

ASME Trebuchet Competition Rules:

1. The contest is open to all who register.
2. Safety is of utmost concern. Remember there is an element of danger with creating and operating a siege weapon.
3. Your trebuchet must be triggered remotely from outside the launch area.
4. Trebuchets will be inspected for safety. Any loose parts must be tightened or the trebuchet will be deemed unfit and disqualified. No parts other than the projectile are allowed to become disconnected from the trebuchet at any time and must be securely attached prior to participating in the competition.
5. If the trebuchet becomes inoperable or unsafe, it must be removed immediately from the competition. If this were to happen, the team's current score becomes their final score.
6. No catapults or catapult/trebuchet hybrids are allowed. No energy can be stored in deformation of components. That means no springs, rubber bands or flexible arms. No pulleys can be used. The counterweight must be attached, not looped over, the end of the arm (or in close proximity).
7. Teams must bring in their device the day before competition to be checked and inspected by the judges. After check in, teams are NOT allowed to modify their device, unless instructed to do so by the judge. If a device fails inspection the judge reserves the right to deem the device unsatisfactory and thus disqualifying the team.
8. A device fails inspection by being a possible safety hazard or it violates any construction criteria.
9. If a team is disqualified, they will not be allowed to compete.
10. As the competition is being held outdoors, factor such as rain or wind may affect outcomes and we can not be held responsible for such occurrences.
11. Any rule is subject to change by the judge and his superiors at any time.
12. If no challenge is issued before the next round of throwing, then the results of the match cannot be changed. The decision by the judge may be appealed to the director or an appointee thereof.
13. Only two team members will be allowed to be on the field during and prior to launch. Additional help may aid in the set up, however they must evacuate the area after set up.
14. All team members must wear safety goggles at all times.
15. Any team member who steps in front of or behind the device when it has the potential of launch will no longer be allowed to compete and a penalty will go to that team for that launch.
16. Prior to each and every launch the team must seek approval from the judge to launch. Failure in doing so will cause a penalty for that launch.

17. Team members must stand to the side of the device when launching and when the device has potential to launch. Everyone must be out of the launch field before a launch. If any team launches prior to the area being cleared that team is automatically disqualified. It is the responsibility of the team to take great care that no person or property should come to harm due to any action by their trebuchet or negligence.
18. No team member will be allowed to walk in the firing field outside the designated walk area.
19. No device may employ the floating arm or pivot point design. The construction will follow the swinging counter weight trebuchet design.
20. No device will be allowed to have wheels unless they aid in transportation of the device in which they must be removed (or disabled) prior to launch.
21. Qualification at check-in does not represent permanent qualification. Trebuchets are subject to random checks at any time. This is done to prevent a) illegal modifications to the trebuchet; b) overcome deficiencies in the qualifiers' judgment c) ensure safety. It is your responsibility to make sure that you understand the rules, and that your trebuchets meet the requirements. Our failure to 'catch' illegal trebuchets before the tournament does not take away our right and responsibility to correct such mistakes later.

Scoring:

- Each team will be allowed 4 launches.
 - First launch will be for distance.
 - Second launch will be for accuracy.
 - Third launch will be for the team's choice for distance or accuracy.⁺⁺
 - Fourth launch will be for the team's choice for distance or accuracy.⁺⁺

⁺⁺The team must announce to the judge whether they are going for distance or accuracy before the launch.

- In the occurrence of a tie, the judge will also be awarding a winner for the smallest siege weapon.
- No score will be recorded for a projectile that is launched behind the front line of the trebuchet. This score will be recorded as a zero (0). Please see figure 1.

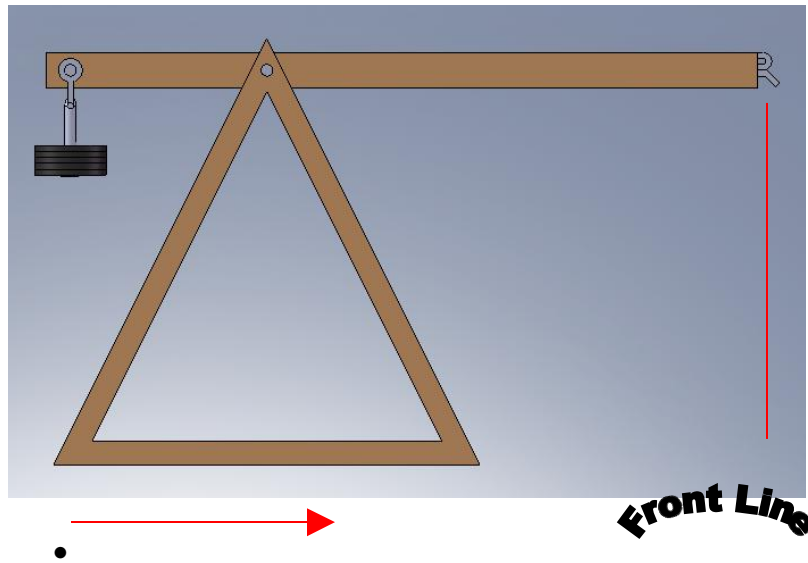


Figure 1. Diagram of the front line.

