**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.
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| 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.
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| 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.
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| 1. To make a strong shell structure.
 | * Laminating, ribbing and corrugating add strength and stiffness.
 | * Cutting, scoring, folding, shaping, corrugating, laminating, ribbing skills.
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| 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…
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| **Themes and links** |
| **Themes** | **Where these are covered:** |
| **Investigate** | * Lesson 1 and 2
 |
| **Design** | * Lesson 3
 |
| **Make**  | * Lesson 4
 |
| **Evaluate** | * Lesson 5
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