Contest Entry Form

Friday, October 24, 2025
(rain date Friday, October 31, 2025)
PICATINNY ARSENAL
Route 15 North, Wharton, NJ 07885
http://www.pica.army.mil/Picatinny

School: _____

Team Name for Publishing: _____

Name of Adult In Charge:_____

Mailing Address _____

Phone: Home: _____ **Work:** _____

Email:_____

_____ Yes, we have obtained Board of Education approval (please include rain date)

Name of Administrative Contact _____

Our Team represents (check one): _____ **Elementary / Junior High** _____ **High School**

_____ **Estimated Number Attending** (15 youth and 2 chaperones limit)

Indicate your machine type and details (see descriptions in section A.) – *Please check all that apply.*

_____ Trebuchet _____ Floating Arm Trebuchet _____ Catapult

Arm Length_____ Rough Dimensions_____

Designed for _____ pounds maximum counterweight

Prizes will be awarded for greatest distance, best of 3 attempts. The grand prize trophy will be awarded for the overall distance winner.

Information about your team.

We encourage you to **email photos of the teams working** on the project to info@pumpkinsling.com.

Information about your device

Describe your machine type (ie. catapult, ballista, trebuchet, floating arm trebuchet, other)

Arm Length:_____

Describe your cocking system and release.

List All Team Members. (This list will be used to determine scholarship eligibility in future)
All team members and chaperones in pit must have waivers on file prior to any launch activity. We reserve the right to limit the number of members in the pit. Teams may alternate members in pit between throws.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Describe safety precautions reviewed with team during practices

_____
_____
_____
_____
_____
_____
_____
_____
_____

Please return entry forms to:
Pumpkin Sling, 57 Hope Crossing Road, Belvidere NJ 07823

PLEASE NOTE: ONLY US CITIZENS WILL BE ALLOWED AT PICATINNY ARSENAL. All attendees over 18 will be required to submit ID prior to entry. All school groups should arrive all together as a group in one vehicle to expedite entry.

LOCATION
Picatinny Arsenal, Route 15 North, Wharton, NJ 07885
Directions and details for entry will be emailed to you upon registration.

Pumpkin Sling

AT PICATINNY ARSENAL

RULES AND REGULATIONS:

A. Machine Class Information

The machine can be of any design as long as it is constructed of materials designed for the weights or stresses that will be put on them; materials should be rated for the job they are asked to perform. Machines will be inspected prior to the competition by a panel of judges who will determine compliance with the guidelines. No motors, engines, pneumatic assist, compressed air, steam or any other compressed gas, hydraulics or ignitable substances may be used to propel the pumpkin. Machines must conform to all General and Safety rules.

For all machines, the throwing arm may have a maximum length of 8 feet. This length is measured from the center of the arm's rotational axis to the point where the fixed sling line attaches to the arm. The position of the rotational axis that yields the longest arm measurement will apply. In the case of a machine without a sling, arm length is measured from the rotational axis to the center of the projectile in the ready to launch position.

1. Traditional Trebuchet.

All energy used to launch the pumpkin after release comes from the potential energy stored in an elevated mass. The throwing arm has a fixed axis of rotation.

2A. Floating Arm Trebuchet (FAT)

All energy used to launch the pumpkin after release comes from the potential energy stored in an elevated mass. The throwing arm has a fixed axis of rotation that moves because the arm has wheels that roll along a horizontal track, but the wheels stay on the track during the throw.

2B. F2k Trebuchet

Similar to a FAT, except that the wheels on the throwing arm are raised above the horizontal tracks when the machine is cocked. This type of machine requires a different design for its release than does a FAT. This is described below.

3. Catapult

All or some of the energy used to launch the pumpkin after release shall comes from the potential energy stored in an elastic material. This class includes machines such as torsion catapults and ballistae.

B. <u>General Rules</u>

1. The machine must be fired at least once by your team prior to attendance. Please keep a Firing Log and bring it with you the day of competition.

2. Each team will have three shots, one shot in each round of the completion. Practice shots may be allowed at the discretion of the organizers.

3. Pumpkins will be supplied by the organizers and will weigh between 2-5 pounds.

4. All pumpkins fired must remain intact until they impact the ground/water to count for an official measurement. Distances will be measured from the pumpkin's position just before the shot is triggered to the point of first impact.

5. Pumpkins may not be altered in any way, except for shortening or removing the stem.

6. If any part of the machine is thrown forward so that it lands in front of the rest of the machine, that shot will be disqualified.

