Year group: Year 3
Term: Spring
Subject: Design Technology – Mechanisms – Levers and Linkages – Greetings Card

Key vocabulary

Lever Linkage Pivot Bridge

Prior learning

EYFS

Early experiences of working with paper and card to make simple flaps and hinges.
Experience of simple cutting, shaping and joining skills using scissors, glue and masking tape

Year 2 – Wheels and Axles

The children will have experience of using construction kits with wheels and axles to make a product that moves.. They will know how wheels and axles may be assembled as either fixed axles or free axles.

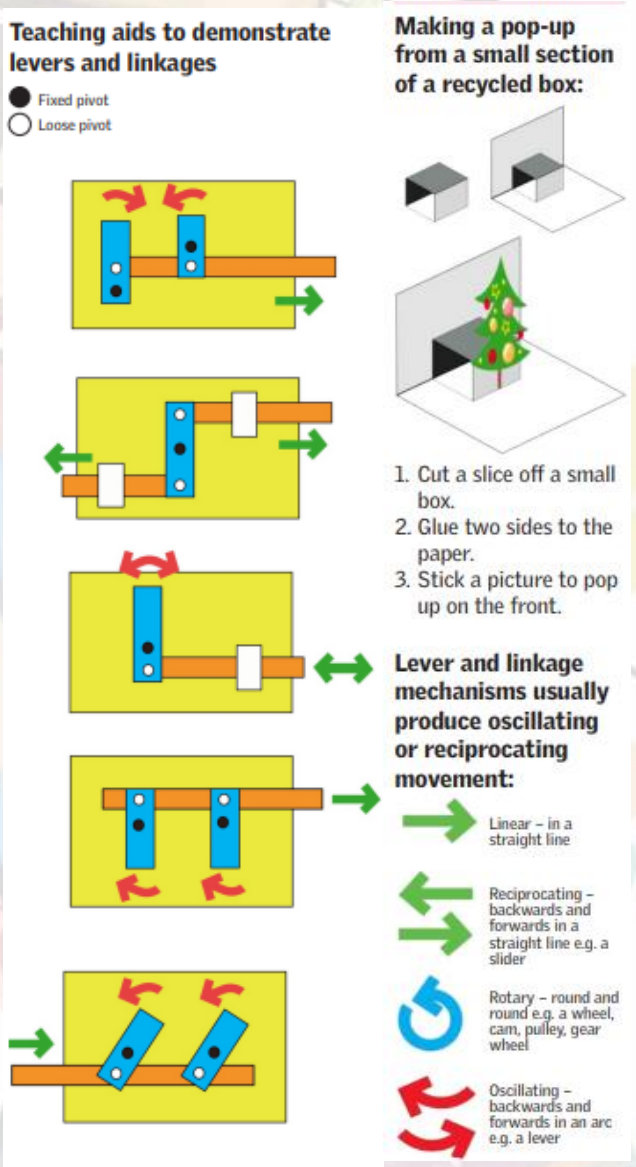
What comes next?

Year 4 - Pneumatics

The children will be taught how to assemble the systems using syringes, tubing, balloons and plastic bottles. They will be introduced to ways in which pneumatic systems can be used to operate levers. They will be taught the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques..

Notes and guidance

Demonstrate a range of lever and linkage mechanisms to the children using prepared teaching aids.
Use questions to develop children's understanding e.g. 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?
Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques.
Children should develop their knowledge and skills by replicating one or more of the teaching aids.



Substantive Knowledge

To know the terms lever, linkage, pivot and bridge and understand their function.

I know the difference between fixed and loose pivots.

Disciplinary Knowledge

To know that designers use annotated sketches and prototypes to develop, model and communicate their ideas.

To know that designers evaluate their work to ensure it is fit for purpose.

Procedural Knowledge

I know how to order the main stages of making.

I can select from and use appropriate tools with some accuracy to cut, shape and join paper and card.

I know how to select from and use finishing techniques suitable for the product I am creating.

