

Ashtree Primary School and Nursery Medium Term Plan for DT

Year 3 – Mechanisms – Levers and Linkages

Key Vocabulary

Design brief, recycle, mechanism, mechanical system, moving, lever, linkage, design brief, pivot, input, output, prototype

Prior Knowledge

Design & Evaluate: Generate initial ideas and design criteria through own experiences. Explore and talk about books containing flaps and moving pictures. **Skill:** Construct a simple lever with support. Construct a simple slider independently. Join levers to make linkages to create moving parts. Can make a wheel mechanism. Can add and join a flap. **Knowledge:** Deconstruct a simple slider and describe how it works Explore and use sliders and levers. Understand that different mechanisms produce different types of movement.

Key Knowledge : Understand and use lever and linkage mechanisms. Distinguish between fixed and loose pivots. Know and use technical vocabulary. **Key Skills:** Construct a mechanism which uses levers and linkages with a fixed and loose pivot.

National Curriculum

Design: use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose
Generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes

Make: select from and use a wider range of tools and equipment to perform practical tasks. Select from and use a wider range of materials and components, including construction materials according to their functional properties and aesthetic qualities

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.

KS2 Design and Technology National Curriculum

1. LO: I can investigate mechanical systems. Mechanical Systems: investigate and analyse a range of existing products.
2. LO: I can make mechanical systems which use levers and linkages. Levers and linkages: understand and use mechanical systems in their products.
3. LO: I can develop design criteria to help me design innovative product. I can use sketches to develop and communicate ideas. Designing: use research and develop design criteria to inform the design.
4. LO: I can use prototypes to develop my ideas. Prototypes: generate, develop, model and communicate ideas through discussion, annotated sketches etc
5. LO: I can select and use the correct tools and equipment accurately. I can carefully select materials and use different techniques.
6. LO: I can name the parts and functions of a lever and linkage mechanical system. I can evaluate my poster.

Curriculum Enhancements and Designers

- Links to eco school - promoting recycling week
- Some City Councils host 'recycling roadshow events.' This would give children the opportunity to ask about any recycling queries.
- A walk around the local area would allow children to investigate the places where people can recycle.
- An educational visit to a local recycling centre, to see how materials are sorted and prepared for reuse.

Misconceptions

Lever always make things easier to lift or move.

Reality: While levers can make some tasks easier, they can also be used to increase force or speed rather than just reducing the amount of effort required.

All levers and linkages have a fixed pivot point.

Reality: Some levers and linkages have a fixed pivot point, but others have a moving or sliding pivot point that can change the way they operate.

Linkages only move in straight lines.

Reality: Linkages can move in a wide range of different paths, including circular, linear, and curved.

Suggested Activities

Questions: Which card strip is the lever? Which card strip is acting as the linkage? Which part of the system is the input and which part the output? What does the type of movement remind you of? Which are the fixed pivots and which are the loose pivots?

Curriculum links

Citizenship:

Maths: measuring

English:

This will lead children..

Creating a mechanical poster that promotes recycling.