MYSTERY ARCHITECTURE

See General Rules, Eye Protection & other Policies on www.soinc.org as they apply to every event.

1. DESCRIPTION: At the beginning of the event, teams will be given a bag of building materials and instructions for designing and building a device that can be tested.

**A TEAM OF UP TO:** 2  
**APPROXIMATE TIME:** 50 minutes

2. EVENT PARAMETERS:
   a. Each team may bring 1 pair of scissors, 1 flat standard 30 cm (12") ruler, and 1 pair of pliers.
   b. No other materials, tools, notes, or resources are permitted.

3. THE COMPETITION:
   a. Each team will be given a bag containing the same materials and instructions as to the type of device to be constructed. The students will not know the task until they begin the competition.
   b. Examples of materials that may be provided include, but are not limited to: paper cups, drinking straws, paper clips, string, tape, paper, thumbtacks, and craft sticks. Only those materials contained in the bag may be used to build the device. The bag and instructions must not be used. No other materials or adhesives may be part of the finished device.
   c. The devices to be built are limited to an elevated bridge, cantilever, arch or tunnel. If a cantilever is to be built, the event supervisor will supply the fulcrum, and provide a counterbalance. **If a tunnel is to be built, the event supervisor will specify the internal dimension.**
   d. The instructions must identify a Primary Dimension, a Secondary Dimension, whether the device must support a load, and the required duration of load support.
   e. Unless specifically stated in the instructions, devices must be freestanding and must not be attached to a tabletop, floor, ceiling, or other support.
   f. If the device must support a load, a separate identical load of the same dimensions and weight as used for testing will be provided to each team. When finished building, the load must be removed from the device. The event supervisor will direct the participants when to place the official load in/on the device.
   g. Only participants and the event supervisor are allowed in the event area. Once in the event area, they must not leave or receive outside assistance, materials, or communication.
   h. The supervisor will review with the team the data being recorded on their scoresheet.

4. SAMPLE TASKS & PRIMARY DIMENSIONS:
   a. For an elevated bridge, the Primary Dimension could be the measurement between the closest inside supports plus the height from the base to the lowest bridge support. If the bridge fails to support the load, the Primary Dimension will be measured from the point of contact to the farther inside support plus a height score of zero.
   b. For a cantilever, the Primary Dimension could be measured:
      i. with no load, from the fulcrum to the end of the cantilever,
      ii. with a load, from the fulcrum to the closest point of contact or attachment of the load.
   c. For an arch, the Primary Dimension could be measured:
      i. with no load, from the base to the highest point of the arch
      ii. with a load, from the base to the highest point of the load
   d. For a tunnel, the Primary Dimension could be the measurement of the longest continuously enclosed portion of the tunnel.

5. SCORING:
   a. Highest or lowest score wins depending on instructions.
   b. The Primary and Secondary Dimensions will be measured in cm to the nearest 0.1 cm by the event supervisor. Devices requiring a load will be measured both prior to and after placement of the load once the duration time concludes, if successfully held.
   c. Devices without load requirements will be ranked in order of Primary Dimensions as per instructions.
   d. Devices with load requirements will be ranked as follows:
      i. Tier 1: Devices which support the load will be ranked in order of Primary Dimensions after the placement of the load.
      ii. Tier 2: Devices where the load, or its underlying material, contact the table or the event supervisor is unable to measure the height due to movement of the load will be ranked by Primary Dimensions as measured before the placement of the load.
   e. The Secondary Dimension will be used as a Tie Breaker if necessary.

**Recommended Resources:** The Science Olympiad Store (store.soinc.org) carries the Problem Solving/Technology CD; other resources are on the event page at soinc.org.