WOOD DISTRICT PUNKIN CHUNKIN

SENIOR PATROL LEADERS GUIDE

October 21-23, 2016
Maumee Bay State Park

A Trebuchet/Catapult was a type of machine that was used during medieval times to destroy castle walls during a siege. Using principles of gravity and levers, they were capable of hurling large stones a great distance. The Camporee theme will revolve around Punkin Chunkin, aka hurling a pumpkin (or something less messy) as far as you can, using a Trebuchet or Catapult.

Each troop that attends the event will be asked to construct "onsite" a catapult and/or trebuchet to hurl "pumpkins" on our range. Troops will be given time on Saturday to work on their projects. Constructing and testing at Troop meetings prior to the Camporee is highly encouraged. Bring your Trebuchet/Catapult to the Camporee disassembled but ready for final assembly and tweaking. There will be no launching of anything from the Trebuchet/Catapults other than under the command and authority of the District Staff during pre-competition testing at the designated hurling range area or during the Punkin Chunkin Contest. All "pumpkins" will be supplied by the District.

Competitions will be held for accuracy and distance. Please read the specifications and rules carefully when planning your Trebuchet/Catapult. All Trebuchet/Catapults will be inspected for general safety prior to competing. Troops may enter one catapult and one trebuchet.

Schedule of Events

Friday: October 21, 2016
6:00 PM to 9:00 PM. Registration and check in.
9:00 PM Leaders/SPL Meeting
10:30 PM Lights Out.
Saturday: October 22, 2016
7:00 AM to 8:00 AM Breakfast.
8:20 AM to 8:30 AM Flag Raising
8:30 AM to 11:00PM Morning Events
11:00 AM to 11:25 AM Steal the Bacon Finals
11:30PM to 12:30 PM Common lunch
12:30 PM to 3:30 PM Construction and testing of trebuchets/catapults
4:00PM to 5:00PM Punkin Chunkin Contest
5:15 PM to 8:00PM Dinner and Pumpkin Dessert Cooking
8:15PM to 9:15PM Sharing of Pumpkin Desserts, Campfire, Awards, and Slide Show
11:00 PM Lights Out
Sunday: October 23, 2016
8:30AM to 10:00AM Check Out
Schedule subject to change due to weather or if additional programs or stations are added.

Morning Events:

Flag Pole Raising
Patrols will work as a team to construct and raise a flagpole to fly their patrol flag. Lashings/knots used: Round lashing, clove hitch, taut-line hitch, two-half hitches. Each patrol will need:

- 3 poles
- 2 lashing ropes
- 3 guide ropes
- 1 small pulley or eye bolt
- rope or cord for hoisting flag
- clips for flag
- patrol flag
- 3 stakes
- hammer

This event will be scored on time and correct lashings and knots. Time will stop when the patrol flag is hoisted and the patrol yell is given.

Rope Making
Use the equipment and twine at the station and learn how to make rope and then whip the ends. Participation points will be awarded towards overall champions.

Biohazard Transport
The patrol must move a cup of biohazard waste from point A to point B. Can your patrol successfully accomplish this without being fined by the EPA? This event will be scored on total time needed to complete the task.

