

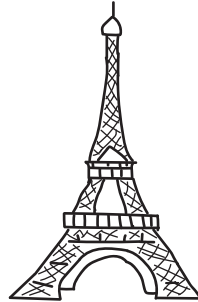
Forces and Structures

This activity was created by Zoe.

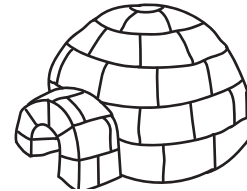
A structure is something which will support an object or a weight. It can also be described as anything that provides support and is made from one or more parts. There are three main classifications of structures:



Solid Structure



Frame Structure



Shell Structure

Solid Structures

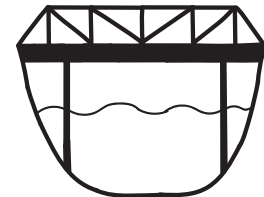
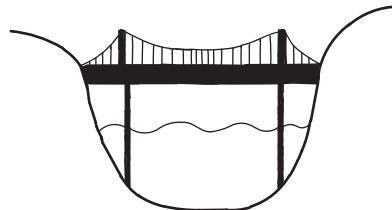
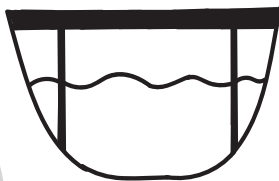
- Most solid structures are solid all the way through. Examples are *The Great Wall of China* and the *Egyptian pyramids*

Frame Structures

- These are made of parts fastened together. The parts are often called structural components. *Your skeleton, the frame of your house, and the Eiffel Tower* are good examples of a frame structure.

Shell Structures

- Most strong, hollow structures are shell structures. Examples of shell structures are *igloos, coconuts, and seashells*.



Bridges are among one of the most popular structures across the world. Bridges must be able to withstand several types of forces and the most common are Compression, Tension, Torsion, and Shearing.

Compression

- This is a pushing force. It pushes or presses an object to make it shorter and thicker.

Tension

- This is a pulling force. It occurs when two forces pull on an object in opposite directions to stretch it.

Torsion

- This is a twisting force. When you wring out a cloth, you are applying torsion to the cloth to release the liquid.

Shearing

- This happens when there are two opposing forces acting on the same point. Walking is an example; as you take a step, one leg pushes into the ground while you lift the other one up.