# Journal: Projectile motion

## Objective:

Using the GoDirect Projectile Launcher we intend to find the optimal angle for launching a projectile for it to travel the furthest.  
Based on multiple measurements of the length the accuracy and precision of the projectile launcher will be discussed.

## Hypothesis:

*Write a hypothesis for the experiment.*

## Materials:

*Write a list of the materials you used.*

## Method:

*Explain how you performed the experiment.*

## Data:

Measurements for finding the optimal angle:

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

Measurements to determine the precision of the projectile launcher:

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

*Make a graph of the distance as a function of the angle to find the optimal angle.  
Calculate the mean and standard deviation of the sideways distance, distance, and velocity of the projectile launched at the optimal angle.*

## Error analysis:

*What potential errors, uncertainties, and experimental mistakes were made in the experiment?*

## Conclusion:

*Write a short conclusion on the hypothesis of the experiment.*

## Perspective:

*How could the experiment be improved or expanded further?*