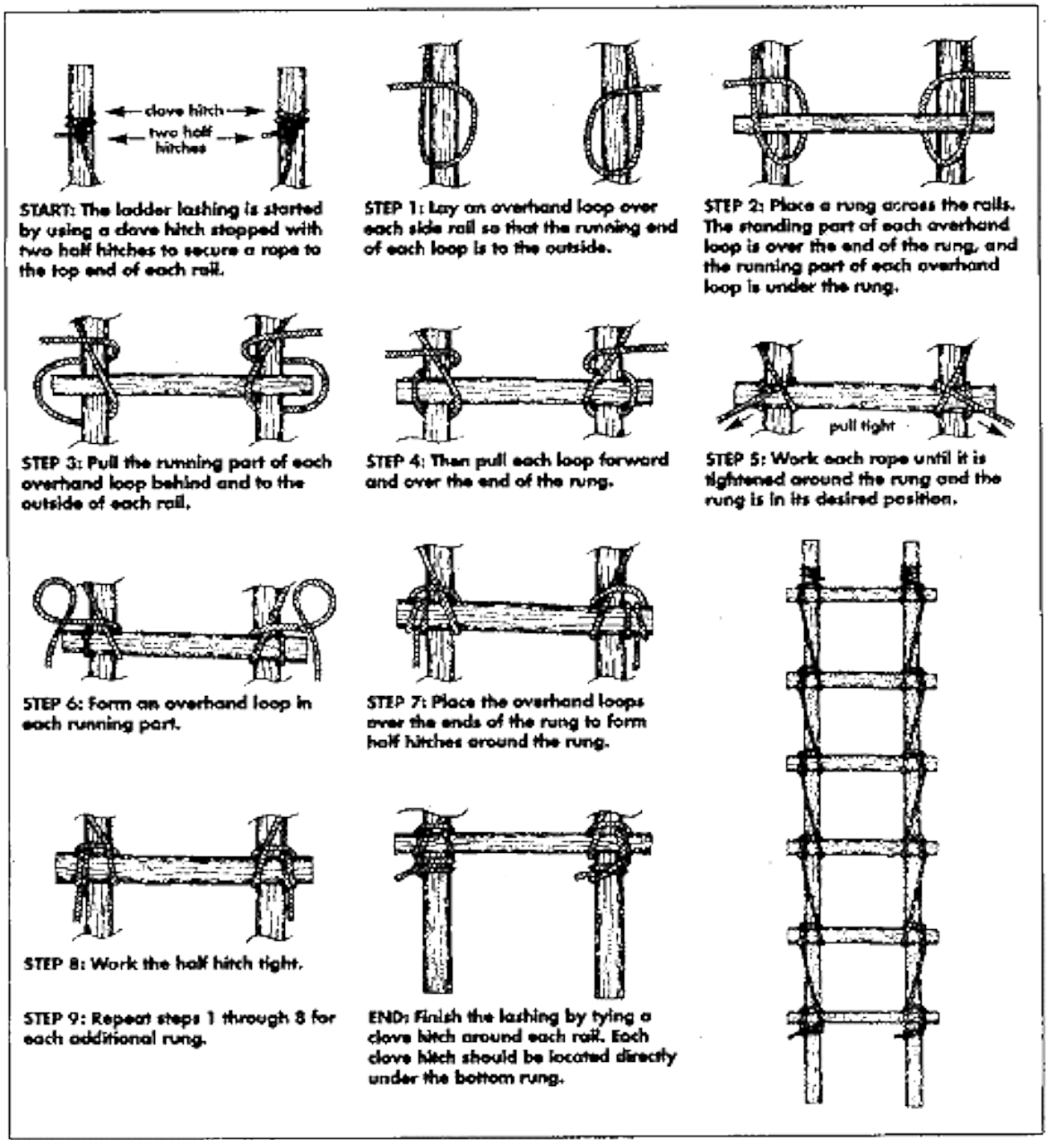
Ladder Lashing

Patrols will construct a ladder. They will then transport their ladder to a tower where the patrol leader must climb the ladder and perform a task. The Camporee staff will supply two 8 foot poles, two 20 foot ropes, 6 rungs, and a tower. All patrol members must help support the ladder as the patrol leader climbs. This event will be scored on total time needed to complete the task and the correctness of the ladder lashing.

LADDER LASHING allows for a quick and secure method for constructing a ladder or for constructing a decking with evenly spaced decking pieces.

This form of lashing has several advantages over the traditional floor lashing. Less material is required because, unlike floor lashing, a space can be left between each piece of the decking. Also, each rung is securely lashed in place by several loops of rope in much the same way as a square lashing. With the traditional floor lashing, only a single loop of the rope holds each end of the decking in place; therefore, if one piece loosens, the entire deck loosens.

