

In DT we are learning about... **Frame Structures - Can you make a small-scale bird hide to help wildlife?**

Key vocabulary



Frame structure - a structure made from thin components e.g. tent frame.

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

Compression - the application of pressure to squeeze an object.

Strut - a part of a structure under compression.

Tension - a force pulling on a material or structure.

Tie - a part of a structure under tension.

Diagonal - a straight line that goes from one corner to another inside a shape.

Horizontal - a line that is parallel to the ground.

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

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

Purpose - How your product is going to be used

Audience - Who is going to be using your product

Function - How well the design helps and meets the needs and wants of the user

Characteristics needed for this topic:

- Problem Solving
- Improving/resilience
- Curiosity



Sticky knowledge and skills

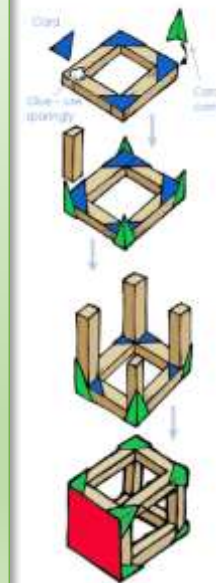


- Frame Structures are rigid support structures that use beams, columns and slabs to hold large forces of gravity and weight.
- They give shape and support and have joints.
- Houses, skyscrapers, bridges, scaffoldings, tables, bird-hides and roller coasters are frame structures.
- They can be strengthened by foundations and bracing.
- Triangulation can help make a structure stronger as when force is applied to one point on the triangle the pressure is shared amongst the other two points.
- Card strips can be used to create secure joints.
- I can collect information about existing products and use market research to inform my design (year 6).
- I can explain how my product will appeal to a specific audience and how it meets its purpose, producing a design specification .
- I can draw detailed 3D designs and use exploded diagrams or cross-sectional drawing (year 6).
- I can make a prototype before making a final version.
- I can name, choose and use specific tools for a task competently and safely .
- I can carry out finishing techniques to enhance appearance and function of their product.
- I can ensure that my frame is stable by using further strengthening techniques.
- I can test and evaluate the appearance and function of my product with specified audience and design criteria/specification.

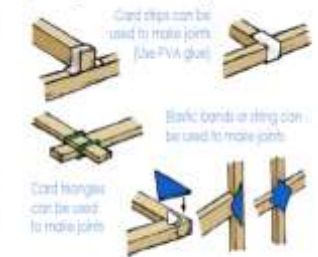
Key Designers

Attenborough Nature Reserve and Sir David Attenborough
 Bird hide designs - The Wild Deck Company
 Gilleard Brothers Ltd - Fred and Joe Gilleard

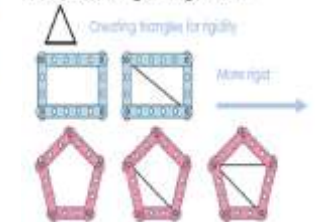
Using square section wood



Joining thin sectioned pieces of wood



Understanding triangulation



Links to previous learning



- A wider base can help a structure be more secure
- Know how to strengthen a product by stiffening a given part or reinforce a part of a structure
- Triangles are a strong shape
- Using basic tools, including a junior hacksaw

Aspirations



- Joiner
- Wildlife Conservationist
- Structural Engineer
- Construction Manager