process and an output. • Understand how cams can be used to produce different types of movement and change the direction of movement. • Know and use technical vocabulary relevant to the project.

Vocabulary

cam, snail cam, off-centre cam, peg cam, pear shaped cam

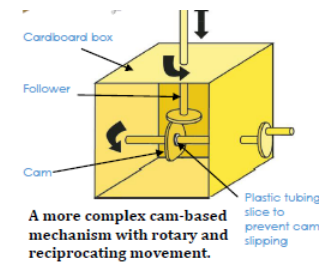
follower, axle, shaft, crank, handle, housing, framework

rotation, rotary motion, oscillating motion, reciprocating motion

annotated sketches, exploded diagrams

mechanical system, input movement, process, output movement

design decisions, functionality, innovation, authentic, user, purpose, design specification, design brief



National Curriculum Objectives:

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

Make—select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately

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]

