

1st Annual Model Bridge Contest
Elmira High School

Dates:

1. Completed bridges are due Monday, February 21st during your science class
2. Bridge testing will occur at 6:30 pm on February 21st in the EHS Cafeteria. Students need not be present for the final testing, though attendance is recommended for full enjoyment of this project.

Rules:

1. Bridges may be entered in the physics division by students in either 3rd or 4th period physics. Physical Science students completing bridges for extra credit (fun?) will enter their bridges in a separate division.
2. Bridges shall be constructed only of Balsa Wood and glue. Cement/Glue is not permitted in large quantities at the joints or as a coating on structural members. Laminated pieces of wood are permitted
3. Completed bridges must have a mass of forty-five (45.0) grams (g) or less. No Exceptions.
4. Bridges may be entered by individual students or as a partnership of not more than two (2) people.
5. Bridges shall be designed to span a thirty-eight (38) centimeter (cm) span.
6. The outside width of the bridge shall not be more than 6.0 cm and not less than 5.0 cm along the entire length of the roadway. The length of the bridge shall not exceed 43.0 cm. A 2.0 wide x 2.0 cm high rod must be able to pass along the full length of the bridge roadway.
7. The bridge not exceed 12.0 cm above the test support surface and not more than 12.0 cm below it.
8. The load will be applied to the bridge at the roadway surface. The roadway surface may not be more than 2.0 cm above the test support surface.
9. When placed on the test span the bridge must be able to slide back and forth. Bridges can not be wedged into the supports.
10. Disputes will be adjudicated by Mr. Hellman. His decisions are final.
11. The **Winning Bridge** shall be declared on the basis of the maximum load held in each category (Physics and Physical Science)
12. A **Special Award** will be given to the lightest bridge to hold 100 pounds

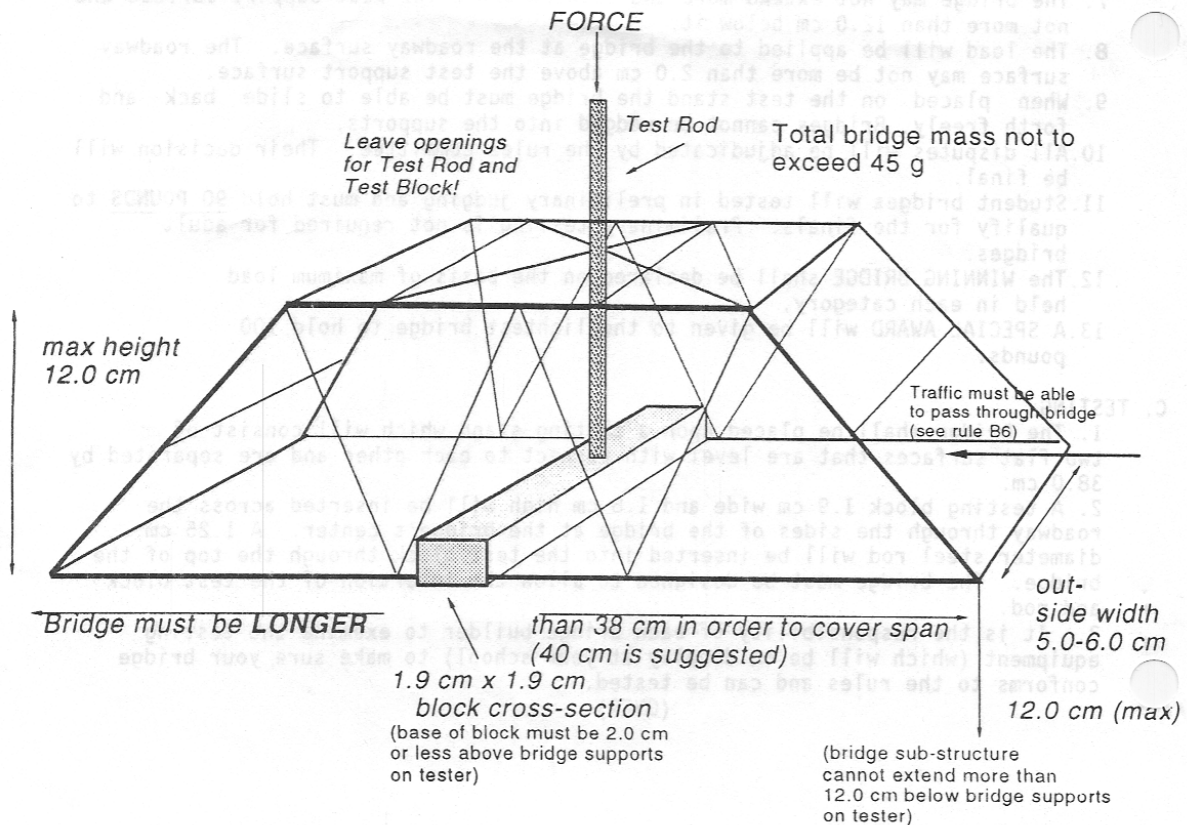
Testing:

1. The bridge shall be placed upon a testing stand which will consist of two flat surfaces that are level with respect to each other and are separated by 38.0 cm.
2. A testing block 2.0 cm wide by 2.0 cm high will be inserted across the roadway through the sides of the bridge at the bridge's center. A steel rod will be inserted into the test block through the top of the bridge. The bridge must be designed to allow the insertion of the test block and rod.

3. It is the responsibility of each bridge builder to examine the testing equipment to make sure your bridge conforms to the rules and can be tested.

Comments:

1. The bridge need not look like a 'normal' bridge as long as the rules are met.
2. Any kind of glue may be used. Though expensive, I recommend cyanoacrylate glue. Balsa wood and glue may be purchased at Eugene Toy and Hobby (32 E 11th Ave, Eugene, 97401), Oregon Art Supply (1020 Pearl St, Eugene, 97401) or the University of Oregon Bookstore (895 E 13th Ave . Eugene, OR 97403).
BASS WOOD IS ILLEGAL.
3. Not all balsa is created equal. Density and grain are an important factor in your wood strength. I will do my best to purchase the highest quality balsa I can find. If you desire more control over your wood supply you will need to make outside arrangements. Balsa density ranges from 0.1 g/cm^3 to 0.25 g/cm^3 . Buyer beware.
4. Do not make your bridge 38.0 cm long. It must be long enough to extend over the supports which are 38.0 cm apart! A good length is 40.0 cm.



Schematic Courtesy Walter Hellman, Hillsboro High School