## Lunar Bridge 2016

## Objective

To design and construct the lightest bridge capable of holding two bricks ( 4.6 kg total).

## Construction

1a) Elem/Middle School divisions (Grades 5-9)

- The bridge must be constructed only of balsawood and glue.
- All balsa pieces used for construction must be no greater than $1 / 8$ inch thick $\mathrm{x} 1 / 2$ inch wide x 9 cm long.


## 1b) High School Division (grades 10-12) only

- The entire bridge must be constructed of commercially-made wooden toothpicks and glue only. (no bamboo or balsa)
- All toothpicks used for construction must be no greater than 3 mm thick x 7 cm long.

2) The wood may not be coated or impregnated with glue paint or other materials. Glue can only be applied to points of contact between pieces of wood.
3) The bridge must span a horizontal opening 400 mm wide. Therefore the bridge must be greater than $\mathbf{4 0 0} \mathbf{~ m m}$ in length. The supports forming the opening which are supplied by the judges are fixed in position. The bridge should be built to allow for a tolerance of plus or minus several mm in the width of the opening.
4) The bridge may not extend more than 200 mm below the top of the supports nor more than 70 mm above the top of the supports.
5) The bridge may touch only the top surfaces of the supports and the inside vertical surfaces of the supports no more than 70 mm below the top of the supports.
6) The bridge will rest on the supports without being fixed to the supports in any way.
7) The bridge is not required to have a continuous deck surface.

## Competition

1a) For all Divisions, the bridge must provide a surface able to support and balance two bricks ( 4.6 kg total) at any two points within the 400 mm span.
2) The bridge will be tested by placing the bricks at two points (chosen by the judges) on the bridge.
3) The bricks are placed with their long dimensions perpendicular to the $\mathbf{4 0 0} \mathbf{~ m m}$ span and its broad face down.
4) The brick must be supported by the bridge for 10 seconds at each point. During this interval the bridge and the brick may not be touched and Construction rules \# 4 \& 5 may not be violated.

## Judging

The bridge with the least mass that supports the bricks will be declared the winner.

Judge: Mike Richards, Walter Johnson High School
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