- If the projectile lands in front of the front line of a distance throw, the distance will be measured and rounded to the nearest ½ foot.
- If a projectile strikes a target during an accuracy throw the score on the target will be recorded.
- If a target is hit during a distance throw its score will not be recorded, only the distance will be recorded.
- If a target is not hit during the accuracy launch the score will be recorded as a zero.
- The total score will be the sum of the distances recorded divided by ten then added to the sum of the accuracies recorded.

$$T = 0.1 * \sum D + \sum A$$

Penalties:

- Because safety is such an issue, a zero will be recorded for the launch if any of the following occurs during or before a launch:
 - a team member is informed for not wearing their safety glasses.
 - a team member is in or around the launch area while the device is being launched or has the potential of being launched with the exception of setting up the device to be launched. This penalty is under the say of the judge and is subject to change as the judge sees fit.
 - the device launches unintentionally or prematurely.
 - the team doesn't get the judges approval prior to launch.

Construction:

- The device can't contribute any energy other than the energies generated by the counter weight. No springs, elastic bands, compressed air, etc. will be allowed on the device.
- The max height of the pivot point may not exceed 6 feet from the ground.
- The max length of the throwing arm may not exceed 10 feet from the sling attachment point to the counter weight attachment point.
- The max length of the sling from the sling attachment point to the center of the pouch may not exceed 7 feet.
- The device must be constructed so that it will accommodate the counterweight and release mechanism. The counter weight is about 18 inches across and about 2 ft in height. (Please see figure 2 for the release mechanism and figure 3 and 4 for the counter weight.) The team may not alter or construct their device to interfere with the triggering device in any way. Doing so is grounds for disqualifications.

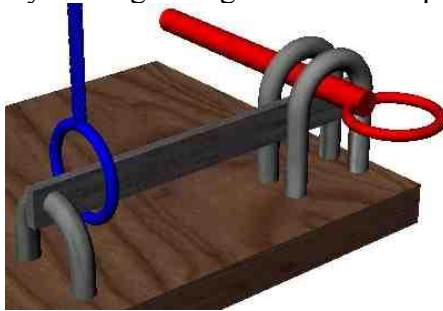


Figure 2. Triggering Device.

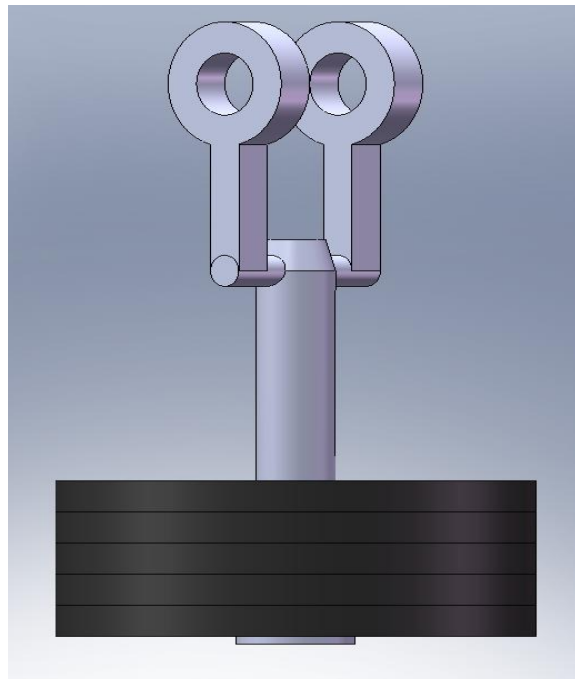


Figure 3. Counter Weight Design with Weights Attached.

