**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.
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| 1. To investigate how to strengthen frame structures
 | * Triangulation adds strength and stability to a structure.
 | * Explore, investigative and testing skills
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| 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.
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| 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.
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| 1. To evaluate the frame structure.
 | * How could the frame structure have been improved?
 | * 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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