



Design Technology

Structures

Frame Structures

Y5

In this unit, we will design, make and evaluate a transport bridge for traversal of water. We will investigate and evaluate a range of existing bridges, use construction kits to develop ideas, engage in focused practical tasks to develop joining techniques which will inform our designing and making. We will test and evaluate our bridges, linking this to the intended purpose. We will also research inspiring individuals in this field.

Structures Knowledge:

I will:

- Understand how to strengthen,
- stiffen and reinforce 3-D frameworks.
- Know and use technical vocabulary relevant to the project

Skills

I will be able to:

Design:

- 5.1 Record ideas using annotated diagrams.
- 5.3 Sketch and model alternative ideas.
- 5.4 Decide which design idea to develop.

Make:

- 5.7 Use a wide range of materials using research to inform decisions.
- 5.8 Use a wide range of tools to measure, mark, cut and assemble accurately.
- 5.10 Refine my product – review and rework/improve.

Evaluate:

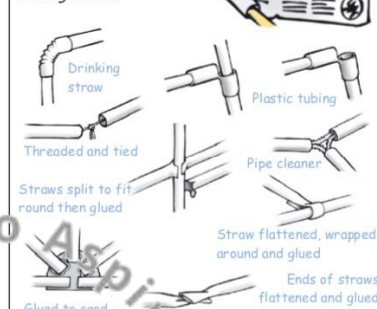
- 5.11 Research and evaluate existing products using technical vocabulary (including book and web based research).
- 5.12 Investigate key events and individuals in D&T
- 5.14 Identify how well the finished product meets the design criteria of the user.

Techniques:

Techniques for building frame structures

Roll paper to make tubes for construction

Joining straws

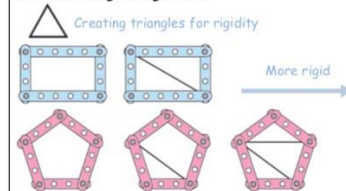


Card triangles can be used to make joints (Use PVA glue)

Elastic bands or string can be used to make joints

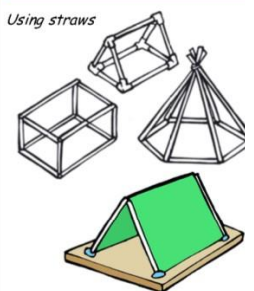
Card triangles can be used to make joints

Understanding triangulation

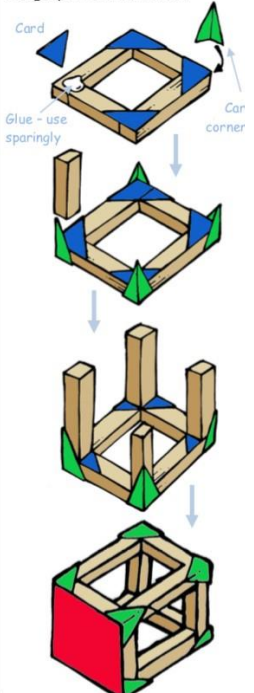


Making small-scale frame structures

Using straws



Using square section wood



Vocabulary

Technical vocabulary

Frame structure, stiffen, strengthen, reinforce, triangulation, stability, compression, strut, tie, diagonal, horizontal, vertical

Process vocabulary

Shape, join, temporary, permanent, Design brief, design specification, prototype, annotated sketch, purpose, user, innovation, research, functional, Names of tools, equipment and materials used

Inspiring Individuals



Isambard
Kingdom
Brunel



Sarah Guppy



Hellmut
Homberg