

The Catapult Project

Picture yourself long ago assailing an enemy line. The image is daunting. Your enemy's fortress seems impenetrable, unyielding, and well-manned. They have enough food and resources to hold their position for longer than your people can maintain this assault. Essentially you have but one hope. Their king is an evil tyrant. Legend has it that he rejoices as random peasants are tortured, his favorite Saturday activity involves dropping puppies into his alligator filled moat, his second wife was named Selma, and he set his own daughter on fire to teach her how to dance. I mean this guy is evil. So bad, in fact, that one strategically placed shot that kills him, would result in the fall of this castle.



Your spies report that they know the exact position of this monster. This is your chance, you could end this war, his oppressive rule and cruelty, and free his people (not to mention his daughter who has become quite a good dancer). Hopeful, you become even more determined as you hear an alligator pull another yelping puppy underwater. You have this chance, but you have only three shots to get the job done. You have to try NOW. Weather conditions don't matter, you have to adjust for the wind (whatever it may be), this is your only chance and you have to do it today.

Fortunately, your wise men have assembled their collective knowledge and built a catapult conforming to the following to the following specifications (read: these are your requirements in the project).



Specifications:

- 1. Your catapult must be small enough for the members of your group to carry it onto the field.**
- 2. Your catapult must be a catapult with a rotating arm (see Wikipedia). This means some traditional catapults are not allowed (i.e. ballistas).**
- 3. The arm of the catapult delivers the water balloon.**
- 4. Human powered catapults are NOT acceptable. The arm must move under its own power counterweights, springs, tensioning devices. If you have a question, ask me.**
- 5. The catapult cannot exceed 1.7 meters in height (excluding the arm) and 2.5 meters including the arm.**
- 6. You can, and probably should, fill your own water balloons. It is a good idea to make each one about the same mass. They must be filled with water . . . if filled with vinegar, mustard, or god forbid mayonnaise, the tyrant king described earlier will appear benevolent (i.e. failing this project will be the least of your concerns).**
- 7. You are allowed to use modern materials.**

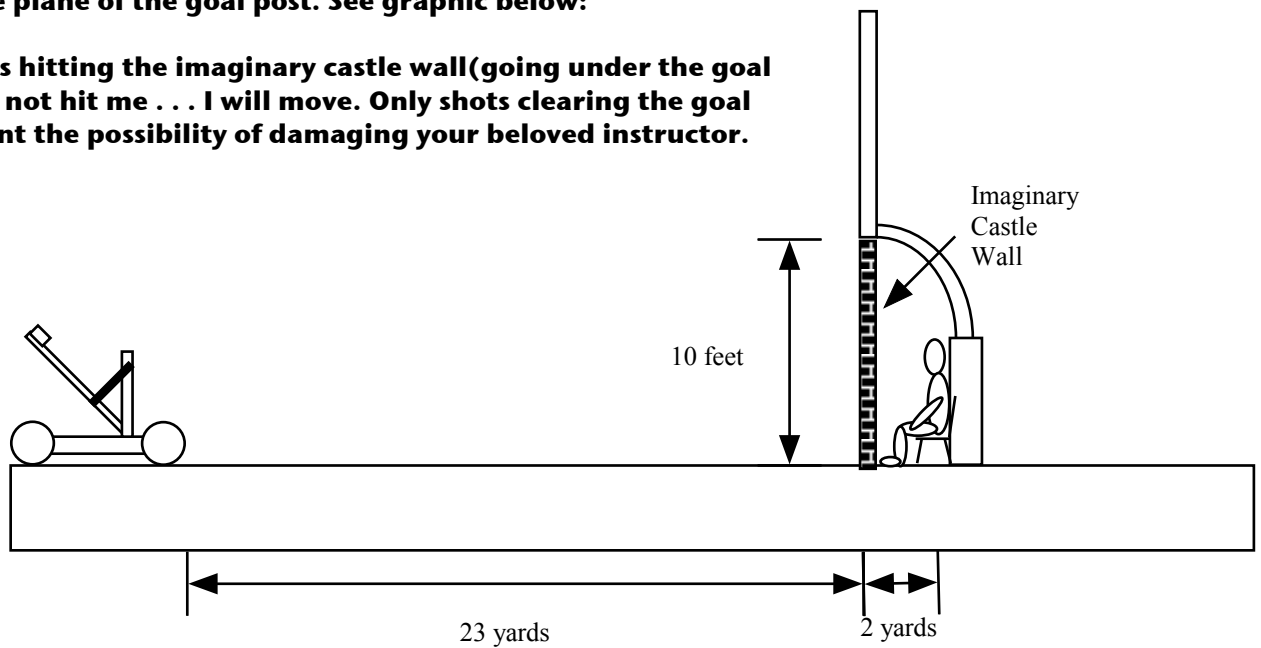
Rules:

- 1. Group sizes are restricted to 2 to 3. You may work alone if you are a sociopath.**
- 2. You get three (3) shots. The best one counts as your score.**
- 3. Designing, building, and testing the catapult is up to each group.**
- 4. Rough sketches of your catapult are due by October 17th.**
- 5. You have only one launch day--November 7th. Someone from your group must be there.**

The Catapult Project (cont'd)

You will shoot from the 13 yard line of the football field. I will be seated on a throne (stool) 2 yards behind the plane of the goal post. See graphic below:

Note: Shots hitting the imaginary castle wall (going under the goal posts) will not hit me . . . I will move. Only shots clearing the goal post present the possibility of damaging your beloved instructor.



Scoring:

100 points if you hit me.

Scores thereafter reduce by 1 point for each 0.5 meter you miss the target (me).

In order to score higher than 85, your balloon must clear the goal post.

Images of eligible catapult types (if you have a different idea ask me):