The ladder lashing has two forms; left and right, each is a mirror image of the other. —*Gerald L. Findley*



START: The ladder lashing is started by using a clove hitch stopped with two half hitches to secure a rope to the top end of each rail.

STEP 1: Lay an overhand loop over each side rail so that the running end of each loop is to the outside.

STEP 2: Place a rung across the rails. The standing part of each overhand loop is over the end of the rung, and the running part of each overhand loop is under the rung.

STEP 3: Pull the running part of each overhand loop behind and to the outside of each rail.

STEP 4: Then pull each loop forward and over the end of the rung.

STEP 5: Work each rope until it is tightened around the rung and the rung is in its desired position.

STEP 6: Form an overhand loop in each running part.

STEP 7: Place the overhand loops over the ends of the rung to form half hitches around the rung.

STEP 8: Work the half hitch tight.

STEP 9: Repeat steps 1 through 8 for each additional rung.

END: Finish the lashing by tying a clove hitch around each rail. Each clove hitch should be located directly under the bottom rung.

Stepping Stones
Everyone in the patrol except the patrol leader will be given a "life-support capsule" to travel across the depths of space. The patrol must get from point A to point B. Communication and working as a team will be critical. This event will be scored on total time needed to complete the task.

Pipeline Ball
This activity involves moving marbles down lengths of PVC pipe. The Scouts will be given the pipes, the marble and 3 minutes planning time before the clock is started. How effectively does your patrol work together? This event will be scored on total time needed to complete the task.

Steal the Bacon:
This is a contest between patrols and patrols will be given an assigned time to show up for the competition. Scouts of a patrol are assigned a number, which is shared by a member of the opposing patrol. The patrols line up on opposite edges of the playing area, which has the "bacon" (a rag with a knot in it) in the center. A referee calls out a number, and the Scouts who have that number must run to the center, grab the bacon, and return to their patrol without being tagged by the other Scout with that number. If a Scout successfully returns with the bacon to his patrol line without being tagged he scores one point for the patrol. Tagging of a Scout may not occur before that Scout has touched the "bacon". The referee may call out more than one number resulting in many pairs of Scouts, each Scout attempting to steal the "bacon". The top 4 patrols will compete for the "Steal the Bacon" trophy just before lunch. Patrols will receive points based on their overall place of finish.

Afternoon Events:

Punkin Chunkin Contest
Patrols will have the entire afternoon to construct and test their trebuchets and/or catapults in preparation for the Grand Finale – the Punkin Chunkin Contest. See the specification, rules, and contest information on pages 6-10.

Evening Events:

Pumpkin Cooking Competition
Units are to prepare a dessert/dish made from pumpkin (fresh or canned). The dish must be made and cooked at the Camporee site to be shared with all troops at the beginning of the campfire. The District staff will provide the hot chocolate and table service. Make enough for your troop and some extra for District staff and visitors. District Staff will determine the tastiest dish. Participation points will be awarded to overall camporee champion patrol. All patrols competing from that troop will receive points from their troop entry.

Campfire Event: Scout Theater
Every troop is encouraged to have a skit at the campfire on Saturday night. It's time to get creative with a new skit or by reworking some of those old skits that we see every Camporee. Costumes are encouraged. An award will be given for the best and most original skit. **Skits will be included as part of the final score to determine the Punkin Chunkin Camporee Patrol Champions.** Only one skit per troop will be allowed. All patrols competing from that troop will receive the score from their troop skit.

