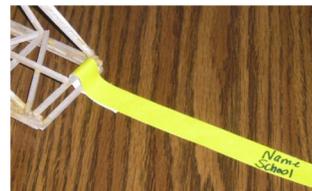


MoDOT's 9th Annual Bridge Building Competition

For high school juniors and seniors

IMPORTANT INFORMATION

1. Use the **RULES** provided in bridge kits. **ONLY THESE RULES PROVIDED IN THE BRIDGE KITS ARE THE OFFICIAL COMPETITION RULES.**
2. We will pick up your bridge on Oct. 31 & Nov. 1. **Please attach your yellow identification tag provided in your bridge kits to your completed bridge before we pick up.** The bridges will be inspected at our office and any disqualified bridges will then be notified. If for some reason you do not complete a bridge entry, please return bridge materials.
3. If you are a senior interested in scholarships, **YOU MUST HAVE YOUR SCHOLARSHIP INFORMATION** (Intent form, ACT, and transcript) ready on Oct. 31 & Nov. 1 when we pick up your bridge.
4. You must be **PRESENT** at the competition on Nov. 15 to win prizes.
5. If you have any questions, please contact us.



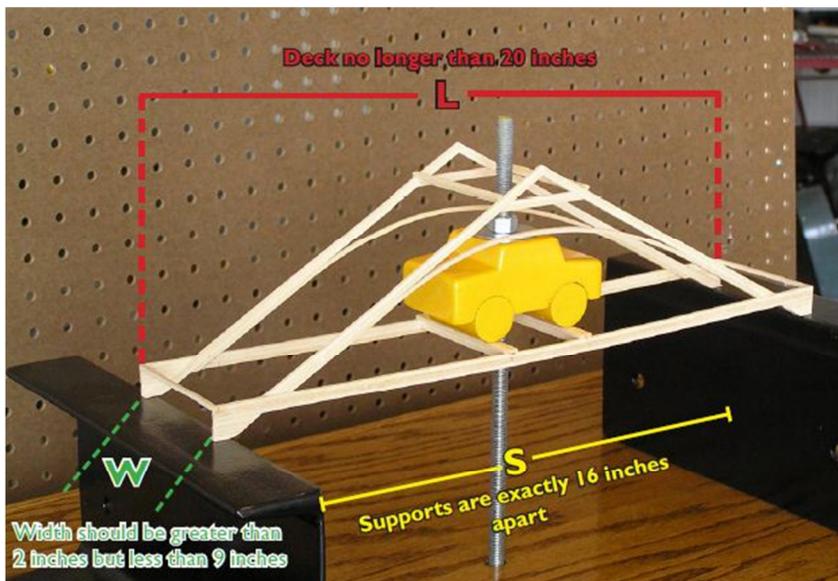
OFFICIAL RULES

The object of this competition is to design and construct the most efficient bridge within these rules.

All bridges will be thoroughly inspected. Bridges which do not meet the requirements listed in the following rules will be disqualified and participants notified approximately one week prior to the competition. During the competition, if a condition becomes apparent (use of ineligible materials, etc.) which violates any of the competition rules, that bridge will be disqualified.

Decisions of the judges are final. No discussions regarding disqualified bridges will take place at the competition.

1. Students may use only materials provided by MoDOT. Each student will receive an individual bridge kit containing 15 pieces of 1/8" square balsa wood, a bottle of glue, and string. No other materials may be used, and no more may be used than what's provided to each student. The bridge may not be stained, painted, or coated in any fashion with any substance; this includes the glue provided in the kit. **If you use any materials not provided by MoDOT your bridge will be DISQUALIFIED.**
2. Length (L) of the bridge should be no longer than 20 inches. The support surfaces are exactly 16 inches apart and cannot be adjusted during the competition. The bridge must span (S) both support surfaces (i.e. greater than 16 inches but less than or equal to 20 inches). Keep in mind, 1) if the supports are 16 inches apart, your deck must be longer than 16 inches to properly rest on the support surfaces 2) **if you construct your bridge with substructure, your bridge will be disqualified.**



- Width (W) should be greater than 2 inches to place the loading car on the bridge so that no part of the car touches the bridge other than the wheels, but less than 9 inches.
- The bridge must have a deck. The deck should 1) be rectangular in shape, 2) be supported at each end, 3) run the entire length of the structure, 4) be constructed of wood, and 5) support the loading car.

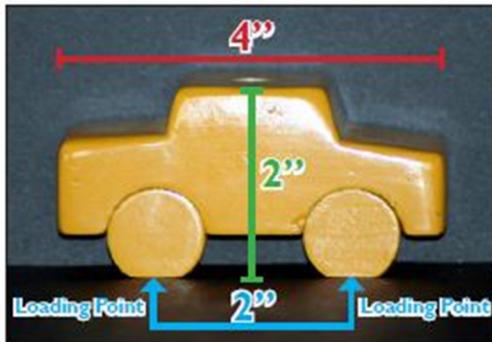
Overview of the basic elements the bridge deck must have



- A solid deck surface is not required, but the loading car must be able to pass the bridge from end to end along the deck (i.e. there should be no string or wood member restricting the car's passage, see picture).



- Loading points on the bridge should be located 1 inch on each side of the center of the bridge and no greater than 2 inches above the support surfaces. If any portion of the loading car, except the wheels, makes contact with the bridge, it will be disqualified.



- The load will be applied to the threaded rod from below, as depicted in the photo. The bridge must support a minimum load of 7 pounds (3.2 kg).
- The bridge must be constructed with a minimum 1 inch square opening centered on the bridge at mid-span, to allow the loading rod to pass vertically through the bridge and all the way through the top.
- Loading will continue until bridge failure. Bridge failure is defined as the inability of the bridge to carry additional load or a load deflection of 1 inch under the loading location, whichever occurs first.
- A maximum load of 80 lbs (36.3 kg) will be used to evaluate efficiency. For bridges supporting a load greater than 80 lbs, the additional load above 80 lbs will not be included in the efficiency calculation.



- The bridge with the highest structural efficiency, E , will be declared the winner. $E = \text{load}/\text{weight}$

Do's and Don'ts

These are great looking bridges, but some don't meet all the rules. You are going to spend a great deal of time working on your bridge and want to see it tested.

Follow the rules explicitly, and if you have *any* questions about the competition rules, design or construction, please contact us. It's always better to ask than be disqualified.

We highly recommend if you have any questions, contact us or send us a photo/drawing of your bridge before we pick them up.

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