

Strength

The capacity of a material to withstand force without breaking.

Stiffness

The capacity to resist deformation (bending) in response to an applied force.

Compression

The application of inward "pushing" forces on a material or structure.

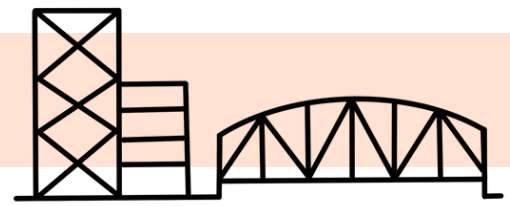
Tension

A force that pulls a material or structure apart.

Center of Gravity

The average location of all the weight of an object, or the balance point of an object.

Strong Shapes!

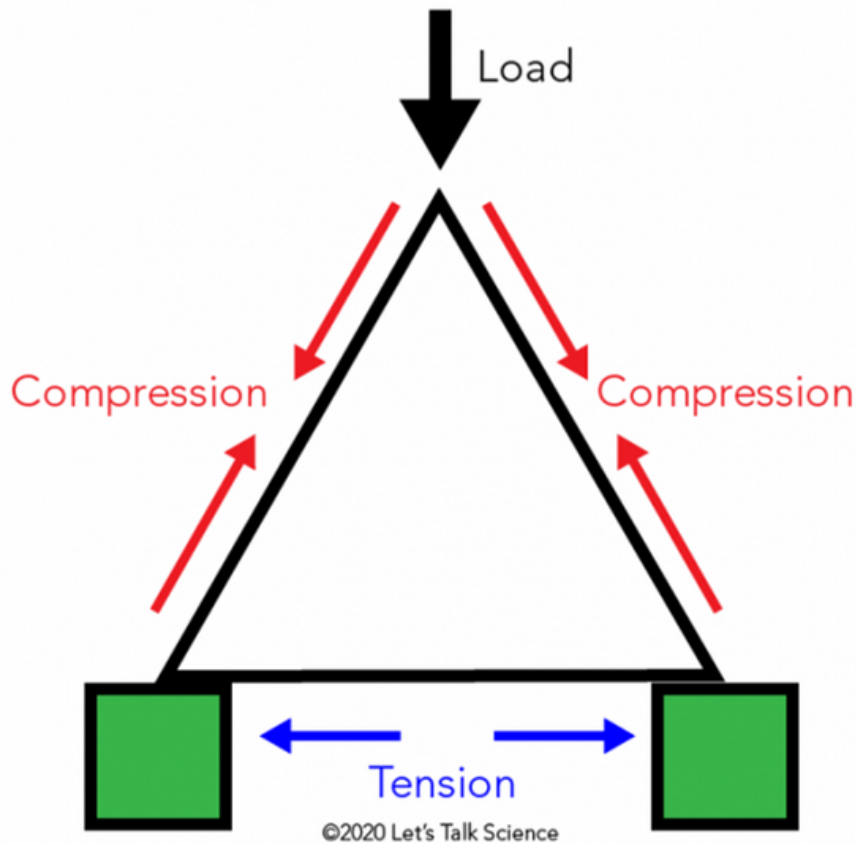


Why Triangles are a Strong Shape

When a force (the load) is applied to one of the corners of a triangle, it is distributed down each side.

The two sides of the triangle are squeezed. Another word for this squeezing is compression.

The third side of the triangle is pulled or stretched sideways. Another word for this stretching is tension.



Whether in compression or tension, a triangle transfers the load without creating a large bend in the sides, and the triangle itself will not change shape, as a rectangle is likely to do.

Engineering Design Process

