

## EVENT 4: THE CATAPULT

**OBJECTIVE:** Design and build a catapult that will launch a penny.

**RULES:**

- a. Each team will design and build their catapult from the following materials:
  - one manila folder (29.5 cm X 22 cm), 30 cm of masking tape (1.8 cm wide approx.),
  - two rubber bands, size #84 (8.89 cm X 1.27 cm approx.) and
  - 30 cm of 30-pound test, braided low stretch Dacron, fishing line.
- b. The team will bring their catapult built or partially built to the competition.
- c. Not all the material needs to be used. The materials may be cut.
- d. The catapult must be free standing. (you may not use the lab bench or floor as a part of the catapult nor may it be clamped to any surface).
- e. The device must be able to stand by itself just prior to being fired and as it is fired.
- f. The device can be human activated, but the catapult must launch the penny (the person activating the device may not impart energy either to the machine or to the penny).
- g. The team member that activates the catapult may stabilize the catapult with their hands but they may not alter the shape of the catapult compared to the freestanding shape.
- h. The penny must be launched on its own (it may not be attached to anything else).
- i. The team will supply a U.S. penny minted after the year 2000 to be used as a projectile.
- j. The catapult needs to be designed to adjust for the height of the ceiling in the competition area. The competition area may be an all-purpose room cafeteria with gym height ceilings or a typical high school hallway or classroom.

**COMPETITION AND SCORING:**

- a. The team will have 10 minutes to assemble their catapult.
- b. Once assembled, the team will notify the judge(s) that it ready to be inspected and tested.
- c. The team will load and fire their catapult.
- d. The judge(s) will measure the distance from the front end of the catapult to the landing spot of the penny.
- e. The team will be allowed two trials and the better trial of the two will be used for the team's score. Between trials, the team will have up to 10 minutes to modify their device if they choose to do so.

$$\text{SCORE} = \left[ \frac{\text{Your score, in centimeters}}{\text{Winning distance, in centimeters}} \right] \times 100 \text{ points}$$

20 points minimum score for a qualifying catapult that is capable of standing by itself in a loaded position.

Updates to the rules and Forum discussion / questions with answers are available by going to the NJAAPT website: [njaapt.wildapricot.org](http://njaapt.wildapricot.org) (top menu, "Events" and "Forum"). It is the team's responsibility to periodically check in or inquire about changes and clarifications to the rules.