



Lowerhouse Junior School

Design & Technology Overview Sheet



Year 5 – Structures – (Primary Engineers)

Make a stable tower that stands the tilt and shock test.



Key Learning: Pupils who are **secure** will be able to:

Structures (year 5)

- Cut strip wood, dowel, square section wood accurately to 1mm
- Build frameworks to support mechanisms
- Stiffen and reinforce complex structures

Plan

- Research and evaluate existing products (including book and web based research).
- Consider user and purpose.
- Understand how key people have influenced design.

Design

- List tools needed before starting the activity.
- Plan the sequence of work e.g. using a storyboard.
- Record ideas using annotated diagrams.
- Devise step by step plans which can be read / followed by someone else.
- Use exploded diagrams and cross-sectional diagrams to communicate ideas.
- Sketch and model alternative ideas.

Make

- Make prototypes.
- Develop one idea in depth.
- Use researched information to inform decisions.
- Produce detailed lists of materials and tools.
- Cut accurately and safely to a marked line.
- Use appropriate finishing techniques for the project.
- Refine their product – review and rework/improve.

Evaluate

- Identify the strengths and weaknesses of their design ideas.
- Give a report using correct technical vocabulary.
- Consider and explain how the finished product could be improved related to design criteria.
Discuss how well the finished product meets the design criteria of the user. Test on the user!

Learning Intentions

Lesson 1 - To understand the influence of famous individuals in the engineering industry and research examples of tower structures.

Lesson 2: To design final product.

Lesson 3 – To plan final product.

Lesson 4 – To measure materials for my structure.

Lesson 5 – To use joining techniques to make my structure.

Lesson 6 – To evaluate final product.

Overview:

Lesson 1: children should understand the influence of famous individuals in the engineering industry (**Gustave Eiffel**) and research examples of different tower structures.

Lesson 2: Draw and label your design.

Lesson 3: Plan my final product.

Lesson 4: children should measure materials needed for their structure.

Lesson 5: Make final product

Lesson 6: Evaluate your final product.

Cross Curricular Links**Resources**

Resources sourced form Primary Engineers

Key Vocabulary

Frame, tension, strut, structure, stability, stable, durable, lightweight, heavy, load, gravity, balance, beam, triangular, joint, base, edge, strong, weak