Projectile motion experiment

Accuracy, precision, and length

# Objective

Using the GoDirect Projectile Launcher you need to find the optimal angle for launching a projectile for it to travel the furthest.  
Based on multiple measurements of the length you should discuss the accuracy and precision of the projectile launcher.

# Method

To find the optimal angle you will have to launch the projectile several times at a series of different angles.

Fill in the tables below based on your measurements.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Angle | 30° | 40° | 50° | 60° |
| Distance 1 |  |  |  |  |
| Distance 2 |  |  |  |  |
| Distance 3 |  |  |  |  |
| Distance 4 |  |  |  |  |
| Distance 5 |  |  |  |  |
| Average distance |  |  |  |  |

Make a graph of the distance as a function of the angle to find the optimal angle.

When you have found the optimal angle, you should go on to launch the projectile multiple times at the same setting to get an idea of the precision of the launcher.

In the table below you should record how far to the side the projectile falls and how far it travels when launched at the optimal angle.

|  |  |  |
| --- | --- | --- |
| Sideways distance (cm) | Distance (cm) | Velocity (m/s) |
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