

TEACHERS WORKSHOP 2023





2023 Teachers Workshop

www.modelbridgecomp.com

Twitter: @702Bridge



Introductions

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Description of Bridge Kits

- 15 Sticks of Bass Wood
- 1 Bottle of Glue
- Cost: \$5
- Money supports the competition
- Contact: Walt or David



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Rules Overview





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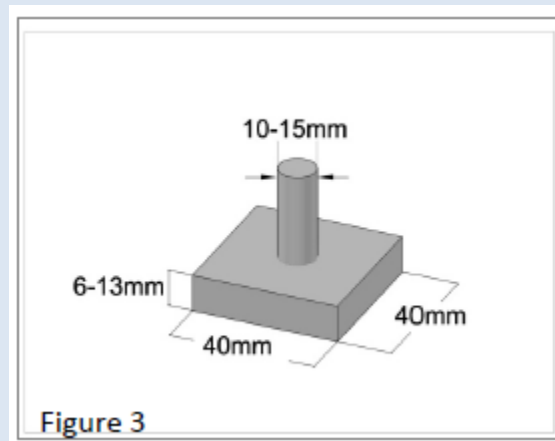
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Loading

- Load will be applied to loading plane from above with the loading plate centered over one of the loading locations.

Loading Plate





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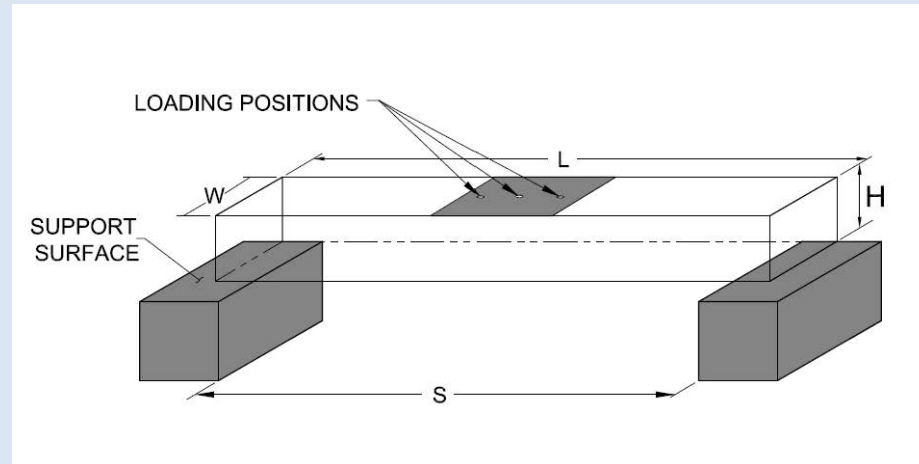
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Elementary School Division

- Max Weight: 30 grams
- Span (S) > 300 mm
- Length (L) ≤ 400 mm
- Height (H) ≥ 50 and ≤ 80 mm
- Width (W) ≥ 30 and ≤ 60 mm





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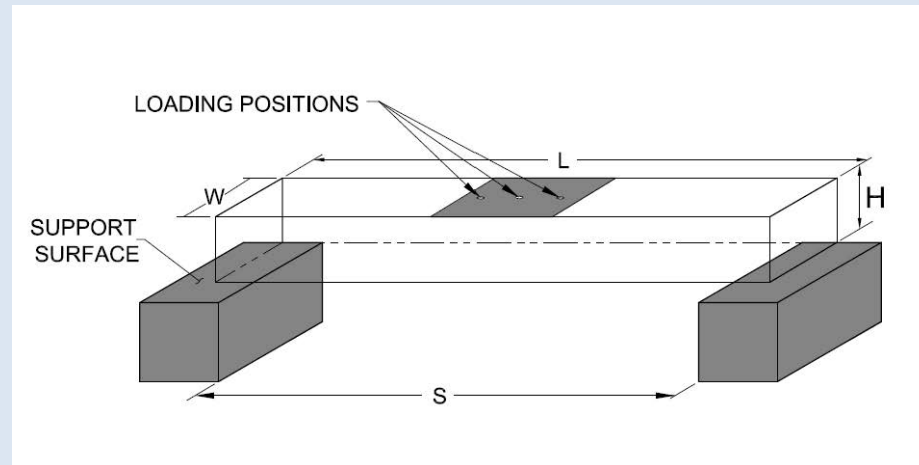
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Middle School Division