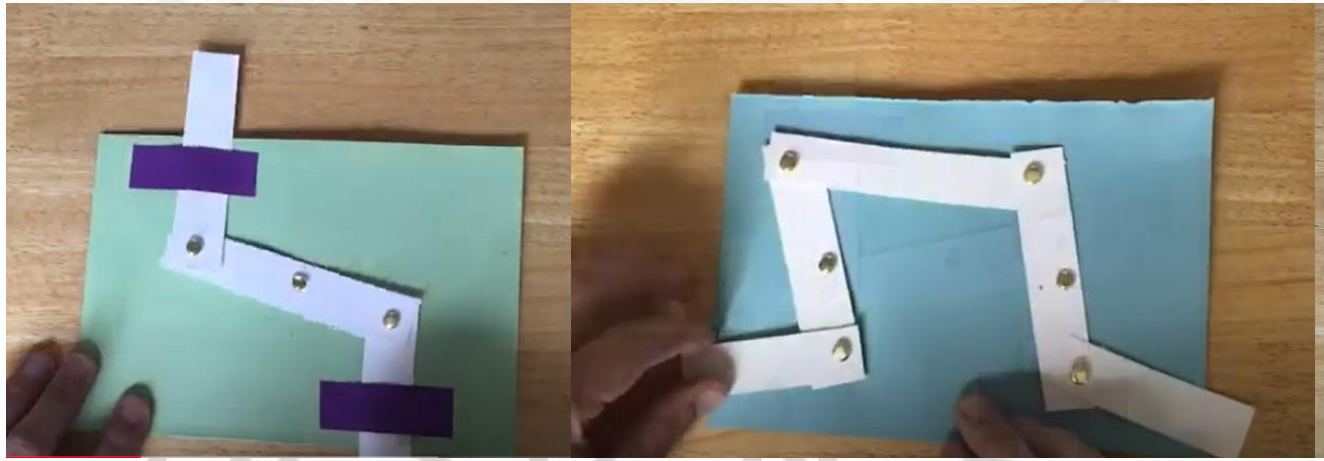
Links to other curriculum areas

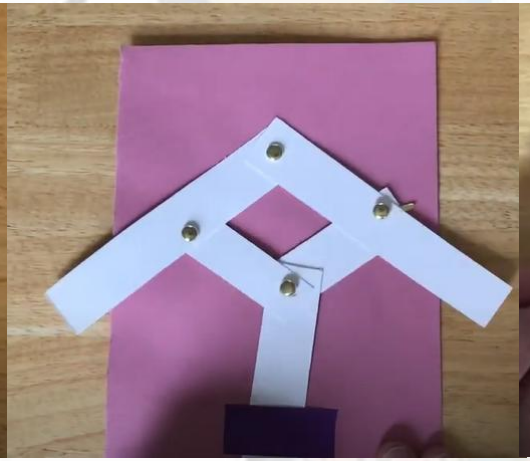
RE – Easter / Mother's Day Cards

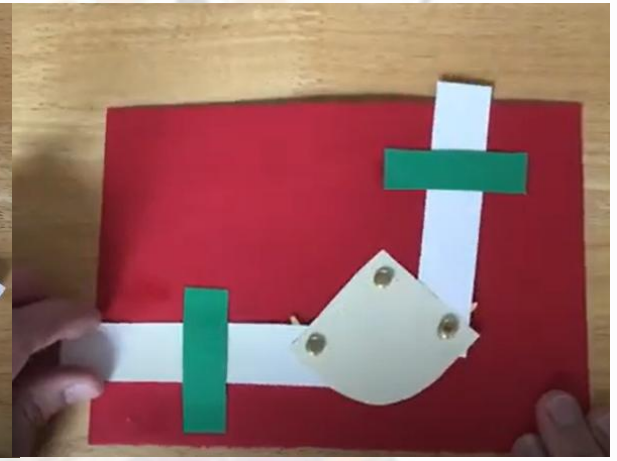
Science - Materials

End Points

- To be able to use creativity and imagination to create high quality products.
- To master the use of a range of design technology tools and techniques.
- To be able to design, make and evaluate their products referring to whether it is fit for purpose and meets the design criteria.







Key vocabulary definitions

- Lever – A lever is a bar or handle that moves around a fixed point to help lift or move something, like a see-saw or a pair of scissors.
- Linkage – A linkage is a set of levers joined together that helps make movement in different parts of a model, like a moving picture or puppet.
- Pivot – A pivot is the fixed point where something turns or moves, like the middle of a see-saw or the hinge on a door.
- Bridge – A bridge is a structure built to cross over something, such as water or a road, and it must be strong and stable to hold weight.

Resources

- Visuals or PowerPoint showing examples of real-life levers and linkages (e.g. scissors, see-saw, door handle, puppet)
- Card
- Paper fasteners / split pins (for pivots and joints)
- Blu Tack (to create temporary pivots)
- Hole punch (for making pivot holes)
- Rulers
- Pencils and erasers
- Scissors
- Glue sticks or masking tape
- Templates of lever and linkage mechanisms (optional, for support)