Physics 3204
Projectile Motion : Core Lab

Student Name: _____

Group Members:

_____

_____

Date: : _____

_____
Purpose:
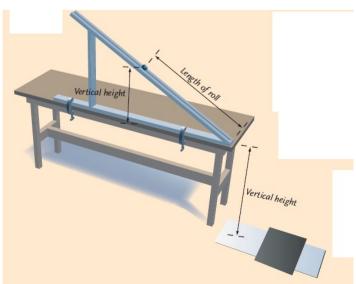
To find the initial velocity of a projectile.

Equipment

One small projectile (small toy car)   Grooved ramp,
Blank paper,   Lip stick
Metre stick,   Tape

Procedure

1.   Position the ramp a few centimetres behind the edge of the table and tape it in place.

2.   Roll the toy car down the ramp so that the ball leaves the ramp in a horizontal direction, and note where it hits the floor.

3.   Place a blank sheet of paper on the floor and tape it down.

4.   Locate where the edge of the desk is projected onto the floor. Mark the point on the paper. You will be measuring the range from here.

5.   Put lipstick on your toy car. This will leave a mark on your paper on the floor.

6.   Roll the toy car down the ramp.

7.   Measure the distance from the mark on the paper to the where the edge of the desk is projected onto the floor

8.   Repeat five more times. Record date in Table 1

9.   Measure the height of the table.

Observations/Calculations:

Table 1: Range   [1]

Trial #1	Measurement (m)
1	
2	
3	
4	
5	
6	
Average =	

1.   Record the height of the table d_y = _____   [1]

2.   How long did it take the car to fall?   [2]

3.   What was the initial velocity of the car?   [3]

4.   What is the final vertical velocity of the car as it hits the ground?   [2]

5.   What is the velocity of the car as it hits the ground (include an angle)?   [3]

Discussion:

1.   What were the three values that were implied in doing this experiment   [1]

_____

_____

_____

2.   Why did we use 10 trials instead of one?   [1]

_____

_____

_____

3.   Why don't we need the angle of the ramp?   [2]

_____

_____

_____

4. If another steel ball was used and was dropped at the same time as the moving ball left the table, which one would land first? Why?   [2]

_____

_____

_____

_____

_____

5. If the ramp was moved to the edge of the table, how does that change the experiment? Is the answer to Question 4 still the same?   [2]

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