- Max Weight: 25 grams
- Span (S) > 300 mm
- Length (L) ≤ 400 mm
- Height (H) ≥ 50 and ≤ 80 mm
- Width (W) ≥ 30 and ≤ 60 mm





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ES and MS Division

- Loading Alternatives:
 - Center of Bridge
 - 50 mm to the right of center
 - 50 mm to the left of center



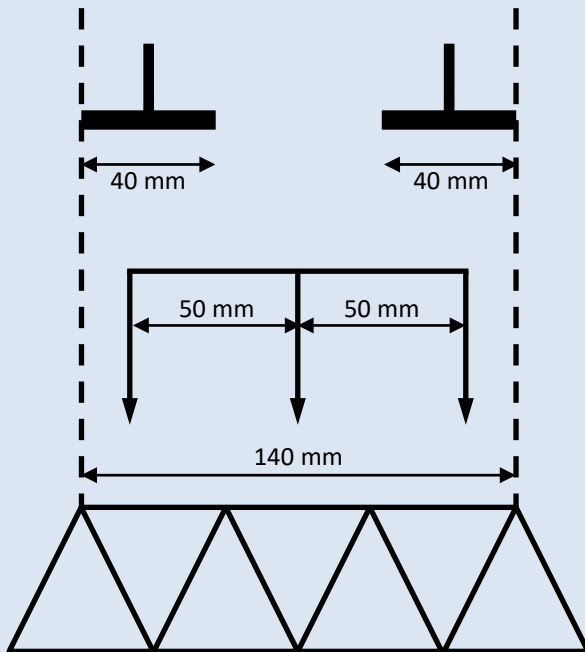
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Top of Bridge Length Calculation



- Three Loading Alternative: center, and 50mm to left and right of center.
- Loading Plate is 40 x 40 mm and will be centered at loading position. ($40/2 = 20$ mm)

$$\text{Top of Bridge Length} = 50 \text{ mm} + 50 \text{ mm} + 20 \text{ mm} + 20 \text{ mm} = \mathbf{140 \text{ mm}}$$



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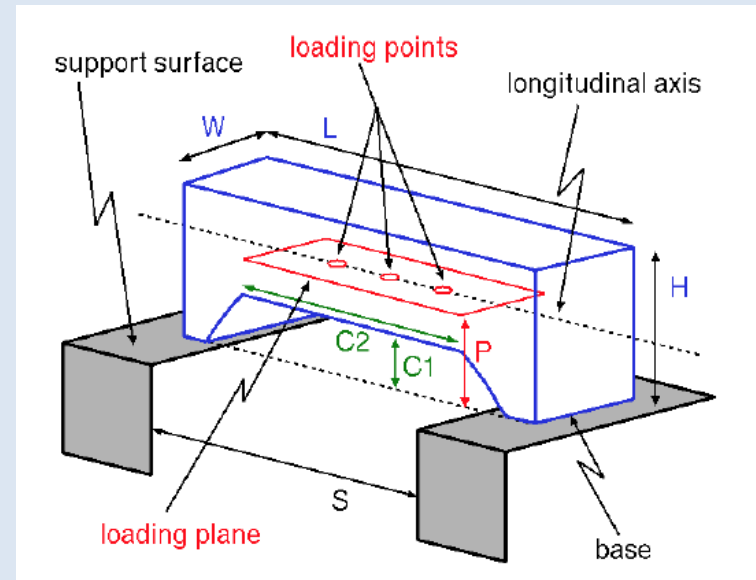


High School Division

- Max Weight: 25 grams
- $S > 300$ mm
- $L \leq 400$ mm
- $H \leq 180$ mm
- $W \leq 70$ mm
- $P \leq 80$ mm
- $C1 > 60$ mm
- $C2 > 160$ mm

Clearance Area (C1/C2):

No part of the bridge structure may be built into the clearance area and a 60 mm by 160 mm wide block must pass cleanly beneath the bridge as it rests on the support surfaces.