Camporee Awards:
1. Over-all Farthest Throw
2. Farthest Throw Catapult
3. Farthest Throw Trebuchet
4. Over all accuracy - Trebuchet and Catapult combined
5. Best Construction – Classic knots, lashings and spars
6. Flag Pole Raising Champions
8. Ladder Lashing Champions
9. Biohazard Transport Champions
10. Steal the Bacon Champions
11. Stepping Stones Champions
12. Pipeline Ball Champions
13. Pumpkin Cooking
14. Scout Theater

NOTE: These specifications and rules are subject to change. Any changes will be published as soon as possible. If any changes are made, they will be made primarily for clarification and/or safety reasons.

Specifications and Rules for your Punkin Chunkin Machine!

- A maximum of 1 Trebuchet and 1 Catapult may be entered from each troop.
- All patrols competing from a troop will receive points from their troop entries.
- Trebuchets and Catapults must follow the provided designs.
- Maximum frame height – 6 feet
- Maximum frame length – 8 feet;
- Maximum frame width – 6 feet. Your Trebuchet/Catapult may be smaller than the maximums.
- Trebuchet/Catapult throwing arm may not exceed ten feet in total length.
- The Trebuchet/Catapult must be made of wood and lashed together. It must be primarily assembled on site by Scouts. The throwing arms may be preassembled and brought to the camporee.
- Each unit will have most of the afternoon session to assemble their Trebuchet and/or Catapult before the competition begins.
- All machines must be "Scout powered." No mechanical or chemical devices, such as, but not limited to, hydraulics, air rams or cylinders, springs, bungee cords, slingshots, gunpowder, methanol, etc. will be allowed. The power of the Trebuchet must be produced by Scouts lifting a counterweight and lever arm. The power of the Catapult must be produced by a lever arm and Scout pulling power.
- For safety reasons, there must be a remote firing mechanism for all Trebuchets. The firing mechanism must allow the Scout firing it to be at least ten feet away from the Trebuchet when it is fired.
- Counterweights must be fixed to the device in a manner that will keep them from coming loose upon firing.
- Staking the Trebuchet/Catapult to the ground is permitted as well as adding sand bags to the frame.
- The District Staff will determine if the Trebuchet/Catapult is safe. If the Trebuchet/Catapult is deemed unsafe, the District Staff and Scoutmaster will make every effort to help the Scouts make it safe, time permitting.
- These were primitive devices and we wish to honor the tradition. Failure to comply with the above specifications will result in disqualification from the competition.

