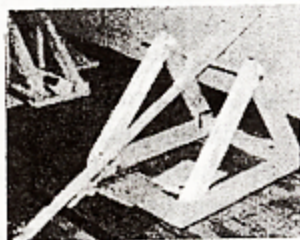


- c) Students must provide and wear **safety spectacles with side shields** while setting up and competing. Teams without proper eye protection will not be allowed to compete and will be scored as a no-show.
- d) The team will take their device to the Launch Area along with any other supplies (tools, notes, graphs etc.) they may need when it is time for them to compete. Use of AC powered electrical equipment is not allowed.
- e) The target will be a 3 dimensional object at least 20 cm high, wide and long for Division C and at least 40 cm high, wide and long For Division B.
 - i) Before the first launch, the team will announce the position of the target (Target Distance) in whole meters. The judges will set the target so its center is the desired distance from the front edge of the Launch Area. Once during the competition, after they hit the target, the team may elect to move the target by calling a time out and requesting the new Target Distance (in whole meters).
 - ii) Judges may indicate where previous launches have been marked. They will not provide measurements for accuracy. Participants may not enter the target area to view or measure the results.
- f) Teams have 5 minutes to make 3 launches. They must give ample warning to the judges and spectators prior to each launch. It will not count as a launch if the participants attempt to initiate a launch and the device does not go through a launch motion.
- g) In the event of a rule violation, the judge will call a time out and explain the reason for the violation. The team may continue to compete after the clock has been restarted. Teams will be immediately disqualified for operating the device in a manner deemed unsafe by the judges.
- h) Devices may be modified in accordance with all rules while the clock is running in order to make successful launches. Only the tools and supplies brought with the contestants before time began can be used during competition.
- i) **If the part of the device does not return to within the Launch Area on its own, the device may be repaired/repositioned and subsequent launches scored normally.**

SCORING: Each launch will be measured for accuracy. All measurements must be recorded in meters to the nearest centimeter. **The Launch Score (LS) for each launch will be: $LS = TD - 2(A) + B$**

- a) The Target Distance (TD) is the distance requested by the competitors and is measured from the center of the front of the launch area to the center of the target.
- b) The Accuracy Score (A) will be the distance from the projectile's point of first impact to the center of the target if the projectile lands in the target area. **If the projectile lands behind the front line of the Launch Area or if any part of the device leaves the Launch Area and does not return, the Accuracy Score will be the Target Distance.**
- c) A Bonus (B) equal to $0.1 \times TD$ will be awarded if the projectile hits any point on the target before impacting the ground.
- d) **GRAPH SCORE:** Up to 2 points may be awarded per graph (max. 5 graphs) for a maximum Graph Score (G) of 10 points **Each Graph must be labeled with school and student's names.** Some items supervisors will look for: **The graphs are clearly labeled with: Title of Graph; X and Y-axis labeled including appropriate units; Example with hypothetical counterweight and projectile explaining how the graph would be used to determine where to place the target.**
- e) **PENALTIES:** A three point penalty will be assessed each time any of the following occurs:
 - i) A participant is warned by the judges for not correctly wearing the safety glasses.
 - ii) A participant is in the Launch Area when the launch is triggered.
 - iii) The device goes through an unintentional launch motion.
 - iv) No warning is given prior to a launch.
 - v) **Outside coaching.**



Teams will be ranked according to their **Final Score with the highest score winning.** The Final Score will be: **2 times their best Launch Score plus graph score minus penalties.** Teams whose devices violate paragraph 1) a, or 1) d will be ranked, by their Final Score, behind all teams whose devices comply.

$$\text{FINAL SCORE} = 2 \times \text{Best Launch Score} + G - \text{Penalties (if applicable)}$$

Tie Breaker: 1st highest Launch Score; 2nd Second best Launch Score; 3rd Third best Launch Score

See: <http://www.soinc.org/events/stormc/> for more information