**Year 5 Design and Technology Curriculum – Spring Term**

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| **Theme: Frame Structures** | | | | | | | |
| **Curriculum objectives** | | | **Vocabulary** | | | | **Links across the curriculum** |
| To investigate and evaluate a range of existing frame structures.  **Designing.**  To develop a simple design specification, taking into account time, resources and costs.  Generate ideas through discussion, prototypes and annotated sketches.  **Making.**  Competently select appropriate tools for what needs to be done.  Accurately mark out, measure, cut, shape and join construction materials to make frameworks.  Use finish and decorating techniques.  **Evaluation.**  Critically evaluate their product against the design specification, intended user and purpose.  Identify strengths and areas for development by carrying out appropriate tests.  (Projects on a page) | | | **Keyword** | Definition | **Keyword** | Definition | **Science –Compare and group everyday materials on the basis of their properties.**  .  **Art** – drawing skills.  **Spoken language** –.  **Mathematics-** Identify 3D shapes from 2D representations.  Measuring.  **Spoken language**- ask relevant questions, express opinions and give detailed explanations. |
| Frame structure | A structure made of thin components e.g., a tent frame. | Tension | The force of pulling on a material or structure. |
| Modelling | The process of making a 3D representation of a structure or product | Triangulation | The use of triangular shapes to strengthen the structure. |
| Compression | The application of pressure to squeeze on an object. | Strengthen | To make or become stronger. |
| Strut | A part of a structure under compression. | Reinforce | To strengthen or support an object with additional material. |
| Prototype | A preliminary version of a device. | Annotated sketch | Drawings that combine text and sketches. |
| **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 measuring, marking out, cutting, joining and shaping and finishing techniques with construction materials (Year 4) | | | | |  | | |
| **Lesson Sequence** | | **Key Knowledge** | | | | **Key Skills** | |
| 1. To investigate existing frame structures. | | * Umbrellas, bus shelters and tents are examples of frame structures. * Know the Eiffel Tower and the Iron Bridge are examples of frame structures | | | | * Explore, disassembly skills, evaluation skills. | |
| 1. To investigate how to strengthen frame structures | | * Triangulation adds strength and stability to a structure. | | | | * Explore, investigative and testing skills | |
| 1. To design a frame structure (linked to Viking long halls or a structure to protect a long boat). | | * Creating a prototype will help with the testing process and how to improve the design. * Using annotated drawings helps plan the process step by step. | | | | * Creative thinking * Drawing and labelling skills. | |
| 1. To make a frame structure. | | * Asking questions about their design as they make it will help to improve the product i.e. Could I make it stronger? Is the structure stable? Are there weak points? | | | | * Making, using tools, questioning. | |
| 1. To evaluate the frame structure. | | * How could the frame structure have been improved? | | | | * 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 | | | | | | |