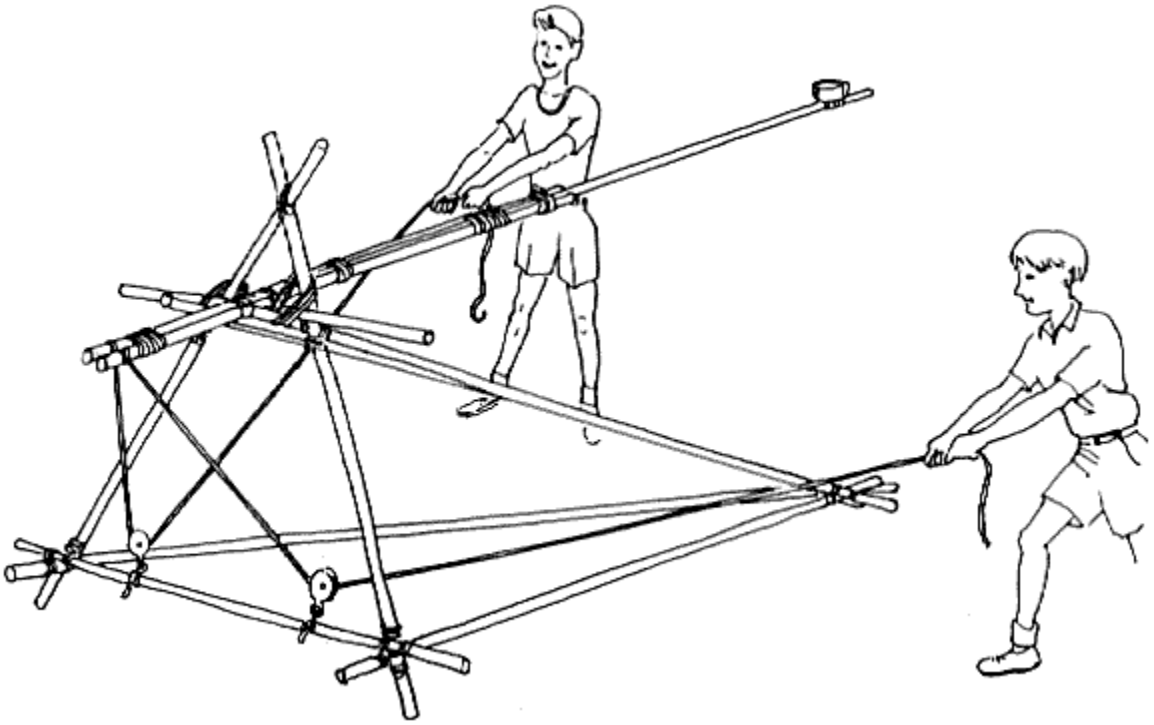
The Accuracy Competition

- A target will be placed a set distance from the firing line. The Trebuchet/Catapult may not be moved closer, but may be moved further back or side to side if needed.
- The projectiles to be used will be pumpkins (or something less messy), about four inches in diameter. These "pumpkins" will be supplied by the judges. Each Trebuchet/Catapult will be allowed five shots at the target. Distances from the target will be added up from the best three shots to determine place. The shortest total distance wins.

The Distance Competition

- Each Trebuchet/Catapult will be given two "pumpkins" to launch for distance. This competition will be held separate from the accuracy competition, but will be running concurrently.
- The object of this competition is to launch your projectile as far as you can. Total distance will be determined at the place where the projectile comes to a stop.
- Only the better of the two launches will be counted for points.

Catapult Design



This catapult is made by lashing a triangle out of strong spars. Make sure that the bottom spar is long enough so that it can be staked or weighted down. A second triangle is made by using the bottom cross-spar and two more long spars that lie on the ground to finish forming the base of the catapult. A third triangle forms the pivot. Lash a strong cross-spar about halfway up the first triangle. Finish it off with two spars going from there to the ground in back. One final spar lies loosely lashed to the middle cross-spar. In back tie a can or something else that will be your launch pad. In front tie two lines that will lead to pulleys on the lower cross-spar, then go off to either side.

Stake or weight the bottom frame down. Two or more people will stand off to the sides and pull the ropes. As they do this the spar will pivot around the middle cross-spar until it hits the top. At that point, whatever was on the other end will be thrown up and forward.

You can adjust the arc of the catapult by leaning the upright triangle forward or backward. Backward will give you a higher arc; forward, a lower arc. If the triangle is too far forward or backward, you will not be able to get much distance.

Building a Trebuchet

Building a trebuchet is less complicated than it might first seem. Below are the key elements to build in the proper sequence and in the proper scale (or relationship) to other components of the final working machine. Understanding the essential design components should also help you with the building a trebuchet basics. Don't be intimidated, it's really not rocket science.

Base: The base of a trebuchet must support the glide track, tower frame, and swing arm lever and should be designed and constructed to firmly hold together the structure during the "whipping" transfer of energy from the release of the beam (swing arm lever) that allows the force of gravity to draw the counterweight down. It is a sudden and powerful transfer that can sometimes be offset by adding wheels to the base.

The trebuchet base is typically attached to the glide track (board) upon which the sling harness will slide. There is no absolute formula for designing a trebuchet base. In fact, they come in a myriad of sizes, both in width and length. However, I have found that reliability and consistency is produced when the length of the base is 75-80% of the length of a swing arm (lever). Another good rule of thumb is that the width of the base should be about one-third of its length.

The base should be designed with the tower width and counterweight size in mind, since the size of the weight or box will need to swing through without interference. If the attached weight or box is wider than the support [tower] frame it will not pass down and through as it should…unimpaired.

