

Murphy's CAD-A-Pult Project 07-08

Task:

The student, with a partner, will design, construct, and test a traditional catapult device following specific design criteria and constraints. The following materials will be available for students to examine before the brainstorming process. Following the engineering design process, the students will design, construct and test their catapult. The student will record their findings and will prepare a report with PowerPoint presentation that will be shared with the class.

Constraints:

- Must be ruled safe by Mr. Murphy
- No dimension may be over 10" when in the ready-to-fire position
- Must have a trigger device (your hand can't directly release the catapult)
- Must be constructed only with the materials supplied below
- Must be completely constructed in our classroom using our tools NO EXEPTIONS!!!

Official Materials:

- ✓ 10" Easel material
- ✓ 1/2" x 1/2" x 2' Basswood stick (uncut)
- ✓ 1/4" x 1/2" x 2' Basswood stick (uncut)
- ✓ 1/8" wooden dowel (1' long)
- ✓ 10 Popsicle sticks
- ✓ 10 Round Toothpics
- ✓ 4 Small eye screws
- ✓ 6 #6 Wood screws (3/4" or 1")
- ✓ 2-1/2" Steel axle rod
- ✓ 3' Fishing line (braided or microfilament)
- ✓ Glue (superglue, wood glue, hot glue, etc.)
- ✓ Maximum of 8 rubber bands (no more than 2 being larger than postal size)

Performance:

Your catapult must be designed for both distance and accuracy. Accuracy is your main concern. Your challenge will be to land a golf ball into a 5 gallon bucket. The bucket's center will be located exactly 12' from the front of your catapult.

Distance will be your next challenge. The catapult capable of projecting the golf ball the furthest distance will receive the maximum distance points per class. The catapult that projects the furthest out of all 4 classes will earn 10 bonus points on their overall project major grade. There will be one testing day in which all teams will be able to test their catapult's performance using the scoring bucket. On the official shooting day, each team will get three shots for accuracy and three shots for distance (there will be NO PRACTICE SHOTS ON THIS DAY).