

1. Year Groups
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2. Aspect of D&T Mechanisms

Focus
Sliders and Levers

3. Key learning in design and technology

Prior learning

- 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, paper fasteners and masking tape.

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.

Technical knowledge and understanding

- Explore and use sliders and levers.
- Understand that different mechanisms produce different types of movement.
- Know and use technical vocabulary relevant to the project.

4. Product
To Design make and evaluate a pop-up fire work.

7. Link to topic
Whizz Bang Pop!

10. Investigative and Evaluative Activities (IEAs)

- Children explore and evaluate a collection of books and everyday products that have moving parts, including those with levers and sliders. e.g. *What is it? Who is it for? What is it for?*
- Use questions to develop children's understanding e.g. *What do you think will move? How will you make it move? What part of the product moved and how did it move? How do you think the mechanism works? What else could move in the product? How well does it work?*
- Introduce and develop vocabulary e.g. lever, pivot, slider, left, right, push, pull, up, down, forwards, backwards, in, out.

12. Focused Tasks (FTs)

- Demonstrate simple levers and sliders to the children using prepared teaching aids. It is helpful if these are also used in context e.g. the slider is used to show a snail appearing from behind a stone, the lever is used to show a butterfly flying to a flower.
- Use questions to develop children's understanding e.g. *How does the slider move? How does the lever move? Which part of the mechanism is the pivot? What does the movement of the slider and lever remind you of?*
- Following teacher demonstration of the correct use of tools and materials, children should develop their knowledge and skills by replicating the slider and lever teaching aids. Encourage children to add pictures to their mechanisms.

14. Design, Make and Evaluate Assignment (DMEA)

- Discuss with the children what they will be designing, making and evaluating e.g. *Who will your product be for? What will be its purpose? How do you want it to move? Will you use a lever or a slider?*
- Generate simple design criteria with the children e.g. the mechanism should work smoothly, it should make the right type of movement.
- Encourage the children to develop their ideas through talking, drawing and making mock-ups of their ideas with paper and card.
- Discuss the finishing techniques the children might use e.g. using digital text and graphics, paint, felt tipped pens or collage.
- As a whole class, talk about the order in which the mechanisms will be made.
- Ask children to evaluate their developing ideas and final products against the original design criteria.

5. Intended users themselves
Reception Children

8. Possible contexts
story-based

6. Purpose of product
Information

9. Project title
To Design make and evaluate a pop-up fire work (Product) to use as a prop to help retell the history of fireworks in China (Purpose) to the children in Reception (User) To be completed by the teacher. Use the project title to set the scene for children's

11. Related learning in other subjects

- **Spoken language** – participate in discussion about books and other products with moving parts, taking turns and listening to what others say. Ask relevant questions to extend their knowledge and understanding. Build technical and directional vocabulary.

13. Related learning in other subjects

- **Spoken language** – children listen and respond appropriately to adults. Ask relevant questions to extend their knowledge and understanding. Build technical and directional vocabulary.
- **Mathematics** – describe position, direction and movement. Use appropriate standard and non-standard measures.

15. Related learning in other subjects

- **Spoken language** – ask relevant questions to extend their knowledge and understanding. Build technical and directional vocabulary. Use spoken language to develop understanding through imagining and exploring ideas.
- **Art and design** – use colour, pattern, line, shape.
- **Computing** – digital graphics and text could be incorporated into final products as the background or moving parts.

16. Possible resources

books and everyday products with levers and slider mechanisms

slider and lever teaching aids

card strips, card rectangles, paper, masking tape, paper fasteners, paper binders, stick glue, PVA glue, finishing materials and media

left/right handed scissors, cutting mats, card drills

17. Key vocabulary

slider, lever, pivot, slot, bridge/guide

card, masking tape, paper fastener, join

pull, push, up, down, straight, curve, forwards, backwards

design, make, evaluate, user, purpose, ideas, design criteria, product, function

18. Key competencies

problem-solving teamwork negotiation
consumer awareness organisation motivation
persuasion leadership perseverance
other – specify

19. Health and safety

Pupils should be taught to work safely, using tools, equipment, materials, components and techniques appropriate to the task. Risk assessments should be carried out prior to undertaking this project.

20. Overall potential of project