Glide Track [board]: This is the surface upon which the sling harness slides after the trebuchet trigger is activated. In most cases, the glide path is about three-fourths (3/4) the length of the base and 25% longer than the sling. When the swing arm lever is released the attached sling is drawn along the glide path and then whipped upward in an arc path until the cradle holding a projectile opens and releases it.

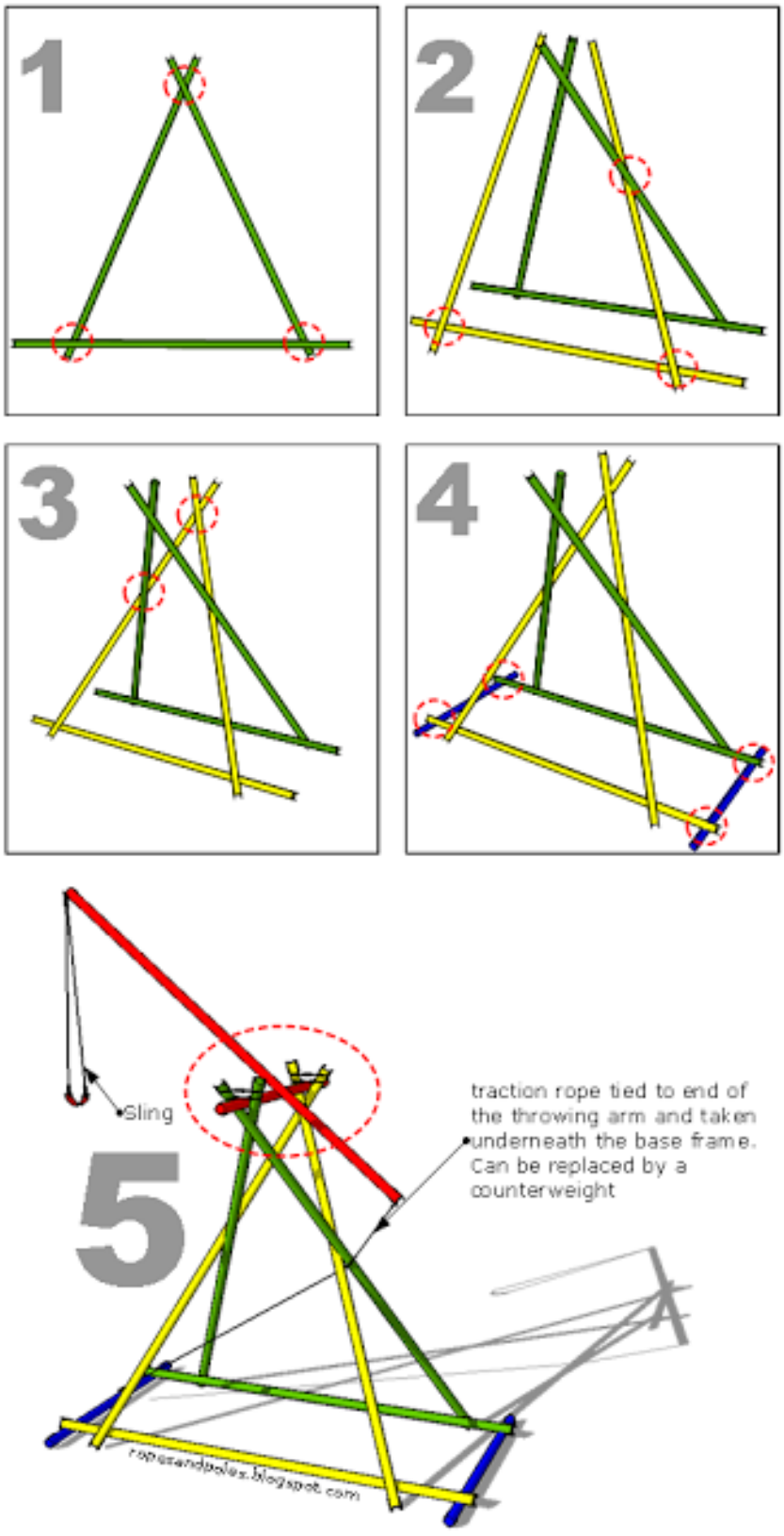
Tower Support Frame: Is the two side tower beams braced by supporting pieces. The height of the axle pivot point should be set so that the trebuchet swing beam is positioned about 45° when cocked and secured in the firing position. The attached counterweight should clear the tower frame sides, as well as, the "glide" or sling platform base when it travels down and through. When building a trebuchet, the tower frame is generally about 3/4 the length of the base. For instance, if the base measures 40 inches, a good tower frame height would be 32 inches. Again, these are approximations. The width between the tower primary support beams will depend greatly upon the type and size of weight planned for use. You will need to decide what size and the weight of an object to throw, and then select the appropriate weight(s) to use. Counterweights should be "approximately" 75-100 times the weight of the projectile.

