

KS1 Unit - Mechanisms

To design, make and evaluate a moving Christmas card to be sold at the Christmas Markets.

Knowledge Progression

Design:

- ✓ Use pictures and words to convey what they want to design/make.
- ✓ Propose more than one idea for their product.
- ✓ Select appropriate technique explaining: First... Next... Last....
- ✓ Select pictures to help develop ideas.
- ✓ Add notes to drawings to help explanations.
- ✓ Describe their models and drawings of ideas and intentions

Make:

- ✓ Discuss their work as it progresses.
- ✓ Select materials from a limited range that will meet the design criteria.
- ✓ Select and name the tools needed to work the materials.
- ✓ Explain what they are making.
- ✓ Explain which materials they are using and why.
- ✓ Name the tools they are using.
- ✓ Describe what they need to do next.

Evaluate:

- ✓ Explore existing products and investigate how they have been made.
- ✓ Decide how existing products do/do not achieve their purpose.
- ✓ Talk about their design as they develop and identify good and bad points.
- ✓ Say what they like and do not like about items they have made and attempt to say why.
- ✓ Discuss how closely their finished product meets their design criteria and how well it meets the needs of the user.

Skill Progression

Mechanisms

- ✓ Join appropriately for different materials and situations e.g. glue, tape.
- ✓ Use a hole punch.
- ✓ Insert paper fasteners for card.
- ✓ Mark out materials to be cut using a template.
- ✓ Fold, tear and cut paper and card.
- ✓ Cut along lines, straight and curved.
- ✓ Experiment with levers and sliders to find different ways of making things move in a 2D plane

Key Learning

That a pop-up book is a mechanism and it needs to be folded and cut in order to work correctly. Materials can be joined together in different ways including gluing, stapling, fastening and paper clips. Some methods are more sturdy and provide a stronger finish to their product. Children will investigate these methods and will be able to evaluate the different methods. Sliders allow a part of a picture to be pushed or pulled up and down or side to side. A lever has a fixed point to make things move in an

arc. Sliders and levers can be made using card, lollipop sticks or other firm materials. Sliders need a slot and a guide in order to move smoothly. Levers need a fixed point (fulcrum). Choices made for their design will link to the design brief. Given a choice of joining methods children will be able to explain their choice and give reasons for and against. Independently, skills learnt previously will be applied to their work. Evaluation is a key part of the children's learning. At each step of their learning children will be able to talk about what they have done and why giving reasons – such as I used the fastener to join the card together because it allows the pieces to move in an arc but it holds them together tightly.

Vocabulary

Pop up, mechanism, audience
Join, investigate, evaluate
Lever, slider, pivot, guide, fulcrum
Design brief, user, plan
Cut, join, fasten
Evaluate, purpose, audience

Misconceptions

Glue is always the strongest.

Prior Knowledge

EYFS:

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture and function
Share their creations, explaining the process they have used

Future Learning

Year 3/4:

Mechanisms and electrical systems

- ✓ Use mechanical systems such as gears, pulleys, levers and linkages.
- ✓ Use lolly sticks/card to make levers and linkages.
- ✓ Use linkages to make movement larger or more varied.

Possible Activities/Evidence

- ✓ IEA - Evaluate existing pop-up scene/books and create a design brief as a class
- ✓ FOCUSED ACTIVITY – create prototype of a slider
- ✓ FOCUSED ACTIVITY – create prototype of a wheel mechanism
- ✓ FOCUSED ACTIVITY – create prototype of a lever mechanism
- ✓ DMEA- Draw and develop a design for a pop up scene including a lever or sliding aspects
- ✓ DMEA- Make final product including a lever or sliders
- ✓ DMEA- Evaluate completed work

Retrieval Quiz Questions

1: Audience

What impact does a moving picture have?

2: Sliders

How does a slider move?

Answer: up and down, sideways

2: Levers

What is a lever?

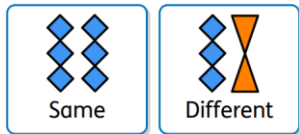
Answer: a fix bar that moves on a pivoting point

3: Pivots

What is a pivot?

Answer: a fixed point for a lever to move around

Digging Deeper

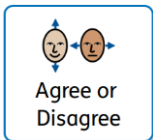


DIGGING DEEPER

Lever



slider



DIGGING DEEPER

"A slider is a good mechanism for a moving giraffe head".