

Prior Knowledge

What should I know already?

In Key Stage One - building stable structures and strengthen them using a range of materials

I should have experience of:

- using measuring, marking out, cutting, joining, shaping and finishing techniques with construction materials.
- investigating what structures are and how they can be made stronger, stiffer and more stable.

Key Vocabulary

Frame structure – a structure made from thin components.

Horizontal – a line that is parallel to the ground.

Vertical – a line that is at right angles to the ground.

Modelling – the process of making a 3-D representation of a structure or product.

Prototype – early samples, models, or releases of products built to test a concept or process.

Stable - If a structure is stable, it is steady, strong and safe. It is not likely to collapse or fall over.

Triangulation – the use of triangular shapes to strengthen a structure.

Cross-Sectional – a drawing that shows a cutaway portion of the object to show the inside/plane view of the shape.

Key Skills

Designing

- Carry out research into user needs and existing products.
- Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.
- Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.

Making

- Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.
- Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.
- Use finishing and decorative techniques suitable for the product they are designing and making.

Evaluating

- Investigate and evaluate a range of existing frame structures.
- Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.

Technical knowledge and understanding

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



Creating triangles in your structure can strengthen it and make it more stable. There are different ways of doing this. You could glue card triangles to join two pieces of wood together, or use another piece of wood, paper or a plastic straw to connect two corners together.

