

Name: \_\_\_\_\_ Partner: \_\_\_\_\_ Grade: \_\_\_\_\_/800 points

# Ping Pong Ball Projectiles

200 points for the design process, 300 points for making the launcher, 300 points for testing and completing review questions.

**Challenge 1: To make a device that launches a ping pong ball the farthest distance.**

**Challenge 2: Hit a stationary target 10 feet away.** You may either tape a piece of paper to a wall, or make the ping pong ball launch into a 5-gallon bucket ten feet away.

**Restraints:** (-1 point off for each 1/4" over size, and -1 point for each 1/4" that launcher leaves launch area)

1. The device must be shorter than 2 feet tall.
2. The device may move, but it must stay in a launch area during tests. The launch area is 2 feet x 2 feet square.
3. The device must be adjustable, to hit targets at close range (10 feet), and at a distance (as far as possible)

**Instructions:**

1. Brainstorm and draw at least 2 possible solutions using thumbnail sketches on the back of this sheet. Describe in two sentences how you think it will work. (50 points)
2. Select which design you think will succeed, and draw a detailed front and side view of your device. (50 points)
3. Then list IN DETAIL how you plan to build your device, and what materials you plan to use. (100 words or more)(100 points)

**Review questions: (Answer in complete sentences)**

1. What does your device look like? How would you describe it? Does it look like a catapult, a trebuchet, a mix of both, or something completely new? (25 points)

2. Place a target 10 feet away, and launch a ping pong ball ten times. In the chart, list the distance away from the target that the ping pong ball landed or write "hit target". (100 points)

1	2	3	4	5	6	7	8	9	10

3. If you made this full scale, would it be successful in battle? Why? (25 points)

4. Launch the ping pong ball ten times and record the distance of each flight. (100 points)

1	2	3	4	5	6	7	8	9	10

5. (25 points) What was the farthest recorded distance during test flights? \_\_\_\_\_

During testing, the average flight of my catapult was \_\_\_\_\_ feet.

6. (25 Points) Look around the room. What ideas from other groups did you see that you would use the next time if you were to do this assignment again?