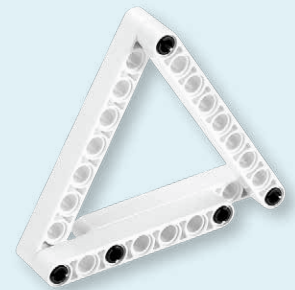


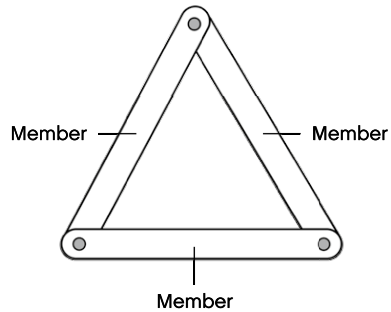
Structures

Student Worksheet

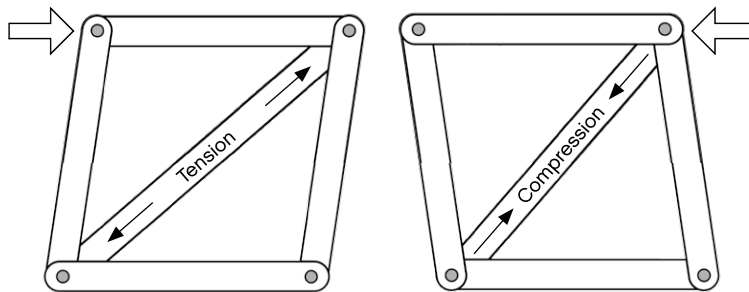


Structures

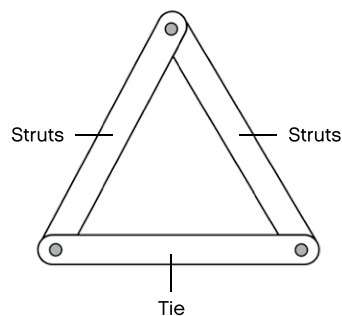
A structure is a construction in which individual parts are arranged to form a whole. All structures are under the influence of external and internal forces. Examples of external forces acting on a structure include the wind or the weight of trucks and buses passing over a bridge. An internal force could be the weight of a roof or the shaking of a large diesel engine on its mountings. Choice of materials will affect the safety level of a structure.



A frame structure is made from pieces called members. This frame is rigid because it is triangulated.



The forces that act on members are called tensile forces or compression forces. Tensile forces will stretch the structure and compression forces will squeeze the structure.



Members that are in tension are called ties; members that are under compression are called struts.

Common examples of structural principles can be found in scaffoldings, buildings and bridges.

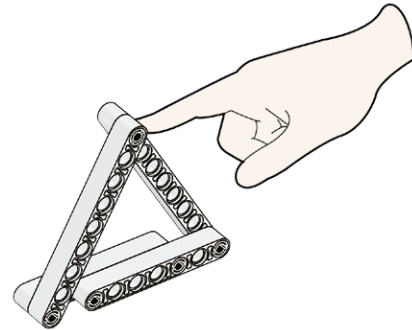
Did you know?

In bridges, cranes, towers and even space stations, triangulation is often used to make structures rigid.

J1

Build J1 book III, page 30

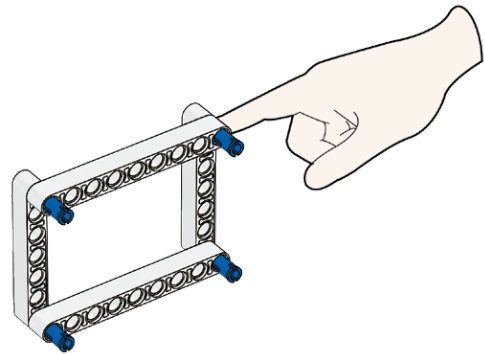
Push to create compression forces and pull to create tension forces on the members of the triangular frame. Describe what happens.



J2

Build J2 book III, page 31

Push and pull to create tensile or compression forces on the members of the rectangular frame. Describe what happens.



J3

Build J3 book III, page 32

Add the cross member and push and pull the rectangular frame to create tensile forces or compression forces. Describe what happens.

