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

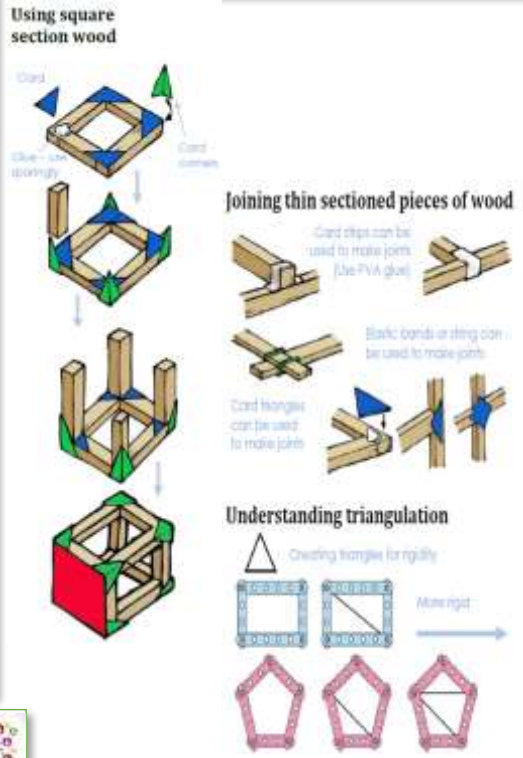
- Frame Structures are rigid support structures that use beams, columns and slabs to hold large forces of gravity and weight.
- They give shape and support and have joints.
- Houses, skyscrapers, bridges, scaffoldings, tables, bird-hides and roller coasters are frame structures.
- They can be strengthened 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.

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

Key Designers

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



Aspirations

- Joiner
- Wildlife Conservationist
- Structural Engineer
- Construction Manager