

Projectile Motion

Name _____ Date _____

Source Notes:

This lab was modeled after

Experiment P08: Time of Flight versus Initial Speed
(Photogate)

Created by Pasco for their Science Workshop Software in 1996

The design of the lab was mostly original, but influenced by demonstrations of the Time of Flight adapter.

Jim Haine - Wissahickon High School, Ambler PA.

1997(?)

Modified 2010

Teacher Notes:

Modifications:


Pasco switched software to Data Studio so some modifications were added. The original .sws files were modified to the new .ds format. (around 2005?)

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Step 1 - Finding velocity:

To begin this experiment you will have to learn a little about the velocity of a projectile launched from the “short range” projectile launcher. Shoot the projectile straight up into the air at each possible setting, until you have consistent results.



Setting	Average Maximum Height
1 click	
2 clicks	
3 clicks	

Use your results to calculate the velocity of the projectile for each setting.

Velocity - 1	
Velocity - 2	
Velocity - 3	

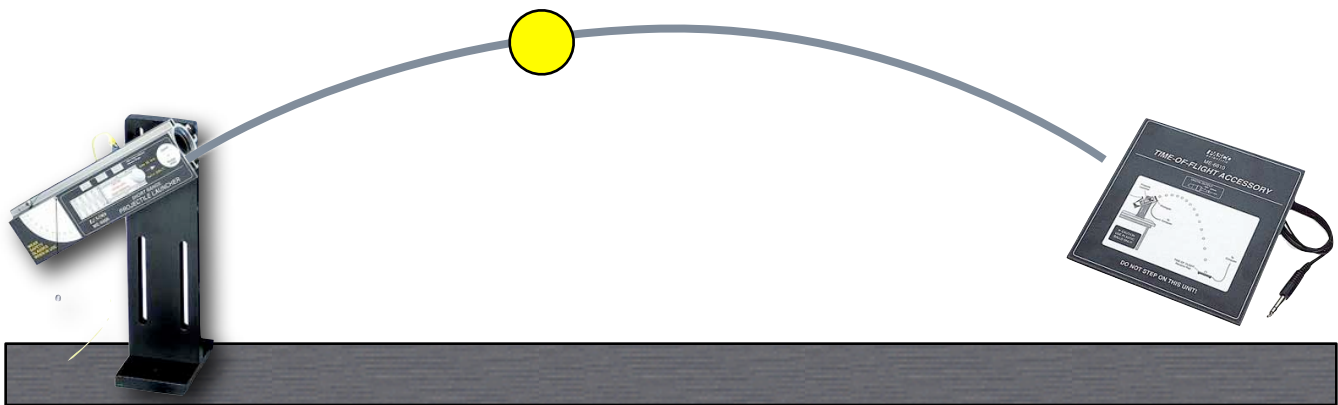
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Step 2 - Equal landing height:

Each group will be given a different angle for their next launch, all will use the “2 click” setting. Calculate the time of flight and the range with your values.

Calculated Velocity	Assigned Angle	Predicted Range	Predicted Time
Actual Results (completed by the teacher)			



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Step 3 - Launched from an elevated height:

Each group will be given a different angle for their next launch, all will use the “3 click” setting. Calculate the time of flight and the range with your values.

Calculated Velocity	Assigned Angle	Initial Height	Predicted Range	Predicted Time
Actual Results (completed by the teacher)				

