

FRAME STRUCTURES – RED SQUIRREL CLASS

Key Vocabulary	
model	a small but exact copy of a thing
assemble	to fit together the parts of something
waterproof	something that keeps water out
durable	not easily broken or worn out: sturdy and lasting
disassemble	to take apart
reassemble	to put back together again
prototype	the first one of the project you make
rigid	Unable to bend or be forced out of shape
triangulation	In complex structures, materials are often arranged into triangles – this is called triangulation. This helps make a structure strong enough to support a heavy weight or to be built on a large scale. A frame structure with triangles. Used to provide extra strength and support to other structures.

Frame Structures

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. 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. Triangulation will help to make your structure stronger. This is important when you are considering how to construct your bridge when creating stable joints.



Examples of Frame Structures

A fence

A fence is a simple frame structure as it only has a few parts. Its function is to create a boundary without needing any extra support to stay upright.



A suspension bridge

Frame structures can be used to make a suspension bridge. It's function is to cross large areas of land or water, carry heavy vehicles and remain standing in difficult environments.



A skyscraper

A skyscraper is a complex frame structure. It is a very tall building with many stories, or floors. Its function is to provide a large amount of space to work or live in, while only taking up a small area on the ground.

The Design Process					
Design Brief	Design Criteria	Generating Ideas	Prototype	Make the Product	Evaluation
<p>A planning document that explains what the project is, how it will be achieved and the time frame that it needs to be made in.</p> <p>Design Brief</p> <p>Setting the scene The design brief is the starting point for the design process. It is a document that explains what the project is, how it will be achieved and the time frame that it needs to be made in.</p> <p>Establishing the project The design brief is a document that explains what the project is, how it will be achieved and the time frame that it needs to be made in.</p> <p>The design brief is a document that explains what the project is, how it will be achieved and the time frame that it needs to be made in.</p>	<p>Tells you what a product must do to be successful.</p> <p>Design Criteria</p> <p>What the product must do to be successful.</p>	<p>Exploring different products and thinking about how they could be adapted. Creating an annotated sketch of your idea.</p> <p>Generating Ideas</p> <p>Exploring different products and thinking about how they could be adapted. Creating an annotated sketch of your idea.</p>	<p>The first example of what the real thing will look like. It is used for testing, development and evaluation.</p> <p>Prototype</p> <p>The first example of what the real thing will look like. It is used for testing, development and evaluation.</p>	<p>Using the annotated sketches and prototypes to help create your product.</p> <p>Make the Product</p> <p>Using the annotated sketches and prototypes to help create your product.</p>	<p>Checking that the product meets the design criteria and has achieved its purpose.</p> <p>Evaluation</p> <p>Checking that the product meets the design criteria and has achieved its purpose.</p>