

Objective

Using the background information on projectile motion that you learned in class, you are going to design and conduct a projectile motion experiment.

Equipment

Projectile launcher and rockets
Measuring wheel or tape
Stopwatch

Task

Your experiment should be designed to investigate:
The initial velocity or muzzle velocity
The range for horizontal projection
The range for projectiles launched at an angle

Lab Report

Your lab report should include the following sections:

Purpose

This is a statement of the problem to be investigated. It provides the overall direction for laboratory investigation and *must* be addressed in the conclusion.

Equipment

A list of all laboratory equipment used in the investigation
A detailed and labeled diagram to illustrate the setup of the experiment

Procedure

Step-by-step procedure carefully explained in a numbered sequence
All experimental variables identified and named
Brief description of how the independent variables are controlled
Hint: Your audience is not necessarily composed of physics students. Someone who was not present during the lab should be able to understand how the experiment was performed and be able to reproduce the results by reading your procedure.

Data

What data needs to be taken? How many trials do you have to include?
How is data reported? Data tables are a good idea! The units for physical measurements in a data table should be specified in the column heading only.

Data Analysis

How do you interpret data?
Include all graphs, analysis of graphs, laboratory calculations, and percent errors.

Error Analysis

Discuss any questionable data or surprising results.
Explain the possible source of any error or questionable results.

Conclusions

Discuss the effectiveness of the experimental procedure in what you intended to investigate.
Suggest changes in experimental design that might confirm the sources of errors you encountered and changed that might minimize them.