**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.
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| 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
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| 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
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| 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
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| 1. To evaluate their product.
 | * Know what went well and what could be improved next time.
 | * Evaluation skills.
* What went well … Even better if…
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| **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?
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