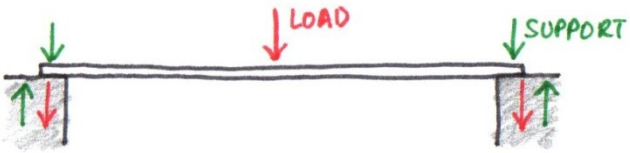
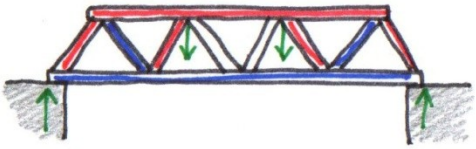
THE FOUR MAIN TYPES OF BRIDGES:

1. BEAM BRIDGE



Weight is applied at either end to counteract the bending at the centre. The beam must be strong in both compression and tension to resist twisting & bending under load.
(Can only span 250 ft max)

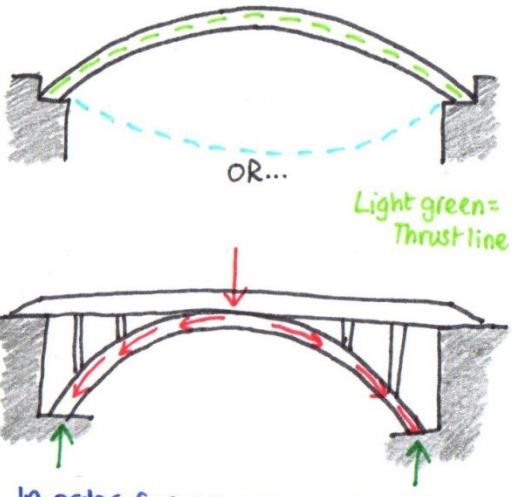
2. TRUSS BRIDGE



- Compression
- Tension
- → Forces

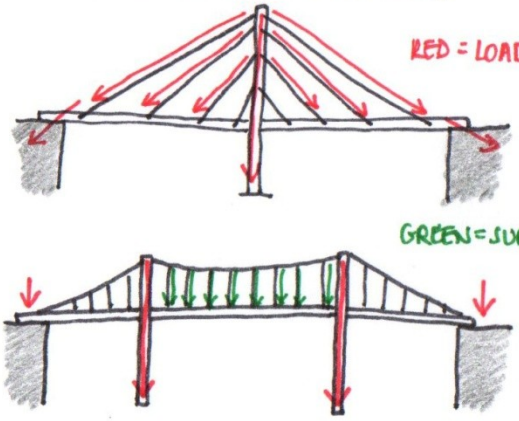
Truss bridges are kept strong by the stiffness of the structure. All the beams/members work together to spread out the load.

3. ARCH BRIDGE



In order for an arch bridge to work it needs to have firm foundations, to allow all the members to push back against each other. The arch needs to be within a thrust line to stay rigid + supportive. This can be found by hanging a chain off the gap + then mirroring it (light blue dotted line).

4. SUSPENSION BRIDGE



4a) Cable-stayed bridge

4b) Suspension bridge

Suspension bridges allow for the longest spans. The bed of the bridge can be continuous, and is held up by cables stretched between piers. In the top bridge, these cables are rigid + directly connected to the bridge deck. In the bottom bridge, they hang vertically off another cable supported by the piers.