Year 5

Knowledge Organiser: D&T

Inquiry Question: What is a frame structure?

Key Vocabulary		
Design	Make	Evaluate
Frame Structure	Rigid	Beam
Column	Slab	Joint
3D Net	Strengthen	Stable

Key Learning

Build more complex 3D structures and apply his/ her knowledge of strengthening techniques to make them stronger or more stable.

Know and use technical vocabulary relevant to the project.

Skills

Design	*Make*	*Evaluate*
Generate innovative ideas through research including surveys, interviews and questionnaires and discussion with peers to develop a design brief and criteria for a design specification. Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification. Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views. and, where appropriate, computer-aided design	Produce detailed lists of equipment and fabrics relevant to their tasks. Write a step-by-step plan, including a list of resources required. Select from and use, a range of appropriate tools and equipment accurately to measure and combine appropriate ingredients, materials and resources.	Investigate and analyse products linked to their final product. Compare the final product to the original design specification and record the evaluations. Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose. Consider the views of others to improve their work

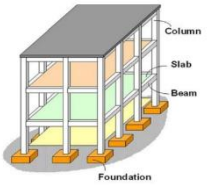
In Year 4, you learn how to;

- Develop and use knowledge of how to construct strong, stiff shell structures.
- Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.
- Know and use technical vocabulary relevant to the project

Overview – Frame Structures

You should already know that structures are things that are built for a purpose, for example to support something or hold something.

Frame Structures are rigid support structures that use beams, columns and slabs to hold large forces of gravity and weight.



Frame structures give shape, and are useful for support & weight bearing.

Unlike shell structures, frame structures have joints, which are formed according to the design requirements and materials being used.

Some examples of man-made objects that use frame structures are houses, skyscrapers, bridges, scaffolding, tables, and roller coasters! The system of beams and columns in a frame structure can be further strengthened through the use of other features, e.g. foundations, bracing.

A frame structure is... A frame structure is made strong/ stable by...

A 3D net is.. A 3D net is used for....

My structure works well because...

My product would be better if...