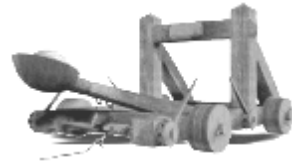


# Physics

## Mousetrap Catapult



### Background:

This project is based on the medieval catapult, a device that was used to launch projectiles into the opposing force's castle. These devices needed to be adjustable to account for varying distance between the castle and the catapult as well as the height of the castle walls.

### Goal:

Build a catapult powered by a single mousetrap that will launch a projectile (ping pong ball) using inexpensive, readily available materials. Reliability in performance is the key to success. Be sure to test your design for consistency before the due date.

### Rules:

- The catapult must be powered by a single mousetrap (not a rat trap)
- The spring of the trap is the only force allowed to launch the projectile.

### Safety:

- The spring arm of the mousetrap can be dangerous. For your safety, you may want to disengage the spring from the arm during the construction process.

### Competition:

- Each team should have their catapult assembled, tested, and ready to go by October 31<sup>st</sup>, 2006.
- Teams will consist of 3 members or less in size.
- The catapult must be able to launch a ping ball from a 2' x 2' launch area into an 18" x 18" target. The walls of the target are 2 inches high.
- The team will place the target within a range of 9 to 12 feet. The team, based on experimental data taken, will determine the exact location of the target.
- No part of the catapult can extend outside of the 2' x 2' launch area.
- Each team will have three attempts to hit the target. The best attempt will be the only one scored.
- 28 points will be awarded for a completed catapult that will launch a ping-pong ball.
- Landing the ping-pong ball in the target will be awarded 6 points.
- Up to an additional 12 points will be awarded if the ping-pong ball lands within 4 inches of the center of the target.
- Up to an additional 6 points may be earned if the team calculates the position of the target and hits the target placed at a height of 28 inches at a distance figured by the team.

### Competition Diagram

