



Engineering Day 2020

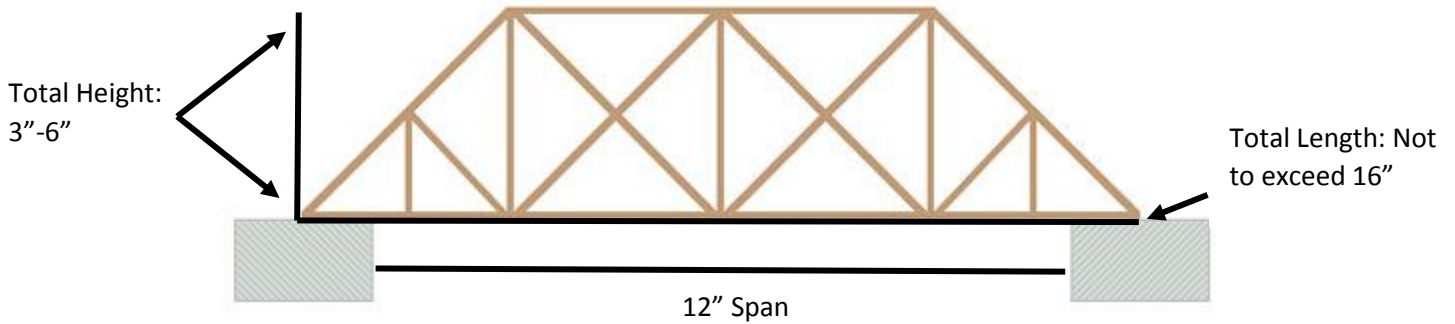
Balsa Wood Bridge

Goal:

Design and build a bridge constructed from balsa wood according to the contest rules which supports the maximum weight.

Rules/Judging:

1. Construct bridge using 1/8" balsa wood and Elmer's wood glue. No other materials may be used.
2. Glue may only be applied to joints. Do not use glue as a structural member.
3. The bridge must be free standing and span a distance greater than 12" but must not exceed a total length of 16"
4. The bridge must include a balsa wood deck that is at least 2" wide across the full span of the bridge.
5. The bridge may contain no more than a 2-ply of laminated beams.
6. The bridge must allow for a generic Hot Wheels to roll across the span unimpeded.
7. The total height of the bridge must be greater than 3" but must not exceed 6" total. No substructure is allowed.
8. Load will be applied by a 4"x2"x1/2" rectangular load plate with a mount for the loading mechanism to be applied.
9. A 1/2"x1/2" square cutout must be placed at the exact center of the bridge to allow the loading plate connector to fit sufficiently.
10. This contest is open to individual students and teams of two. Scoring for bridges is independent of number of builders.



Score:

Supported weight will be recorded at breaking point OR when bridge base deflection has exceeded $\frac{1}{2}$ ".

Score will be calculated by dividing the max load by the weight of the bridge

$$\text{maximum load supported} \div \text{bridge weight}$$

In the case of a tie, the bridge that supported the higher load will win.

Required Materials:

Teams are to provide all materials for completion of their bridge prior to arrival.