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

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| **Theme: Shell Structures.** | | | | | | | |
| **Curriculum objectives** | | | **Vocabulary** | | | | **Links across the curriculum** |
| **To design and make a 3D shape to protect a teacake.**  (Projects on a page planning)  To investigate and analyse a range of existing shell structures.  To investigate ways structures can be strengthened/stiffened.  To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes focussing on the purpose of the product.  To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.  To select from and use a wider range of materials.  To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. | | | **Keyword** | Definition | **Keyword** | Definition | **Science –**Discuss the properties and suitability of materials.  Link to ‘The Body’ science topic, reinforcing the understanding that the skeleton protects the internal organs.  Art – drawing skills.  **Spoken language** – ask relevant questions to build understanding and their vocabulary.  **Mathematics-** measures, Recognise and name 2D and 3D shapes. |
| Shell structure | A hollow structure with a thin outer covering. | Prism | A solid geometric shape with ends that are similar, equal and parallel. |
| 3D shape | 3 dimensional shapes. | Corrugating | Using a zig zag structure between two pieces of card |
| Net | The flat or opened out shape of an object. | Ribbing | Using cylinder shapes within 2 pieces of card. |
| Vertex | The corners of a solid geometric shape where the edges meet. | Laminating | Layering paper/card to add strength. |
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| **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?* | | |
| Experience of using different joining, cutting and finishing techniques with paper and card.  A basic understanding of 2D and 3D shapes and the properties of everyday materials in science.  (Year 2) | | | | | Pupils will learn how to build frame structures. | | |
| **Lesson Sequence** | | **Key Knowledge** | | | | **Key Skills** | |
| 1. To explore shell structures and evaluate their effectiveness in protection. | | * Know shell structures e.g., packages (boxes) provide protection for their contents. * Know how the structures have been constructed/ stiffened | | | | * Explore, disassembly skills, evaluation skills. | |
| 1. To investigate how nets are constructed and they can be stiffened and strengthened. | | * Corrugating, laminating and ribbing are ways to strengthen and stiffen structures | | | | * Cutting, scoring, folding, shaping, corrugating, laminating, ribbing skills. | |
| 1. To design a shell structure to protect a teacake (like a ribcage protecting the heart). | | * Certain materials and tools will be suitable and required to make the shell structure. | | | | * Creative thinking * Drawing and labelling skills. | |
| 1. To make a strong shell structure. | | * Laminating, ribbing and corrugating add strength and stiffness. | | | | * Cutting, scoring, folding, shaping, corrugating, laminating, ribbing skills. | |
| 1. To evaluate their shell structure. | | * There are different techniques for strengthening materials, some are more effective than others. | | | | * Evaluation skills. What went well… * Even better if… | |
| **Themes and links** | | | | | | | |
| **Themes** | **Where these are covered:** | | | | | | |
| **Investigate** | * Lesson 1 and 2 | | | | | | |
| **Design** | * Lesson 3 | | | | | | |
| **Make** | * Lesson 4 | | | | | | |
| **Evaluate** | * Lesson 5 | | | | | | |