

Project Launch Pad

The Background:

You work for American Space Consortium as an engineer. The federal government is seeking bids for a high-tech launch system to launch CIA spy satellites into orbit around the earth. Those companies who bid for the project will conduct tests for the CIA. The company with the best test results will win the \$20 billion contract, and you will receive a big raise and promotion.

Your Job:

You must

- A. Design a launch system
Create a “blueprint” for your launch system

- B. Build a launch system
Your Materials:
 1. Launcher Component Kit (shoe box, paper cups, wooden craft sticks)
 2. Linear Scale (ruler with groove down the middle)
 3. Projectile (for example, a Ping-Pong™ ball)
 4. Cradles (plastic spoon, golf tee)
 5. Adhesive Lamination (masking tape, duct tape)
 6. Rope (string)
 7. Power Supply (rubber bands of various sizes)
 8. Bars (paper clips)
 9. Test Range Calibration Device (measuring tape)

- C. Test the launch system
At a later date, you will be given a target with which to practice. You will conduct 10 test launches and collect the following data.
 1. Error Range: the longest shot minus shortest shot
 2. Tolerance: the distance between the target distance and the longest shot
 3. Relative Error: the ratio of the tolerance to the target distance
 4. Average Error: the absolute value of the difference between the target distance and each shot; find the mean of these differences.

- D. Answer the question: How do these four measures help to determine the accuracy of your launch system?

- E. Write a report about the project.

Your Grade:

Design	25 points
Construction	50 points
Testing	75 points
Report	75 points
Total	225 points