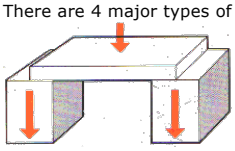
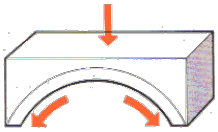
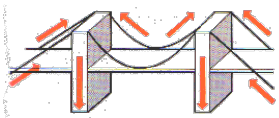
There are 4 major types of bridges.

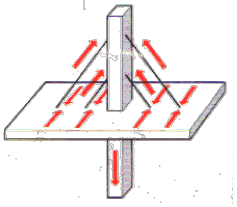


Beam - The beam type is the simplest type of bridge. The beam bridge could be anything as simple as a plank of wood to a complex structure. It is made of two or more supports which hold up a beam.

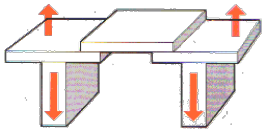


Arch - In the arch type of bridge, weight is carried outward along two paths, curving toward the ground.





Suspension/Cable-stayed - The deck (trafficway) of a suspension bridge is hung by cables which hang from towers. The cables transfer the weight to the towers, which transfer the weight to the ground.
Cable-stayed bridges have towers, but cables from the towers go directly to the road deck, instead of spanning from tower to tower.



Cantilever - In the cantilever type of bridge, two beams support another beam, which is where the deck or trafficway is. The two beams must be anchored, and this must be done well.

The biggest difference between the three is the distances they can cross in a single span. A span is the distance between two bridge supports, whether they are columns, towers or the wall of a canyon. A modern beam bridge, for instance, is likely to span a distance of up to 200 feet (60 meters), while a modern arch can safely span up to 800 or 1,000 feet (240 to 300 m). A suspension bridge, the pinnacle of bridge technology, is capable of spanning up to 7,000 feet (2,100 m).

What allows an arch bridge to span greater distances than a beam bridge, or a suspension bridge to span a distance seven times that of an arch bridge? The answer lies in how each bridge type deals with two important forces called compression and tension:

Compression is a force that acts to compress or shorten the thing it is acting on.

Tension is a force that acts to expand or lengthen the thing it is acting on.

A simple, everyday example of compression and tension is a spring. When we press down, or push the two ends of the spring together, we compress it. The force of compression shortens the spring. When we pull up, or pull apart the two ends, we create tension in the spring. The force of tension lengthens the spring.

Compression and tension are present in all bridges, and it's the job of the bridge design to handle these forces without buckling or snapping. Buckling is what happens when the force of compression overcomes an object's ability to handle compression, and snapping is what happens when the force of tension overcomes an object's ability to handle tension. The best way to deal with these forces is to either dissipate them or transfer them. To dissipate force is to spread it out over a greater area, so that no one spot has to bear the brunt of the concentrated force. To transfer force is to move it from an area of weakness to an area of strength, an area designed to handle the force. An arch bridge is a good example of dissipation, while a suspension bridge is a good example of transference.