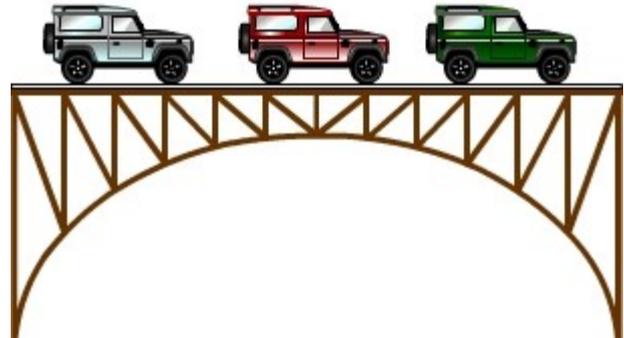


Bridge building exercise 1

Learning objective

To develop students' knowledge of structures by:

- investigating bridge structures
- using their D&T skills and knowledge to build a bridge that supports a load.



Design Brief

Design and make a model bridge that will replace a shelf in the Design and Technology display cabinet. When completed, the bridge will be used to support small products made by students in D&T lessons.

Specification

- The bridge must have a deck truss or deck arch truss structure.
- The bridge must support D&T products that will be placed on it.
- The bridge frame structure must be made from 4mm x 4mm lengths of pine.
- The deck must be made from flexible sheet material such as card.
- The bridge must stand on two battens fixed to the sides of the D&T display cabinet.

Assignment Guidance

- Measure the internal width of your D&T display cabinet. Your bridge must span the width of the cabinet precisely.
- Study the bridges animation and photographs of bridges, especially those bridges with a frame structure, i.e. truss bridges.
- You may also find it useful to study the animations of frame structures, forces, support and reinforcement of structures.
- Use your knowledge of frame structures to design a bridge that will fit precisely between the sides of the D&T display case and that will support various D&T products.
- Draw your design.
- Make your design from the 4mm x 4mm lengths of pine supplied. Use a glue gun to join the various parts or use PVA to glue thin card reinforcement pieces at the joints.
- Work in pairs to make one bridge.
- You should have your own copy of the designs.
- You should use a digital camera to photograph your finished bridge.
- Test your bridge to check that it will safely support the loads it was intended to support.
- Use DTP software to write an evaluation of your bridge. Include a photograph of your bridge on the evaluation sheet.