7. No wadding is permitted (including bean chaff, straw, foam, metal, or any other object.)

8. No explosives or internal combustion engines are allowed.

9. The Pumpkin Sling reserves the right to combine classes if there is a lack of participation, as determined by the organizers. All classes must have three (3) entries in that class to open it to competition. Each machine may enter only one (1) class.

10. Machines may be cocked manually, using a winch, block and tackle, or similar mechanism, or using an electric winch. Electric winches are highly recommended, particularly for larger, more powerful machines. (See winch notes in Safety rules).

11. Teams may not preload. Each team must wait until notified by the pit boss, at which time they have 5 minutes to cock the machine, load the pumpkin, and fire.

12. If you are disqualified in any round of the competition for breaking General or Safety rules,

you will forfeit the distance for that round. A forfeited shot may not be redone at a later time.

13. Picatinny officials will have final say in what is deemed safe and acceptable.

C. Safety Rules

Precautions must be taken at all times ensure the safety of your team members as well as the safety of those in the pits next to you. The staff is here to help you stay safe, so please help them to help you by communicating with them changes that might impact safe operation of your machine. Don't assume that they understand your equipment as well as you do. If the judges determine that a given machine is not competing and launching in a safe manner as outlined in the rules below, they will be eliminated from competition. No exceptions.

If you are not certain that your machine conforms to the safety requirements below, please contact the safety committee at info@pumpkinsling.com with a description and photos of your machine.

1. All persons present in the pits during competition must sign a Liability Release Form. Team members under age 18 must have their form signed by a parent or guardian.

2. All team members under the age of 18 must be under adult supervision at all times while in the pits.

3. Hard hats and safety goggles, provided by the team, must be worn at all times by members in the pit area surrounding the machine. The use of gloves by members handling ropes or cables is strongly encouraged.

4. All machines must have a release mechanism that causes the machine to fire smoothly. If your release requires so much effort that it causes the entire machine to rock back and forth or otherwise constitutes a safety issue, it will not be permitted. A properly built release will allow the machine to be triggered with a moderate effort using one hand only. If your planned release requires more effort that this, it is unlikely to be approved!

   More details concerning what constitutes an allowable release mechanism can be found in Section D, below.

5. All machines must have a safety mechanism to prevent premature release while the machine is being cocked and loaded. This mechanism should be designed so that it prevents the throwing arm from starting a throwing motion if the release is inadvertently activated.

   More details concerning what constitutes an allowable safety mechanism can be found in Section D, below.

6. Counterweights may be installed onto the machine with the arm cocked into the firing position only after the safety has been engaged. If a ladder is required, it may not be leaned against the machine, or positioned so that a premature release would allow contact by the falling counterweights. A stepladder or A-frame ladder is an option, if used in a safe manner.

7. Winches, whether electric or hand operated, must have a safety cage that would protect the operator from injury in the event that the winch or winch cable fails. Machines that cannot be cocked in such a way as to insure operator safety will not be allowed to throw.

8. If an electric winch is used, please make sure that your battery will last for the duration of the competition, or that you bring a spare. Teams will not be permitted to recharge batteries by hooking them to a motor vehicle.

9. All hardware such as eyebolts, quick links, chains, and cables must be appropriately sized for its application. If you are not sure about the appropriate rating for your machine, please email the safety committee for advice. Cable clamps must be installed properly. If you're not sure about the correct way to install cable clamps, look at this.

10. All machines will be inspected by the safety committee. Any machine found to have structural defects (load beams, firing pins, any load bearing members, supports or support subsystems) will be suspended from the competition until repairs are completed and re-inspected to the satisfaction of the committee**.**

11. No machine may fire without the approval of the pit boss, or without sounding a horn or other warning device just prior to release.

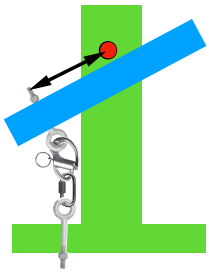
12. All members of the team must be at least 10 feet away from the machine when it is fired. The disengagement of the safety mechanism is not subject to the 10-foot requirement.

13. Picatinny officials will have final say in what is deemed safe and acceptable.

D. Release and Safety Mechanism Requirements

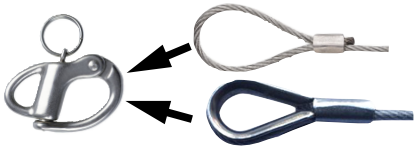
This section contains details regarding rules 4 and 5 safety section C. How you meet these requirements depends on the type of machine you have built. Below are some suggestions of designs that are known to work well, and that would be acceptable to the safety committee **if properly implemented**. If your design does not seem to be covered here, please contact the safety committee at info@pumpkinsling.com**. If you arrive at the event with a different release or safety than the ones described below, you may not be permitted to throw!**

Category 1 and 2A, and many Category 3 machines



A machine with a fixed axis of rotation, and FAT trebuchets may have the throwing end of the arm held in place prior to firing, as shown in the diagram. The basis of the release is a snap shackle similar to the one found here.

