Name:

Partner:

Physics 11
M. Lam

Projectile Motion Lab

Block:

Objective
Investigate how range is affected by initial speed for a projectile launched horizontally from a constant height.

Equipment

BeeSpi photogate timer	track
marble	meter stick

Experimental Method

1. Determine the height of the table. Record this below.

   Height: _____

2. You will need to give the marble an initial speed before it leaves the table. Describe how you will this below. The marble should leave the table horizontally, perpendicular to the table's edge.

3. Position the BeeSpi photogate timer at the edge of the table so it can measure the velocity of the marble immediately before it leaves the table.

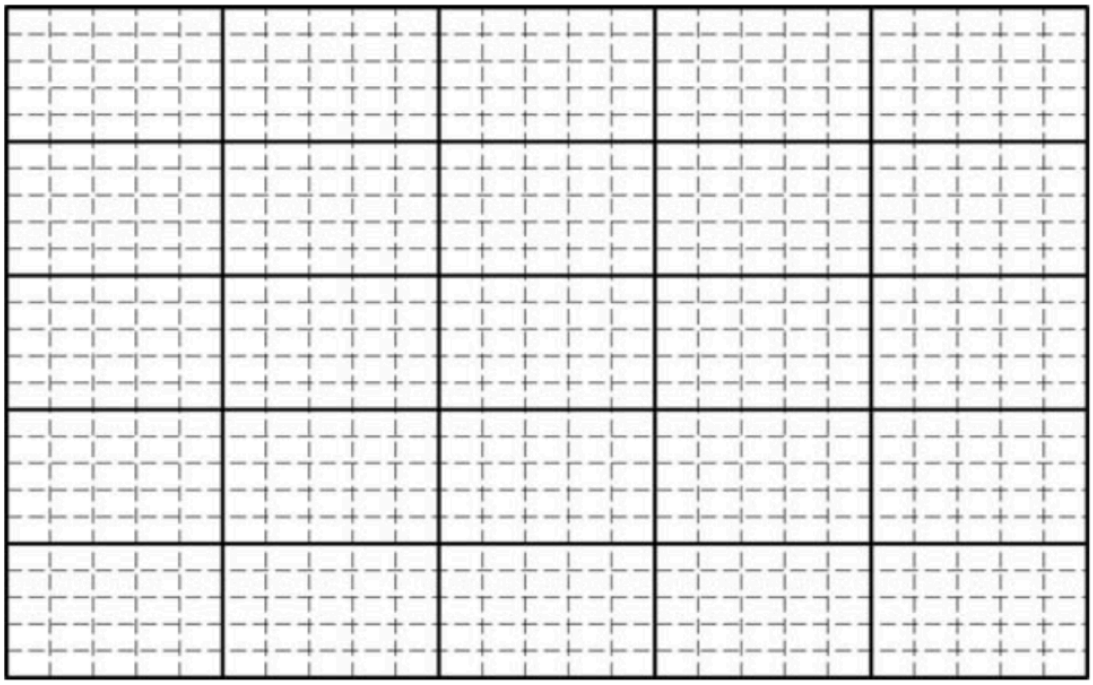
4. You will need to measure the range (horizontal displacement) of the marble when it hits the floor. Describe how you will do this below.

5. Complete the table by measuring the range for ten different initial velocities. Use a wide range of initial velocity values.

Initial Velocity (m/s)	Range (m)

Analysis and Discussion

1. Plot the range as a function of the initial velocity. Include a best fit line.



2. Determine the slope of the best fit line. Clearly mark the points on the line used to calculate the slope (e.g. with an ×). Be sure to include units.

3. What quantity does the slope represent? *Hint: Consider the equation for the horizontal motion of a projectile.*

4. Use your answers from questions 2 and 3 to determine the acceleration due to gravity. Determine the percent error.