

# Honors Rubber Band Powered Ping-Pong Ball Launcher Project

**Due Date: Tuesday, November 14, 2017**

## Design Statement and Objective:

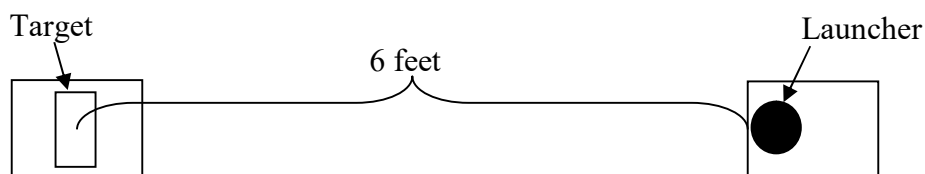
Each student will design and build a launcher which can catapult ping-pong balls at a target located **six feet** from the launcher. The launcher must shoot only one ball at a time and should be re-loadable to launch as many balls as possible within a **two-minute** time frame.

## Materials:

1. Rubber band(s)
2. Wood (e.g. Popsicle sticks, skewers, etc.)
3. Minimum of three ping-pong balls to be turned in
4. Additional "add-on" materials as needed

## Rules and Remarks:

1. Students will build a launcher which can fit on a student desk that can launch ping-pong balls through the air. Only rubber band(s) can be used as the mechanism to propel the ping pong balls. **The frame of the launcher must be made of wood (e.g. Popsicle sticks, skewers, etc.).**
2. The target will be an empty paper box with dimensions 11" x 17" and 8" tall. The target will be placed on a desk so that the center of the paper box is 6 feet from the front edge of the launching desk. The diagram at the bottom of the page shows the set up of the box, launcher, and desks as seen from above.
3. Students will operate their own launcher. Points will be earned for each ball remaining in the target at the end of the two-minute time frame.
4. The launcher must fit on the desk with no parts extending beyond the surface of the desk.
5. Weight and/or size of the launcher should be heavy enough to remain stable during launches. Attaching launcher to the desk is NOT permitted.
6. The launcher may be hand-held but must rest on the top of the desk during launches. A triggering or tripping mechanism is optional.
7. Ping-Pong balls must enter the target on the fly. Balls that enter the target after bouncing off the desk, ceiling, or wall will not be counted.
8. Multiple attempts and adjustments to the launcher are permitted within the two-minute time frame.



Scoring Rubric is on the back of this page.

## Project Turn-in:

- Absent students should arrange to have projects dropped off in the front office with student name and teacher's name attached to it; otherwise, a zero will be earned on the project grade. The project must be date stamped by front office personnel.
- Projects are due when the tardy bell rings; any projects not in class or not complete at that time will **not be accepted**.
- Any student earning a zero on the project may take the 9-weeks comprehensive retake to replace the zero on the major project.

## Grading:

A ping pong ball launcher which meets all the rules of assembly and is capable of launching a ping pong ball	<b>2.0</b>
A ping pong ball launcher which meets all the rules and is able to launch a ping pong ball <b>toward</b> the target	<b>3.0</b>
A ping pong ball launcher which meets all the rules and gets 1 ball into the target	<b>3.5</b>
A ping pong ball launcher which meets all the rules and gets 2 balls into the target	<b>4.0</b>
A ping pong ball launcher which meets all the rules and gets 3 balls into the target	<b>4.5</b>
A ping pong ball launcher which meets all the rules and gets 4 balls into the target	<b>5.0</b>

## Extra Credit:

A ping pong ball launcher which meets all the rules and gets more than 4 balls into the target will receive **0.05** extra credit points for each additional ball with a maximum of score of **5.5**