Projectile motion persuasive essay

Experiment 4 Projectile Motion Introduction We examined projectile motion by observing a ball rolling down then leaving the ramp, thus becoming a projectile with a horizontal initial velocity. We measured the horizontal initial velocity using the photogate and computer.

We measured the horizontal and vertical distances that the projectile traveled from the end of the ramp to when it hit the floor my using a meter stick to measure Experimental Set-Up In our experiment, we used the following: ramp, photogate, steal ball, plumb bob, meter stick, and vernier caliper. Experimental Procedure 1. At the edge of our lab table, we prepared the ramp. . Exactly below the launch point, we marked a point on the floor by using the plumb bob. 3.

We determined the vertical distance that the ball fell (mm) from when it was launched from the ramp and fell on the floor. We then entered this in our data table. 4. We positioned a piece of paper on the floor to where the ball would land. We put the carbon paper above the paper and taped them to the floor.

5. We fixed the photogate so the ball rolled out and the light beam was blocked and unblocked. The photogate was plugged into the LabPro Dig/Sonic1 port. 6.

We opened up the One Gate Timing from the Logger Pro folder. . We measured the diameter of the ball with the vernier caliper and recorded it in the computer so that it could calculate the ball's launch velocity. 8.

We launched the ball from a specific height from the ramp so that the ball hit the carbon paper and marked a point on the paper below. We determined the horizontal distance and measured to the nearest millimeter using a meter stick. The initial velocity of the ball after it leaves the ramp will be given by the LabPro program. 9. We repeated step 8 from various heights five different times and recorded data.

10. Calculate Theoretical yield and % difference DataExperiment (4) Data Table Height of ramp's lower end above the floor, | y|= 0. 921m Diameter of the ball, d= 0. 021m RunInitial Velocity (m/s)Horizontal Distance(m)Theoretical Horizontal Distance (m)% Difference 12.

0730. 9240. 8987338042. 772340727 21.

970. 8750. 8540789172. 419910753 31.

7630. 7840. 7643355992. 540069604 41. 3550. 6080.

5874502193. 437998559 51. 1930. 560. 5172163197. 943377887 Calculations and Results Example for Theoretical horizontal distance x= vox v ((2 | y|) / g) x= 2.

073 v ((2 |. 921|) / 9. 8)= . 899m % difference= | xth- xexp | X 100 ((xth+ xexp) / 2) % difference= | . 899- . 24 | X 100 = 2.

77% ((. 899 + . 924) / 2) Conclusion By setting up a projectile motion apparatus, we were able to measure the initial velocity, horizontal distance, theoretical horizontal distance, and percent difference between the five runs. One problem we came across was that our ball was smaller than normal so

our readings might have been obscured. With the kinematic equations, we were able to calculate five different horizontal projections from five different heights.

Four out of five of our percent difference fell within 3% while the final run was 8%. This might be due to wind resistance and friction.