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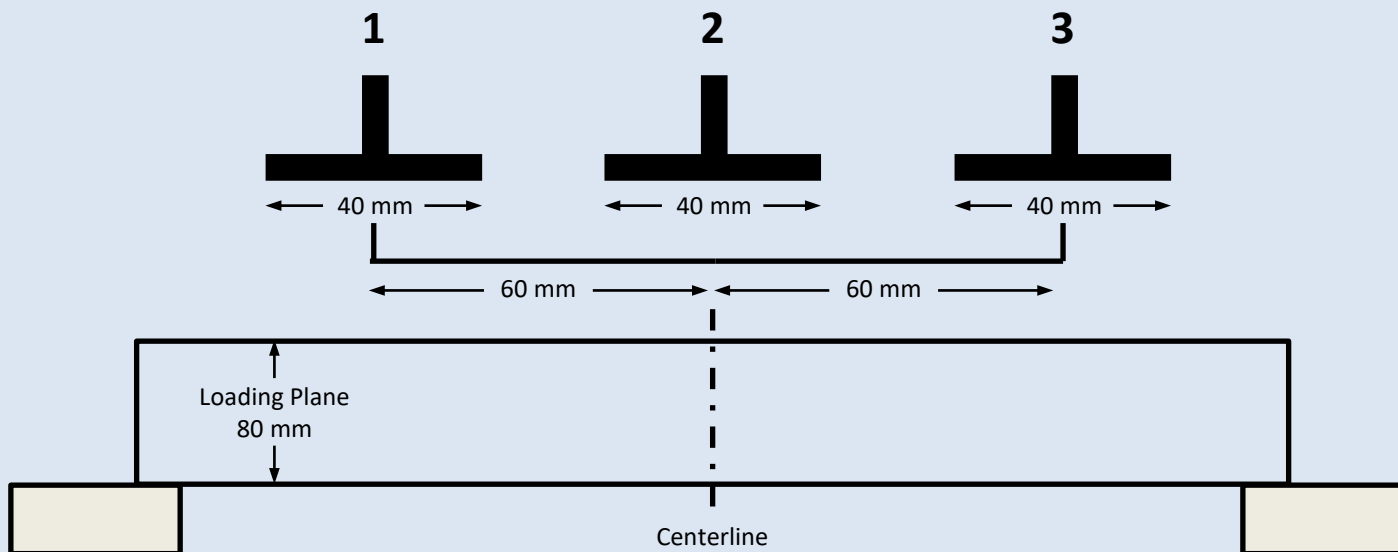
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High School Division

- Loading Alternatives Horizontal Loading Plane:
 - 1: 60 mm to the left of center
 - 2: Center of Bridge
 - 3: 60 mm to the right of center
- Horizontal Loading Plan ≤ 80 mm above support surface





