Table-Top Projectile Motion

Names: _____

Equipment: ruler, meter stick, ball

Procedure: Roll a ball off a table using a ramp. Measure the height of the table and the horizontal distance the ball travels. You will do three trials.

Analysis: Using your recorded data, determine the total travel time of the ball and the horizontal velocity with which the ball left the table. You will run this experiment three times and calculate an average horizontal speed.

Once you are ready we will launch the ball from the balcony. You will use your calculated velocity from the horizontal and the provided height of the balcony to predict where your projectile will land.

Be sure to answer the analysis questions on the other side of this sheet!!

Show your diagrams, data, and calculations below.

Draw a diagram below:

Data:

Height of table:_____

	Trial 1	Trial 2	Trial 3
Measured Horizontal Distance			

Calculations:

	Trial 1	Trial 2	Trial 3
Calculated Time of Flight			
Calculated Velocity			

Average Horizontal Velocity:_____

ANALYSIS

1. Did the ball land farther from or closer to the target than your predicted position?

2. You were not able to account for air resistance in your prediction. If air resistance were not present, would the ball land farther from or closer to the target? Why?

3. Does your observation of the ball's actual landing point make sense when you consider the effect of air resistance? Why or why not?

4. Find the % error between the predicted and actual impact distances.