

YEAR 4 – DESIGN AND TECHNOLOGY – SPRING 1

QUESTION: HOW CAN WE CREATE STRUCTURES THAT ACCURATELY REPRESENT A VIKING LONGBOAT?



Technical
knowledge



Practical
knowledge



Design
inspiration



Design
process



Structures

WEEKS OF TEACHING	LINE OF ENQUIRY	THRESHOLD CONCEPT	SUBSTANTIVE KNOWLEDGE	DISCIPLINARY KNOWLEDGE	CURRICULUM ENDPOINT
1.	Design thinking	- Master practical skills - Design, make, evaluate and improve - Take inspiration from design throughout history	- A Viking longboat is a strong boat that Vikings used to travel afar. - Design thinking is where you identify a problem, plan a solution, make a product, test it, and then improve it. - Designers use practical skills such as measuring, cutting, joining and shaping materials accurately and safely. - Designers take inspiration from the work of designers and from history. - Annotated sketches and simple labels help designers explain their ideas and show how their design will work.	- Choose suitable techniques to construct products. - Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. - Improve upon existing designs, giving reasons for choices.	When designing and making, pupils should be taught to: Design use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design Make
2.	Designing the longboat	- Master practical skills - Design, make, evaluate and improve - Take inspiration from design throughout history	- A Viking longboat was designed to be fast, strong, and able to travel in both deep and shallow water. - Longboats were built using overlapping wooden planks (clinker-built) to make the hull flexible and strong. - Longboats had a shallow draft so they could travel close to shore and land on beaches	- Choose suitable techniques to construct products. - Disassemble products to understand how they work.	

			Designers choose suitable techniques and materials to make products that are strong, stable, and fit for purpose.		select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities Evaluate investigate and analyse a range of existing products evaluate their ideas and products against their own design criteria and consider the views of others to improve their work understand how key events and individuals in design and technology have helped shape the world Technical knowledge apply their understanding of how to strengthen, stiffen and reinforce more complex structures
3.	Looking at materials and their strength	- Design, make, evaluate and improve - Take inspiration from design throughout history	- Different materials have different strengths and weaknesses, such as being strong, flexible, or lightweight. - Designers must choose materials that are suitable for the purpose of the product (e.g., strong for support, flexible for movement). - Materials can be strengthened by using techniques like folding, layering, or adding support structures. - Joining techniques (glue, tape, stitching, staples, etc.) must be chosen based on the materials and the strength required.	- Choose suitable techniques to construct products. - Strengthen materials using suitable techniques. - Select appropriate joining techniques.	
4.	Making the longboat	- Master practical skills - Design, make, evaluate and improve - Take inspiration from design throughout history	- Accurate measuring and marking are essential to ensure pieces fit together correctly. - Selecting the correct tools is important to cut materials safely and accurately. - Shaping materials correctly helps create a smooth and strong final product. - Choosing the right joining techniques (glue, tape, staples, etc.) is necessary to make the longboat strong and stable.	- Cut materials accurately and safely by selecting appropriate tools. - Measure and mark out to the nearest millimetre. - Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). - Select appropriate joining techniques.	
5.					
6.	Testing and evaluating	- Master practical skills - Design, make, evaluate and improve	- Evaluating materials by testing them helps designers decide which ones are best for making strong and safe products. - Testing a product shows how well it works and whether it meets the design purpose. - Evaluating materials through testing helps designers choose the strongest and safest options. - Working efficiently (choosing the best materials and methods) helps designers make better products faster.	- Design with purpose by identifying opportunities to design. - Make products by working efficiently (such as by carefully selecting materials). - Refine work and techniques as work progresses, continually evaluating the product design.	

			Continual evaluation and refinement throughout the making process improves the final product.		
7.	Improving	Design, make, evaluate and improve	- We all make mistakes, that is how we learn. - Designers should identify what the product is for and what needs to be improved to meet its purpose.	- Design with purpose by identifying opportunities to design. - Make products by working efficiently (such as by carefully selecting materials). - Refine work and techniques as work progresses, continually evaluating the product design.	

Assessment opportunity:

1. Sketch and annotate their work - Do children include labelled sketches? Do they explain materials, shapes, and purpose?
2. Longboat build quality evaluation. Is the longboat sturdy? Are joints secure? Does it match the design plan? Could they compare theirs with another teams.