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Qualification Overview



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Qualification Overview

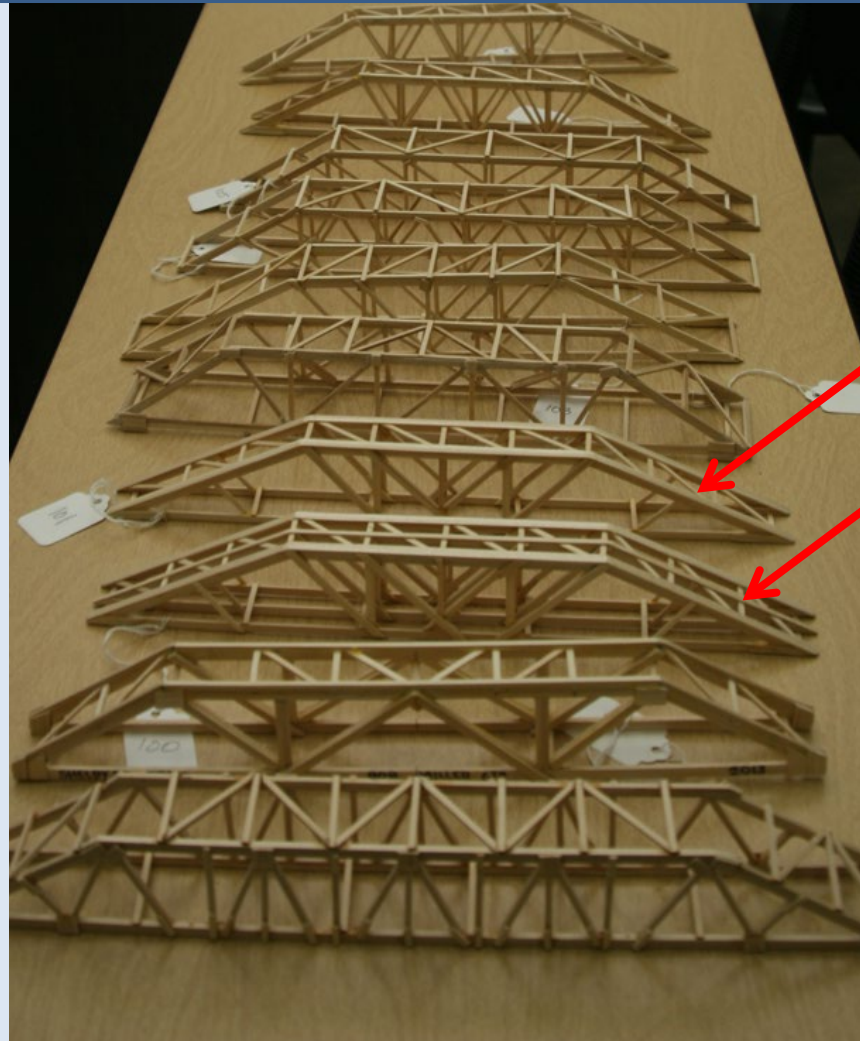
- Specifications will be checked prior to testing
- For the purposes of INDIVIDUAL scoring, only ONE bridge is allowed per student.
- For the purpose of TEAM scoring, multiple bridges from student(s) will be accepted for the team's average score, given the following:
 - A school cannot field the minimum amount of bridges from the participating students.
 - The additional bridge is of a different design than the student's first bridge.
- All bridges submitted must appear to have a unique design.
- Any school submitting bridges designed from template will face disqualification.



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Testing Overview



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Vertical Loading Testing Machine



"I find a certain joy in destroying the hard work of others"

– Tanner Hartranft



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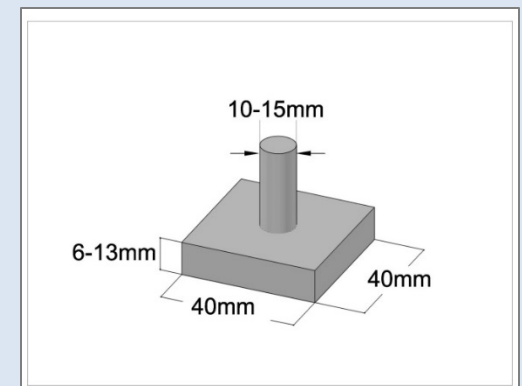
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Testing Procedure

- The bridge will be centered on the support surface
- The loading plate will be placed on the bridge at one of the loading alternatives previously described.
- The load will be steadily applied from above from the loading plate.
- Bridge with the highest structural efficiency (E) will be the winner:
 - **$E = \text{Load supported in grams} / \text{weight of the bridge in grams}$**





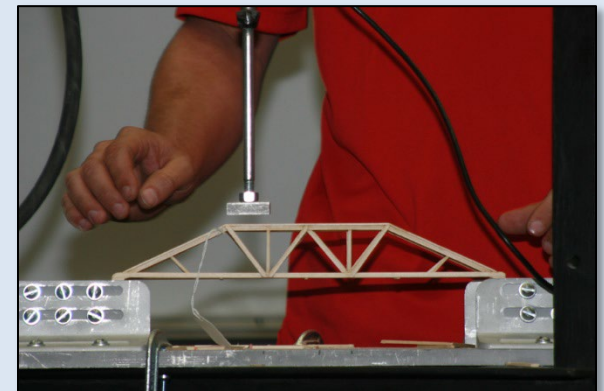
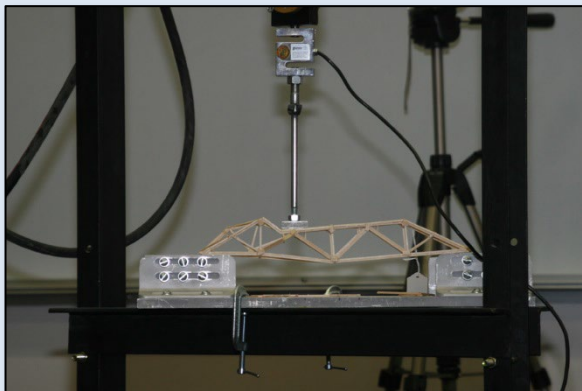
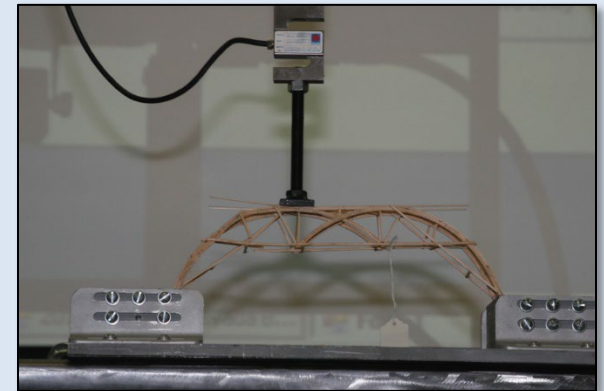
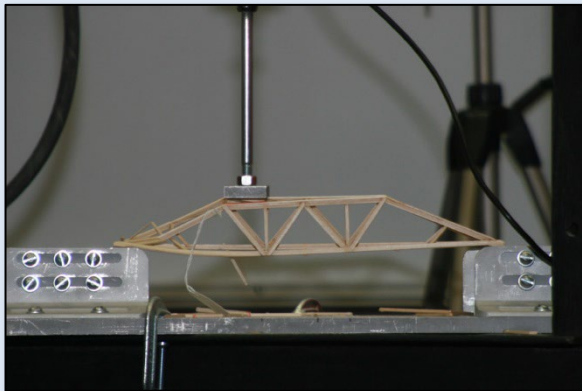
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Testing Examples





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Results and Awards



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Results and Awards

- Elementary and Middle School:
 - Traveling trophy will be awarded to the school with the highest average efficiency for its best 5 bridges.
 - An Individual award will be given to the highest performing bridge from each school.
- High School:
 - The 2 highest performing bridges will be eligible to represent the southern Nevada region at the 2023 International Competition.
 - Travel expenses for the student and one chaperone will be paid for by the SNMBBC.



