

Year: 3 Program of Study: Mechanical systems – Levers and linkages.

N.C POS:

- *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 and prototypes.*
- *Select from 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.*
- *Understand and use mechanical systems in their products [for example gears, pulleys, cam, levers and linkages].*

Concept: technology, impact, legacy, change, inventions, innovation, application, cause and effect.

Key Vocabulary: mechanism, lever, linkage, pivot, slot, bridge, guide, system, input, process, output, linear, rotary, oscillating, reciprocating, user, purpose, function, prototype, design criteria, innovative, appealing, design brief.

Prior Learning: Explored and used mechanisms such as flaps, sliders and levers. Gained experience of basic cutting, joining and finishing techniques with paper and card. Toys over time.

Core Knowledge- non-negotiable

Designing

- Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.
- Use annotated sketches and prototypes to develop, model and communicate ideas.

Making

- Order the main stages of making.
- Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.
- Select from and use finishing techniques suitable for the product they are creating.

Evaluating

- Investigate and analyse books and, where available, other products with lever and linkage mechanisms.
- Evaluate their own products and ideas against criteria and user needs, as they design and make.

Wider Influences

- Widening the range of materials (plastic, wood etc).
- Understand how to strengthen and stiffen structures.
- Generate innovative ideas by carrying out research using surveys and questionnaires.
- Consider the views of others to improve work.
- Investigate famous manufacturing and engineering companies relevant to the project.
- Festivals and celebrations
- Favourite books

Design and Technology Y3 – Mechanical systems.

- History-based topic
- Geography-based topic
- Science-based topic

Enduring Understanding

- Understand and use lever and linkage mechanisms.
- Distinguish between fixed and loose pivots.
- Know and use technical vocabulary relevant to the project.