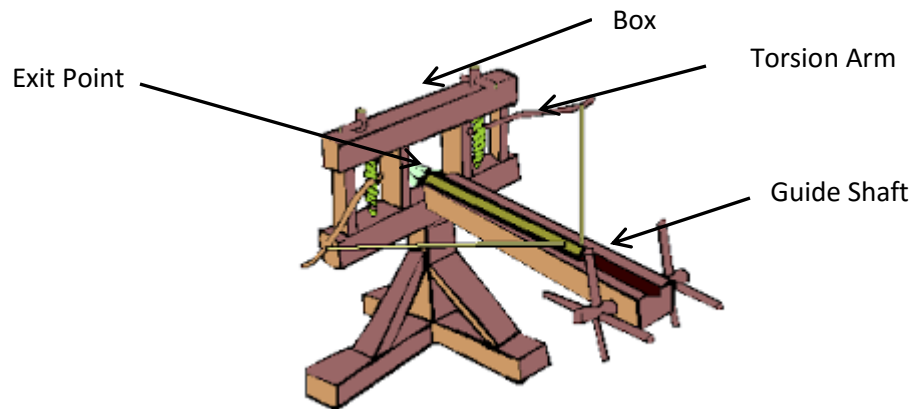


## Guidelines for the 2016 WJCL War Machine Competition Ballista



### **Challenge:**

To build a fully functional authentic “torsion powered” Ballista on a stand. The competition is for ballistae only; no other Roman war machines will be judged. NO KITS ARE ALLOWED. Any team using a kit will be automatically disqualified.

### **Dimensions:**

This project consists of a ballista that is mounted on a stand.

The maximum dimensions for the Ballista are:

- Box: 24 inches by 8 inches by 3 inches
- Torsion Arms: no more than 12 inches long (each)
- Guide Shaft: No more than 30 inches
- Stand: needs to keep the Exit Point of the Ballista between 24 and 30 inches off the ground.

For the purpose of clarification:

- The “Box” is the rectangular structure at the front that contains the wound string and is where the arms attach
- The 2 “Guide Arms” are the movable *stiff* wooden pieces that attach to the box and pull back when the Ballista is loaded
- The “Guide Shaft” is the long piece perpendicular to the box along which the weapon rests when loaded. The shaft angle can be adjustable, but is not required to be.
- The “Exit Point” is the spot from which the “weapon” (dowel) exits the Ballista.

***Building materials:***

Body should be wood. Mechanisms may include screws, nails, bolts, fasteners, metal dowels, leather, tape. No rubber, plastic or wheels allowed.

***Rules:***

The only means of providing energy to the ballista will be that of the torsion in the string. No energy can be stored in the deformation of components. That means no springs, rubber bands, flexible wood, or pulleys may be used in the construction.

Each ballista **MUST** be equipped with a remote triggering device. Students must stand at least 3 feet from the Ballista while firing. This is a safety feature and your ballista will **NOT** be able to compete if it does not have a remote triggering device. It can be as simple as 2 metal eyelets, a bolt and a piece of string.

***Judging criterion:***

The winner will be chosen for its ability to throw a 1/2 inch diameter 12 inch long piece of dowel with a 3/8 rubber stopper at the tip (to be provided by the judges) the furthest distance and with the most accuracy. There will be 2 sets of throws: one set for distance and the other for accuracy.

Points will be awarded for distance, accuracy and authenticity. There will be automatic disqualification of devices made from a kit or not having a remote triggering mechanism. Points will be deducted for violations of any of the other specifications listed above.

There will be a 15 minute warm up period to allow teams to test their ballistae and make any last minute adjustments.

For a good video on the basics of building a ballista see:

<http://www.instructables.com/id/How-to-make-a-Model-Roman-Ballista-Torsion-powered/>

