

## A. Objective

To build a cantilever bridge within our specifications. It must be constructed of approved materials.

## B. Apparatus

### a) Building Materials:

1. Popsicle sticks (For making the whole beam)
2. Cotton threads (For making cables)
3. Glue (For joining the popsicle sticks)
4. Paper (For reinforcing joints)

### b) Dimensions:

1. Min Span Length - 600 mm
2. Min Column height - 300mm
3. Min Span Width - 100 mm
4. Min space between two parallel sticks - 50mm
5. Only two cables can be attached on each side.
6. The column should be compulsorily square in dimensions.
7. The height of column above the span should be atleast 100 mm.
8. The beam must be able to support the load at the free end.
9. After column span should be in one plane only.
10. Maximum 3 sticks can be joined together.

To clear all the doubts following diagram clears all doubt: (NOTE: This fig. is just a demo.)



### C. The Competition:

1. Maximum 4 members are allowed in one team.
2. Teams must submit their bridge 1/2 hour before the competition for inspection.
3. Inspection team will test that the construction rules were followed.
4. Once the bridge is in position, loads will be attached in the position indicated above. The load will hang below the bridge.
5. Beams will then be subjected to loading. Bridge failure will be considered the point at which the bridge breaks.

### D. Judging and Scoring:

1. Final Score A = 
$$\frac{2*W*L*H}{D*w}$$

Where, W = Weight taken by structure (in gram)

H = Height of column from bottom to the beam of structure (in cm)

L = Length of span (in cm)

D = Deflection (in cm)

w = Weight of the structure (in gram)

2. In case two teams have same score then the team having higher value of  $\left(\frac{W}{D}\right)$  will have preference over the other team.
3. The excessive use of materials at joints may lead to deduction of points in overall score.
4. The bridge with the highest score wins the event.
5. Violation of any of the above stated rules may lead to disqualification or deduction in score.
6. If the number of participants is less than 5, the event will be cancelled out.
7. And if participants are less than 10, then the prize money will be given to only first two teams.

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