

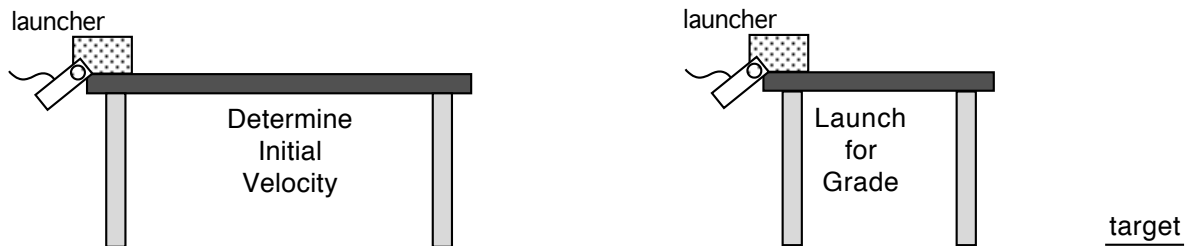
Lab 3-5: Hit the Bull's Eye

Purpose: To determine the initial speed of a projectile launched from a mini-launcher and then be able to shoot the projectile onto a target on the floor.

Materials: 1 mini-launcher 1 meter stick patience

Procedure:

1. Place the mini-launcher at the end of the lab table so that it shoots the length of the bench from an initial height of the bench's surface. **Be sure to protect the computer.**
2. Determine the initial speed of the projectile from the mini-launcher. It is up to you whether you wish to do 1, 2 or 3 clicks and to choose an initial angle. The settings that you choose must allow for the range of the ball to be greater than the width of the lab bench, but less than the length. **Any group hitting the brand new computers will have their grade lowered.** It is up to you to determine a method for calculating the initial speed.
3. On a piece of whiteboard, clearly show the following calculations: the initial speed of the ball and where it will land on the floor. Be prepared to explain what you did and why you did it.
4. Once approved, move the launcher to the side of the lab table so that it shoots across the width of the lab table. Be very careful to not change the angle of the launcher.
5. You will also get a target to tape to the floor. **Do not fire the projectile until your teacher is there.** One try only; your grade is determined by how close you come to your target.
6. If you are dissatisfied with your grade, you may try again. However, 2 points will be deducted from your final score (so the maximum you can get this way is 18/20, if you hit the target.) The higher score will be recorded. If there is not enough time in class to do this, you may come before or after school to do this.
7. For a bonus of two points calculate the maximum height of the projectile and where the ball is horizontally when at that height. Call over your teacher for a single shot at a vertical target.



Data:

Any data that you feel you need to take, write here. Keep it neat and organized.

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Calculations:

Show any calculations you did to determine the initial speed of the projectile, and then show your calculations to determine where to place the target on the floor. Lastly, show the calculations to find the horizontal and vertical positions of the ball when it is at its maximum height.

Initial Speed of Projectile:

Target Location on Floor:

Bonus: Location of Maximum Height: