Design Technology Year 1 Spring Mechanisms: Sliders & Levers

What do you want children to learn (link to NC)

Technical Knowledge & Understanding

• Explore and use sliders and levers.
• Understand that different mechanisms produce different types of movement.
• Know and use technical vocabulary – slider, lever, pivot, slot, bridge/guide,
*Use paper fasteners, masking tape, paper binders,

Designing

• Generate ideas based on simple design criteria and their own experiences, explaining what they could make.
* Develop, model and communicate their ideas through drawings and mock-ups with card and paper.

Making

• Plan by suggesting what to do next.
• Select and use tools, explaining their choices, to cut, shape and join paper and card.-
• Use simple finishing techniques suitable for the product they are creating.

Evaluating

• Explore a range of existing books and everyday products that use simple sliders and levers.
• Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria

Prior Learning

Experience of using basic tools e.g. scissors, hole punch, glue, tape, PVA.
Experience of using joining techniques – paper fasteners and masking tape.
Early experiences of using paper and card to make flaps and hinges.
During house topic – experience of generating ideas through simple mock ups.
Give simple, oral evaluations throughout the making process.

Focus Tasks / *Key Questions*

1. To explore a variety of picture/pop up books (on DT resource shelf) that show different sliders and levers. *How do the books use sliders and levers to make objects move on the pages? Which are sliders? Which are levers? Begin to introduce vocab as below!*

2. *How do we make a simple lever?* Teach/demo making a lever that moves up and down or side-to-side using card - See PDF Year 1 sliders and levers for 3 techniques for making a slider and PowerPoint (slides 7-12) for teacher's tips! Especially for making the slot in the card! Ensure you demo making a 'bridge' to support GDS. Children to have a go at making a 'mock up lever.' *Which techniques do they prefer? Find easiest? Most successful?*

3. How do we make a simple lever? This time the mechanism will include a pivot and will move in a curve – teach/demo how to do this using card and a split pin. *Ensure show how to make a hole safely when using a split pin.* See PDF Year 1 sliders and levers for technique and PowerPoint (slides 13-17 for teacher tips). Children to have a go at making a 'mock up lever.' *Which techniques do they prefer? Find easiest? Most successful?*

4. Discuss with the children what moving picture (mechanism) they will be designing, making and evaluating for a space storybook. E.g. *What object/picture do you want to be moving?* (e.g. rocket, stars, planet, moon) *Will the object move up and down or side to side or in a curved pathway?*

Generate some simple design criteria with the children e.g. the picture will have a moving object, the object will move smoothly and be appropriate for the picture (e.g. a rocket moving up into space), if there is a slider it will have a 'bridge' to make it more secure and successful.

5. Encourage the children to develop their ideas through talking, drawing and making mock-ups of their ideas with paper and card. *Does your mechanism move smoothly? Can you make your slider more secure by using a bridge? How could you include a lever and a curved pathway for a moving object in your picture?*

6. *How can you use simple finishing techniques to complete your picture?* Discuss the finishing techniques the children might use e.g. using paint, felt tipped pens, metallic markers or collage.

7. Ask children to evaluate their final products against the original design criteria. *Do/es your mechanism/s move smoothly? Which direction does the object move? Does the movement make sense for the object in the picture? Have you included a bridge to support your slider?*

Key Vocabulary

slider, lever, pivot, slot, bridge/guide, card, masking tape, paper fastener/split pins, join, pull, push, up, down, straight, curve, forwards, backwards, design, make, evaluate, user, purpose, ideas, design criteria, product, function

Glossary

- **Mechanism** - a device used to create movement in a product.
- **Lever** - a rigid bar which moves around a pivot. In this project, children will use card strips for levers and paper fasteners for pivots.
- **Slider** – a rigid bar which moves backwards and forwards along a straight line. **Unlike a lever, a slider does not have a pivot point.**
- **Slot** - the hole through which a lever or slider is placed to enable part of a picture to move.
- **Guide or bridge** - a short card strip used to keep sliders in place and control movement.

Learning Outcomes/ Assessment Opportunities

5. Design and make a moving 'space' picture for a storybook using **at least** one mechanism but hopefully both! A slider that moves an object up and down or side to side. AND/OR a lever which moves an object in a curve using a pivot.

GDS/ Challenge

To design and create a picture with both a slider AND a lever – using a guide or bridge for the slider.

Health and Safety

Pupils should be taught to work safely, using tools, equipment, materials, components and techniques appropriate to the task. Especially the techniques to make a hole safely in order to push a paper fastener through the card. (Either hole punch or blu tac and pencil point!)