**Year 3 Design and Technology Curriculum – Summer Term**

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| **Theme: Mechanisms – levers and linkages** | | | | | | | |
| **Curriculum objectives** | | | **Vocabulary** | | | | **Links across the curriculum** |
| Projects on a page.  • Investigate and analyse books and, where available, other products with lever and linkage mechanisms  **Designing**  Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user. • Use annotated sketches and prototypes to develop, model and communicate ideas.  **Making**  • Order the main stages of making. • Select from and use appropriate tools with some accuracy to cut, shape and join paper and card. • Select from and use finishing techniques suitable for the product they are creating.  **Evaluating**  . • Evaluate their own products and ideas against criteria and user needs, as they design and make.  **Technical knowledge and understanding**  • Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project. | | | **Keyword** | Definition | **Keyword** | Definition | **Science** – use knowledge of everyday materials to select appropriate ones for their products.  **Art and design** – use and develop drawing skills. Use colour, pattern, texture and shape.  **Spoken language** – ask relevant questions to build understanding and their technical vocabulary.  **Mathematics-** vocabulary of position and direction.  Measuring cm and mm |
| Mechanism | A device to create movement in a product. | Guide/bridge | A short card strip used to keep the lever and linkage mechanisms in place. |
| Lever | A rigid bar which moves around a pivot | Loose pivot | A paper fastener that joins card strips together. |
| Linkage | Card strips joining one or more levers to produce the type of movement required | Fixed pivot | A paper fastener that joins the card strips to the backing card. |
| Slot | The hole through which a lever is placed to enable part of a picture to move. | Input movement | Where the user pushes the card strip. |
|  |  | Output movement | Where one or more parts in the system move. |
| **Prior knowledge:** *What specifically have pupils learned that is relevant to this unit that they are building upon?* | | | | | **Future knowledge:** *What specifically will pupils learn in the future that is relevant to this unit?* | | |
| Explored and used mechanisms such as flaps, sliders and levers.  • Gained experience of basic cutting, joining and finishing techniques with paper and card (Year 2). | | | | | Apply knowledge to use pneumatic systems and cam systems. | | |
| **Lesson Sequence** | | **Key Knowledge** | | | | **Key Skills** | |
| 1. To investigate, analyse and evaluate books with a range of lever and linkage systems | | * Know how the parts in the books moved, how the mechanism worked and which materials have been used. | | | | * Explore, disassemble and investigate. | |
| 1. To focus on how different levers and linkages work, | | * Know levers have a fixed pivot and have a loose pivot in their system. | | | | * Investigate, create mock-ups and experiment with ideas | |
| 1. To design a product which uses levers and linkages. | | * Which lever mechanism they will use in their design. Know which equipment they will need in their design. | | | | * Creative design skills, drawing and labelling skills | |
| 1. To make their product using levers and linkages. | | * Know how their mechanism will work and know how to improve their design as they go along (iterative process). | | | | * Construction skills | |
| 1. To evaluate their product. | | * Know what went well and what could be improved next time. | | | | * Evaluation skills. * What went well … Even better if… | |
| **Themes and links** | | | | | | | |
| **Themes** | **Where these are covered:** | | | | | | |
| **Investigate** | * Lesson 1, 2 | | | | | | |
| **Design** | * Lesson 3 | | | | | | |
| **Make** | * Lesson 4 | | | | | | |
| **Evaluate** | * Lesson 5. How effective is the product? | | | | | | |