Swing Arm Lever: The primary swing board is commonly referred to as a swing arm lever, but some will call it a long arm lever or long arm beam. The swing arm lever works well when it is 1.4 – 1.6 times the base length. So, if the base board length is 3 feet, the swing arm lever could range from 50 inches to 58 inches. This will depend upon the builder and certain other adjustments that can be made, but I would tend to lean to the shorter side…probably choosing a 54 inch length (1.5 x). The long end should be 3-5 four times longer than the short end and it should be strong but light and sufficient to hold the counterweight. Don't try to make the board longer with the intent to increase distance…that's not how it works. The key will be to enable the trebuchet counterweight to swing through quickly for optimal hurling distance.

Counterweight: The counterweight will ultimately determine the height and/or distance that a projectile will potentially fly. As indicated above, a counterweight that is 80-100 times heavier than the projectile will generally produce optimal results. It can be a fixed or a free moving weight affixed to the swing arm lever (beam). However, understand that all other features of the trebuchet can serve to enhance or diminish overall performance. For instance, if the swing arm is too short or too long the trebuchet results may be limited.

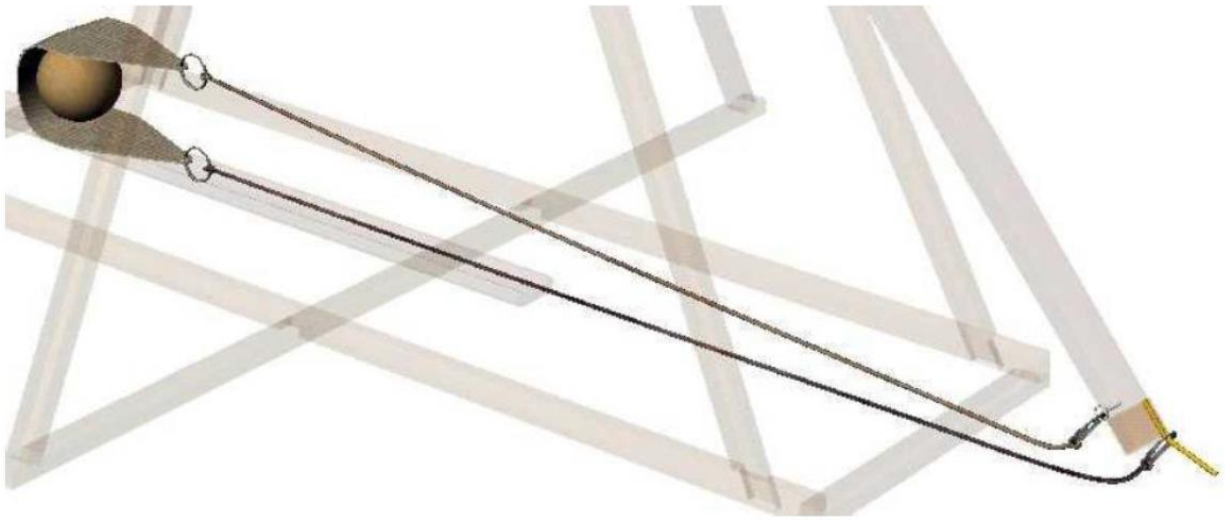
Sling [harness]: The sling is attached to the long end of the swing arm lever. It is connected by rope, string or cable to a cradle or pouch holding the object to be "hurled". A good rule of thumb is to begin with the sling harness approximately 3/4 the length of the upper (longer) end of the beam and use trial and error to determine optimal trajectory. The sling length will influence projectile trajectory, causing an object to too fly high, too forward, or even backward. The sling harness should be designed to open and release the object in the cradle or pouch when it reaches the precipice of the launch path.