A system utilizing a shackle of this nature will be approved as long as the remainder of the release is deemed safe. Both ends of the snap shackle assembly must be anchored with a through bolt (has the nut on the opposite side relative to the direction of pull. A release that attaches to the machine using hardware similar to the hasp staple shown here, which is held to the arm or frame using screws, **will not be approved**.



You may use an appropriately sized cable or chain to allow for a greater distance between the arm and the frame. However, you may not use a loop of cable, with or without a thimble, that is inserted into the part of the snap shackle that opens when released, as shown here. Under load, the loop tends to collapse, which prevents it from releasing from the shackle. Instead, you should use a quick link, as depicted in the diagram, a welded steel ring, or similar.

A properly built snap shackle release will allow the machine to be triggered with a moderate effort using one hand only. If your planned release requires more effort that this, it is unlikely to be approved!

The safety for these machines must be a steel bar (red circle in diagram) with a minimum diameter of 1 inch that passes over the arm through holes in the frame. It should be easily removed by one of your team members. In the ready to fire configuration, there should be no more than 1 inch of space between the safety bar and the throwing arm. The distance between release and safety (black arrow in diagram), may be no more than 12 inches.

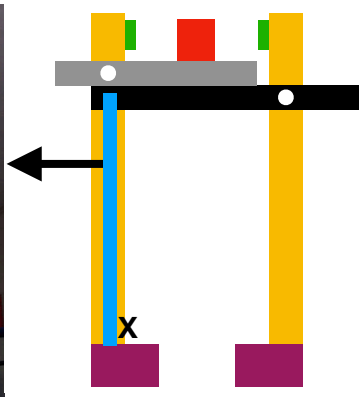
Other methods of release and safety will only be approved if your team submits photos and

video of the release in action in advance of the competition date.

Category 2B: F2k trebuchets.

For an F2k or similar design, in which the arm's axis of rotation is suspended above the tracks when cocked, **the release mechanism must hold the counterweight end of the arm in place prior to release**. For this depicted method to work, the counterweight end of the arm must be long enough to extend beyond the front edge of the towers. If this is not currently the case with your design, an extension of sufficient strength can be added.

The **photo** on the left shows two pieces of angle iron, each of them mounted with a lag bolt (not a drywall screw!) so that it can pivot at the top end. The lag bolts on which the angle irons pivot must have a minimum diameter of 3/8", and a minimum length of 3 inches.



In the loaded configuration (**diagram**), the counterweight end of the throwing arm (red), rests on top of the compound lever system formed by the angle irons. The lower piece of angle is propped in place by a piece of wood (blue). A rope attached approximately at the position shown with the arrow is pulled to activate the release. You may need a small block of wood or similar (X) at the bottom of the prop to prevent it from kicking back into the tower gap when the shot is triggered.

Note: The design in the **photo** shows two wooden blocks on the outside of the towers which limit the swing of the angle irons after release. This is intended to reduce the possibility that they will swing back into the tower gap during the shot. Since this might interfere with removal of the prop, the suggested design depicted in the **diagram** on the right instead has extended the angle irons as shown and limiting blocks (green) on the inside of the towers to accomplish this.

The safety for this system should hold the blue piece in place so that it cannot be accidentally pulled out to release the shot. For example, a clamp might be used to clamp it to the front edge of the tower, with the other end of the clamp located in the tower gap. Another option would be to drill a hole through the prop into the tower, and insert a snugly fitting bolt or eyebolt that would be removed just prior to release.

Other methods of release/safety for a F2k design will only be approved if your team submits photos and video of the release in action in advance of the competition date.

Additional Important Information

No Alcohol
No Pets. Registered medical service animals only.
All those entering Picatinny Arsenal base must be US Citizens
Proper Photo ID for those age 18 and older must be presented at time of entry.
Only one machine per school.

Teams should plan on arriving early if their machine takes a fair amount of set up. For the safety of all teams, we cannot start shooting until everyone is ready and team's cannot break down their machine on the line prior to last shot of the competition. We anticipate ending around 2:00pm, based on start time of 10:00am. If the start time is delayed it is possible the breakdown will be delayed.