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45th International Bridge Building Contest

Chicago, Illinois

Saturday, April 29, 2023



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Closing Remarks

- Registration Closes: **February 24, 2023**
- Day of Contest: **Saturday, March 4, 2023**
- Location of Contest: UNLV College of Engineering
- Be sure to check the FAQ page of our website
- Follow us on Twitter @702Bridge



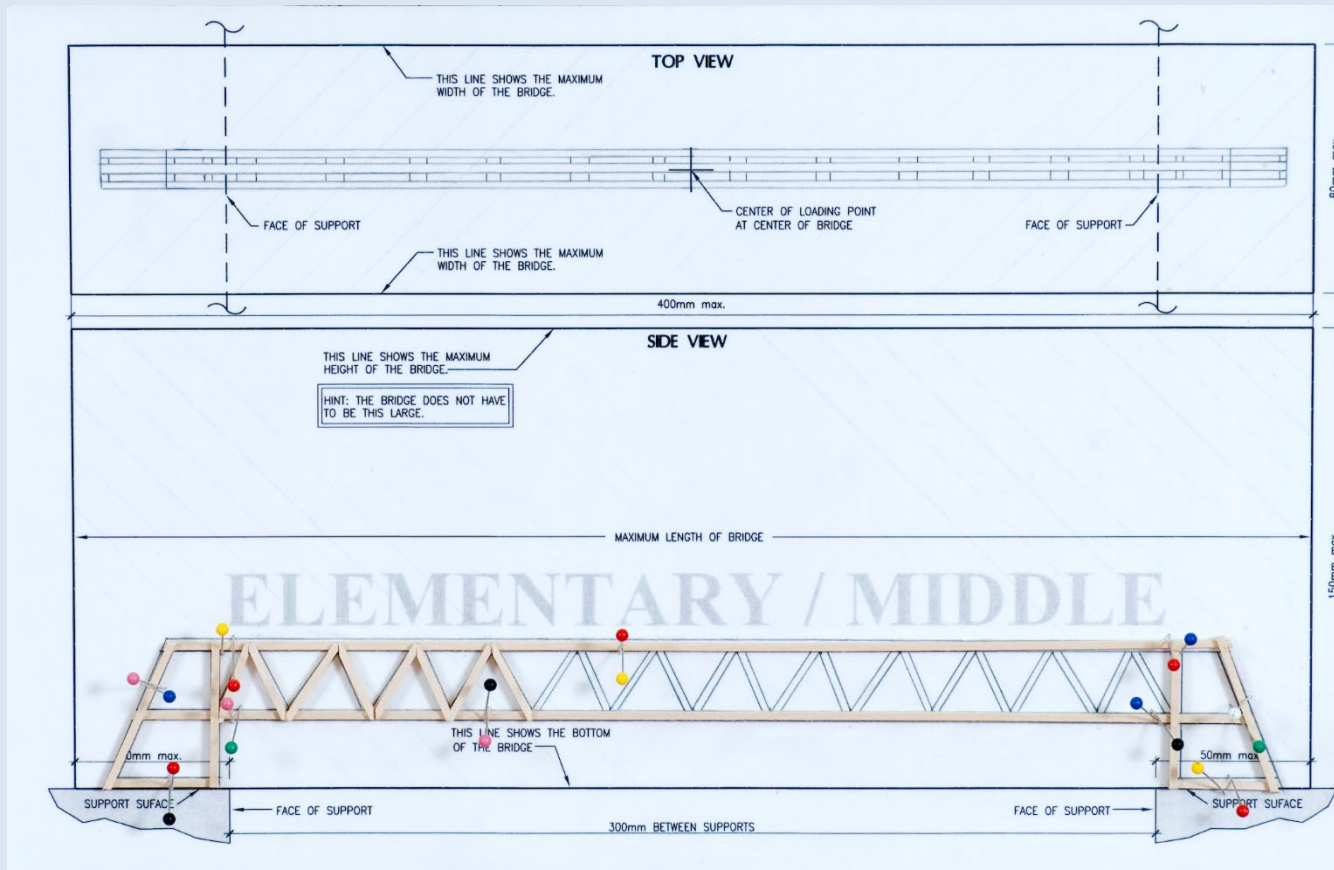
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Extras





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Extras