Trebuchet Design

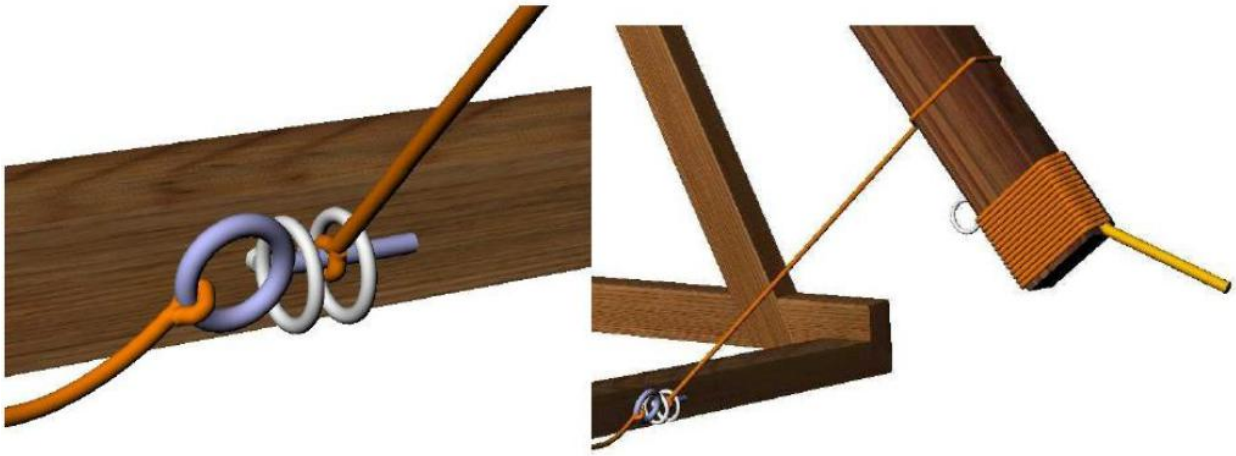


Replace traction rope with a counterweight

Sling Pouch and Sling Release Mechanism for Trebuchet



Firing Pin/Trigger Mechanism for Trebuchet



WOOD DISTRICT PUNKIN CHUNKIN CAMPOREE REGISTRATION FORM

Troop Number and Town: _____

Scoutmaster: _____

Senior Patrol Leader: _____

Patrol Rosters:

Patrol Name	Patrol Name	Patrol Name
Patrol Leader	**Patrol Leader**	**Patrol Leader**
1	**1**	**1**
Patrol Members	**Patrol Members**	**Patrol Members**
2	**2**	**2**
3	**3**	**3**
4	**4**	**4**
5	**5**	**5**
6	**6**	**6**
7	**7**	**7**
8	**8**	**8**
9	**9**	**9**

Adult Participants:

1	**4**	**7**
2	**5**	**8**
3	**6**	**9**

Registration Fees:

Total Youth Participation _____ X $10.00 = _____

Total Adult Participation _____ X $10.00 = _____

Total Fees Due: _____