D&T MEDIUM TERM PLANNING -

Year Group: Y2	**TERM:** Spr 2	**Theme:** Under the sea

National Curriculum: Ensure pupils develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world; build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users; critique, evaluate and test their ideas and products and the work of others.

Context/ Narrative	**Concepts/ Principles:**	**Vocabulary:**
Children have been exposed to a range of materials in FS2 and have started to think about their characteristics and how these would be good for different purposes. Children have been introduced to joining materials together using different tools and techniques such as gluing, stapling and using tape. Children are familiar with the TASC wheel and know to investigate existing products and materials to inform their design. They have thought about the user and purpose of products. Children have been encouraged to make and evaluate their finished product in response to a brief.	User Purpose Functionality Design Decisions Innovation Authenticity	Design Levers Evaluate Sliders Purpose Communicate

Prior Knowledge:

- 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.

Future Knowledge:

- Children will be able to use a range of materials to create a purposeful product
- Children will be able to use levers and sliders to create a moving part in their underwater box.
- Children will be able to evaluate their own and their peer's product to check it meets the design brief

End points /by the end of this unit pupils will…

- Children will be able to understand why there is a brief for a product.
- Children will be able to explore and evaluate a range of existing products and to use that knowledge to design their own underwater box.
- Children will be able to follow a brief to design a moving product using levers and sliders.

Crucial knowledge:

- Understand that different mechanisms produce different types of movement.
- Identify simple sliders and levers in the world.
- Explain that sliders and levers are mechanisms that provide movement.
- Know and use technical vocabulary relating to sliders and levers.
- Create simple levers and slides to demonstrate how they work.
- Evaluate how effective a slider or lever is and explain why it is good and or how it can be better.

<table>
<tr><th colspan="3">Lesson Number 1 (Investigate and Evaluate)</th></tr>
<tr><td>Key learning:
Explore and investigate different levers.</td><td>Concepts:
User
Purpose
Functionality
Design Decisions
Innovation
Authenticity</td><td rowspan="2">Introduction:
Explain the use of levers to make an object move.

Direct teaching
Ask the children to explore and investigate a range of levers to gain an understanding of what characteristics make a good set.
Discuss similarities and differnces between different types of levers.
Define mechanisms.
Mechanism is a device used to create movement in a product and levers are examples of this.
Levers are slightly more complex. They use a fulcrum (a fixed point around which the lever can pivot) to make things move in arc (curve). The further it is from the object, the more that the subject at the end of your lever can move.
Levers could be made of card, lollipop sticks or another thin, firm material. Effective levers should move smoothly

Activity
Children explore and investigate a range of existing products.
Children explore and evaluate different levers.
Children trial different positions of the fulcrum.
Children investigate different materials to make their levers and evaluate which are the most effective.

Key Questions
What differences/ similarity have you observed between the different levers?
What are levers?
How do they work?
Where do you find levers?
What materials could you use to make an effective lever?
How far does your fulcrum need to be to make your subject move?</td></tr>
<tr><td>Success Criteria:
Explore and evaluate a range of existing products.

Explore and evaluate different types of levers to know what characteristics make a good lever.</td><td>Suggested resources:
WAGOLL

Range of levers</td></tr>
<tr><td colspan="3">Vocabulary: Lever, fulcrum, moving parts, mechanisms, evaluate, investigate, tools, materials.</td></tr>
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<table>
<tr><th colspan="3">Lesson Number 2 (Explore and Trial)</th></tr>
<tr><td>Key learning:
Explore and investigate different sliders.</td><td>Concepts:
User
Purpose
Functionality
Design Decisions
Innovation
Authenticity</td><td rowspan="2">Introduction:
Explain the use of sliders to make an object move.

Direct teaching
Ask the children to explore and investigate a range of sliders to gain an understanding of what characteristics make a good set.
Discuss similarities and differnces between different types of sliders.
Define mechanisms.
Mechanism is a device used to create movement in a product and sliders are examples of this.
Sliders help move things from side to side and up and down.
The place and length of the slot will change how far the sliders can slide. The guide's position determines where the sliders moves.
Sliders could be made of card, lollipop sticks or another thin, firm material. Effective sliders should move smoothly

Activity
Children explore and investigate a range of existing products.
Children explore and evaluate different sliders.
Children trial different positions and lengths of the guide.
Children investigate different materials to make their sliders and evaluate which are the most effective.

Key Questions
What differences/ similarity have you observed between the different sliders?
What are sliders?
How do they work?
Where do you find sliders?
What materials could you use to make an effective slider?
What happens when your guide is shorter/ longer?
What happens when you change the position of your guide?</td></tr>
<tr><td>Success Criteria:
Explore and evaluate a range of existing products.

Explore and evaluate different types of sliders to know what characteristics make a good slider.</td><td>Suggested resources:

WAGOLL

Range of levers</td></tr>
</table>

Vocabulary: Sliders, guide, moving parts, mechanisms, evaluate, investigate, tools, materials.

Lesson Number 3 (Design)		
Key learning: Design an under water scene.	**Concepts:** User Purpose Functionality Design Decisions Innovation Authenticity	**Introduction:** Recap on previous findings. **Direct teaching** Encourage children to generate own design ideas and to think of which tools and resources to respond best to the brief Discuss findings of previous investigation to inform your product design.
Success Criteria: Use TASC and knowledge of levers and sliders to create own under water scene with moving parts.	**Suggested resources:** TASC sheet Pencil Colouring pencils	**Activity** Children use the TASC wheel to design their own underwater scene with moving parts. Children chose whether using levers or sliders will respond best to their chosen underwater creature's way of moving (e.g sliders might work better for a crab's way of moving, levers might work better for a dolphin's way of moving). They choose which material, tools and resources they will need to best respond to the brief. Children discuss their ideas with their peers. **Key Questions** What have you found out about levers and sliders in previous sessions? What tools and resources will you need to respond to the brief? Can you communicate ideas with your peers?
Vocabulary: Design, sliders, guide, levers, fulcrum, moving parts, mechanisms, evaluate, investigate, tools, materials.		

<table>
<tr><th colspan="3">Lesson Number 4 (Make and Evaluate)</th></tr>
<tr><td>Key learning:
Children make their own underwater scene and evaluate their product</td><td>Concepts:
User
Purpose
Functionality
Design Decisions
Innovation
Authenticity</td><td rowspan="2">Introduction:
Recap on previous findings.

Direct teaching
Encourage children to use a range of tools and equipment to cut, shape, join and finish their designs.
Children to evaluate their underwater scene to ensure their product is fit for purpose.

Activity
Children use their TASC sheet to create their own underwater scene.
They use a range of tools and equipment to make their product.
Children evaluate and review their finished product.

Key Questions
What equipment do you need?
What resources do you need to make your underwater scene?
Is your product fit for purpose?
Have you responded to the brief?</td></tr>
<tr><td>Success Criteria:
Use levers and sliders knowledge to create own underwater scene with moving parts.</td><td>Suggested resources:
TASC sheet
Cardboard box
Lolly sticks
Paper
Card
Glue
Cello tape
Masking tape</td></tr>
<tr><td colspan="3">Vocabulary: Make, design, sliders, guide, levers, fulcrum, moving parts, mechanisms, evaluate, investigate, tools, materials.</td></tr>
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