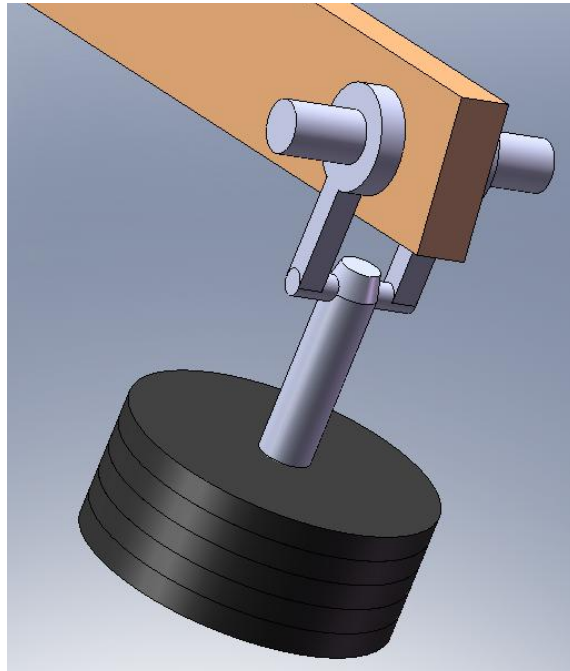


Figure 4. Counter Weight Attached to throwing arm.

- The device will launch approximately a four pound cantaloupe. Size, shape, and weight of the projectile may vary.
- The device must be constructed in a manner so that it is sturdy and will not cause a potential safety hazard. This structural integrity is subject to the judge's opinion. If the structural soundness is unsatisfactory at any time the device will no longer be allowed to launch.
- The counter weight may be varied by the team members up to a max weight of 200 lbs.
- The launch area is the area where the full range of motion may reach and become a possible safety hazard of the throwing arm with the sling fully extended.
- The device must be triggered outside the launch area.
- The device must not be anchored to the ground and must not wobble excessively, tip, etc. in a way to cause a safety hazard or cause the device to tip over during, before, or after the launch.
- The throwing arm must be constructed out of oak or similar hard wood no smaller than a 2 by 6 inch plank. (This is to prevent the arm from snapping in half.)
- The team must provide their devices' hook/anchoring for the sling.
- The counter weight may not be propped prior to launch.
- The throwing arm may be reinforced by adding additional supports around the joint, however, if it causes the throwing arm to become off balance and vertical without the counter weight added this will not be allowed.
- The Trebuchets will be inspected for safety. Any parts that are unnecessarily loose must be tightened. No parts of the Trebuchet other than the projectile are allowed to become completely disconnected from the trebuchet (A partial disconnect is

necessary in order to release the projectile). Any Trebuchet deemed to be unsafe will be disqualified.

- No energy can be stored in deformation of components. That means no springs, rubber bands or flexible arms. No pulleys can be used. The counterweight must be attached, not looped over, the end of the arm (or in close proximity). No catapults or catapult/trebuchet hybrids are allowed.
- Figure 5 shows a simplified figure of a trebuchet.

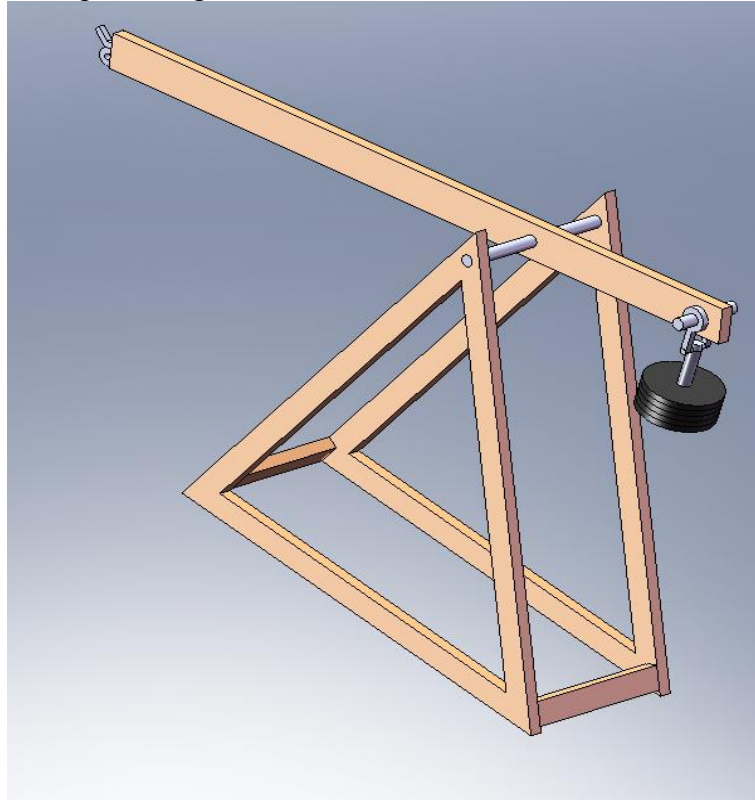


Figure 5. Trebuchet Design.