



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:**

Each team may bring 1 pair of scissors, 1 linear measuring device, and 1 pair of pliers. 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 a tower, bridge, or cantilever. Cantilevers may only be assigned at State or National tournaments. If a cantilever is to be built, the event supervisor will designate the location of, or supply the fulcrum, and provide a counterbalance.
- 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 must be provided to each team. When finished building, students must remove the load from their device. When directed by the event supervisor, the students will 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 a tower, the Primary Dimension could be measured:
 - i. with no load, to the flat top of the tower,
 - ii. with a load, to the top of the supplied load.
- b. For a bridge, the Primary Dimension could be measured between the closest inside supports. If the bridge fails to support the load, the Primary Dimension will be measured from the point of contact to the farther inside support.
- c. 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.

5. **SCORING:**

- a. Highest or lowest score wins depending on construction 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 and after the duration time, if successfully held.
- c. Devices with no load requirements will be ranked in order of Primary Dimensions as per construction 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 which do not support the load will be ranked by Primary Dimensions as measured before the placement of the load. Not supporting the load is defined as the load or its underlying material making contact with the table or inability of the event supervisor to measure the height due to movement 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.