EVENT 3: NEWSPAPER BRIDGE

OBJECTIVE: To design and build a bridge that will support the greatest weight per gram of material used to construct it.

RULES:

   a. The team will design, construct and bring the bridge to the competition ready to be tested.
   b. The bridge is to be constructed using only standard type newspaper (such as: The Asbury Park Press, The Star Leger, The New York Times, The New York Post and/or The Daily News, The Philadelphia Inquirer, etc.) and only 3M scotch transparent tape, ½ or ¾ inch wide or similar brands.
   c. The bridge must span a length of 30.0 centimeters and have a flat (in a horizontal plane) and unobstructed roadbed to allow a toy car to pass through. (Dimensions of the car are: width from wheel to wheel approximately 4.5 cm, length approximately 7.5 cm, height approximately 4.2 cm)
   d. The roadbed need not be solid, as long as a toy car can be placed on it and pushed across it without falling through it.
   e. The roadbed must allow for a metal rod to be placed horizontally across the middle of it perpendicular to the long axis of the bridge. (Diameter of metal rod is approximately 7.0 mm and length is approximately 22.8 cm).
   f. The bridge must be free standing (it may not be attached or clamped to any surface) and allow for a 5.0 cm high by 30.0 cm wide board to pass underneath while standing on a flat surface.

COMPETITION AND SCORING:

   a. The mass of the bridge will be determined before the bridge is tested.
   b. The bridge will be placed on two (2) flat-topped tables 25.0 cm apart.
   c. A metal rod will be set perpendicularly across the middle of the roadbed.
   d. Two loops of cord attached to a 5 gal bucket will be attached to the rod.
   e. Sand will be poured into the bucket until the bridge breaks.
   f. The weight of the sand, rod, and bucket will then be measured.
   g. The winning bridge will be the bridge that supports the most weight, per gram of material used to construct it, before collapsing.
   h. The bridge will be considered collapsed when the roadbed breaks or when the roadbed sags more than 5.0 centimeters from the unloaded position.
   i. The bridge with the greatest weight per gram of material used to construct it wins.

$$\text{SCORE} = \frac{\text{(Weight per gram of your bridge)}}{\text{(Weight per gram of winning bridge)}} \times 100 \text{ points}$$

$$\text{Weight per gram} = \frac{\text{(Weight of sand, rod, bucket \& cord in pounds)}}{\text{(Mass of bridge in grams)}}$$

Disqualification score: Twenty (20) points minimum score for a qualifying bridge that is capable of standing by itself supporting the rod and empty bucket.

Updates to the rules and frequently asked questions with answer are available at: njaapt.wildapricot.org. It is the team's responsibility to check for changes and clarifications to the rules.