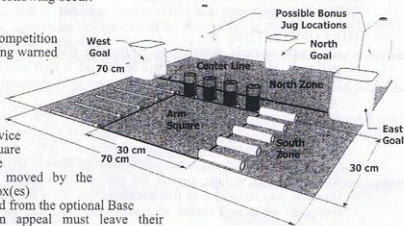


Read the General Rules in the manuals and on www.soinc.org as they apply to every event.

- One unmodified half-gallon jug with the cap removed (the "Bonus Box") is placed at one of the two North corners of the Competition Area by the Event Supervisor. Placement is the same for all teams. It must not be secured to the ground. The Device may move it anywhere after Competition Time begins.
6. **COMPETITION:** At check in, the Event Supervisor inspects and measures the device, selects 4 items from the technical documentation, and has the competitors point them out on their device.
 - a. Teams have 5 minutes of Prep Time to set up and test their Device in the Competition Area.
 - b. Teams have 3 minutes of Competition Time to complete the task of moving the scoreable items, which begins once the team notifies the Supervisor they are ready and initiate movement of the Device.
 - c. The run must stop if any of the following occur:
 - i. 3 minutes has elapsed
 - ii. The team says "Stop"
 - iii. The team steps onto the Competition Area a second time after being warned once
 - iv. Any end effectors are moved by anything besides stored energy in the Device
 - v. Any part of the Device touching the Arm Square surface exits the Arm Square
 - vi. The Device is physically moved by the connections to the control box(es)
 - vii. The Arm(s) become detached from the optional Base
 - d. Teams who wish to file an appeal must leave their documentation and Device with the Supervisor.



7. **SCORING:** High score wins.
 - a. If the team or control box(es) connections move any of the scoreable items (pencils, nails, pipes, batteries), or if any scoreable item touches the surface outside of the Competition Area, even if it is under the control of the Arm(s), that item is out of play and must not be used to attain any points. The Goal and Bonus Boxes may touch the surface outside the Competition Area.
 - b. Teams receive points for items completely supported by Goal Boxes at the end of the Competition Time as listed below. Points attributed to an item in the Goal Box must only be counted if that item was placed while the box was upright.

	West Goal Box	North Goal Box	East Goal Box
Pencil	3	2	2
Nail	2	3	2
PVC	2	2	3
 - c. Teams receive 4 points for each Goal Box that completely supports one or more batteries. (12 points max.)
 - d. At the end of the run, any item that is completely within the North Zone and not completely supported by one of the Goal or Bonus Boxes receives 1 point.
 - e. 10 points for each item type (except batteries) completely in the Bonus Box. (30 points max.)
 - f. If at least one item is fully in the North Zone or supported by a Goal Box when time is stopped 5 points are awarded for each Goal Box that did not lie completely sideways at any time. (15 points max.)
 - g. The maximum number of points possible is 94.
 - h. Teams with complete technical documents receive their full score. For each complete document missing (4a-c), teams receive a 10% penalty off of their final score (up to 30%). For each incomplete document (e.g., the Drawings do not include a motor on the device) teams receive a 5% penalty (up to 15%).
 - i. 1 point is subtracted for each missing or incorrectly identified item during the check-in inspection.
 - j. Ties are broken by:
 - i. Least number of electrical, hydraulic or pneumatic motors used.
 - ii. Quality of technical documentation.
 - k. Tiers:
 - i. Tier 1: Devices that meet all requirements are ranked by highest score
 - ii. Tier 2: Devices that fail to meet a spec. under "Construction Parameter" are ranked by highest score.
 - iii. Tier 3: Devices with Competition violations are ranked by highest score.
 - iv. Participation Points only: Devices that violate the frequency rules; that have no capability, by design or construction, to score points via moving objects; or are unable to compete.

Recommended Resources: All reference, sample documents and training resources including the Robot Arm DVD are available on the Official Science Olympiad Store or Website at <http://www.soinc.org>