Scout Bridge Building Challenge 2010

The challenge is to build a Bridge with Popsicle Sticks and Glue.

Can you build the strongest bridge?

**WHEN:** Wednesday, late Feb. or early March (TBD)

**WHERE:** The Science and Technology Museum

**WHO:** All registered Scouts in Rideau Area

**COST:** $15 per bridge

**Materials Permitted:**

- Craft sticks (also known as Popsicle sticks)
- Elmer’s white glue, or LePages white or carpenter’s glue only
- No other materials are permitted or the Bridge will be disqualified.

**The Building Team:**

Each Troop is permitted to enter at least one bridge. A bridge building team may comprise of as many Scouts as the team leader wishes. However a Troop may only enter an additional bridge if each bridge entered is built by a team comprising of four Scouts (one of which must be either a patrol leader or an assistant patrol leader). If a recognized Troop shares a meeting location and/or Scout Councilors, this Troop may enter their own bridge design, as long as the team consists of only Scouts from this Troop.

Example (using one recognized Scout Troop)

1-7 Scouts - 1 bridge design
8-11 Scouts - 1 or 2 bridge designs
12-15 Scouts - 1, 2 or 3 bridge designs etc.

The Troop will be responsible for the $15 registration fee per bridge entered into the competition.

**The Bridge:**

The bridge structure is to be designed and built entirely by the Patrol. Adult supervisors may only provide advice. Information regarding bridge designs may be obtained from books and electronic...
media. The bridge is to be built using ONLY craft sticks and white glue. No power tools or metal screws are allowed to assemble the bridges.

The distance between the bridge abutments (clear span) is 750mm. The bridge is to be a minimum of 750mm long and cannot exceed 800mm long.

The width of the bridge is to be between 100mm and 150mm and stable on its bearings without external support. The bridge cannot be stabilized during testing or display. Bridges narrower or wider than this will be disqualified and removed from the challenge. The maximum overall height of the structure is 400mm. No anchorage at the abutments is permitted.

Because the bridge designs are intended to match the practical application of the structure (bridges are designed to allow for people to cross), all bridges are expected to allow for an unfinished Kub Kar (meaning the car will be its original size) to pass through the bridge on its wheels. The bridge must have a completed deck to permit the passage of the vehicle (after all, how many bridges have you seen which require the passengers to travel on the support beams?).

The craft sticks may not be cut or split lengthways. There is no restriction on the number or amount of craft sticks or glue used. The bridge MUST NOT be painted or finished in any way or it will be disqualified. The total weight of the structure as presented for judging is not to exceed 1.0kg.

Each bridge is to have a level area at the centre of the span to allow a testing beam (20mm * 30mm) to be inserted for testing the strength of the bridge. The testing beam will span the entire width of the bridge. It will have a solid hook that will hang below the centre of the bridge to which the test weights will be attached.

The completed bridge is to be delivered, fully assembled, to the Train Bay of the Museum of Science and Technology no later than 1900 (7:00 PM) on (TBD). Once the bridge structure has been accepted there will be no additions, subtractions, repairs or alterations to the structure. The bridges will be placed on a display table, for viewing prior to the testing. Each bridge is to have attached a clearly identifiable sign that indicates:

- Scout Area
- Troop name
- Patrol name
- PL
- APL

The Troop Scouter is to provide, to the coordinator, a written statement that the bridge was in fact built by the Patrol and the Patrol membership complies with the restrictions noted above.

The Challenge:

The decision of the Judge(s) is final. Any bridge that does not meet the requirements laid out will be disqualified and removed from testing.

Each bridge will be assigned a number as they are accepted for the challenge. The order for testing each bridge will be determined by drawing ballots out of a box.
The testing of the bridges will commence at 1915 (7:15 PM) or as soon after as is practical.

The Patrol who constructed the bridge should be present as their bridge is tested. During the testing, at least the PL or APL must be present. If the PL or APL is not present the bridge will be withdrawn and disqualified from the challenge. There will not be any changing of the order or delay in the testing.

The bridge to be tested will be centered over the two abutments and the testing beam will be inserted. The PL/APL may view the placement of the bridge on the abutments and the insertion of the testing beam. The bridge will then be loaded with weights until it structurally fails. The definition of “failure” is when the bridge structurally collapses or a deflection of 50mm occurs. The final supported weight will be recorded as the challenge weight.

The bridge will be loaded by suspending weight from the testing beam. The weights will be added in 500g increments until the bridge supports 5kg. Then the weight increments will be reduced to 250g until the bridge supports 8kg. Subsequent weight increments will be 100g until the bridge fails. The patrol leader may elect to stop further loading of the bridge and the last recorded weight will be the challenge weight. In this event no further testing of the bridge will be entertained and the decision is irrevocable. Weights will be added and a 20 second period will transpire before the next weight is added.

Judging:

All decisions by the judges are final. Interference with the judge or the decisions will result in the automatic disqualification of the Patrol and their bridge. At any time during the display or challenge testing of the bridge, if the judge(s) determines that products other than craft sticks and white glue have been used in the construction, the Patrol and their bridge will be disqualified. If the judge(s) determine that the Patrol does not meet the restrictions on its composition or that they did not in fact wholly construct the bridge, they and their bridge will be disqualified.

During the display period, the bridges will be judged on appearance and construction methods. There will also be a chance for the public (including Scouts), in attendance, to submit a ballot (the people’s choice award) for the best bridge.

There will be three challenge awards for the three bridges that support the most weight during the challenge testing.

Prizes and Awards:

• The peoples choice award
• Best design of a bridge structure as judged by a guest engineer
• Most original bridge design
• Strongest Bridge
• Participation certificates for all entrants

Entry fee and deadline:

The fee to enter a bridge is $15.00 payable with registration. Registration is at Scouters Club on February 3, 2010 or by e-mail to Rick Sidock no later than February 11, 2010. E-mail address is: rsidock@rogers.com and must include the following information.
Scout Troop name
Troop Scout Leader
Patrol name
Patrol Leader name
Names of all Bridge Builders (for their participation certificates)
Fees are not refundable and are payable when the bridge is delivered to the challenge. Cheques are written, payable to “Rideau Area Scouters Club”.