**Title:** Picket Fence

**Purpose:** To find the acceleration due to gravity on the surface of the Earth, g, (9.81m/s²)

To investigate the graphs of d vs. t, and v vs. t for an object in free fall

**Procedure:**

1. Set up photo gate/large picket fence on Pasco interface
2. Open data studio, and enter the program by selecting creat your own experiment
3. Display [d vs. t], and [v vs. t] graphs
4. Drop the large picket fence through photo gate 10 times
5. Save the graph that gives you the best slope (closest to 9.81 m/s2), and save the graph that gives the the slope furthest from 9.81 m/s2. These will be printed out and submitted with your lab report.

**Data/Sample Calculations:** (10 trials)

|  |  |
| --- | --- |
| Trial | Acceleration (m/s²) |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 |  |

**Results:** What is your average acceleration for all 10 trials? How close is that to the accepted value for g? (%error)

Does your [d vs. t] and [v vs. t] graphs appear the way they should be?

**Conclusions:** How does the [d vs. t] and [v vs. t] graphs differ for objects moving at a constant velocity compared to objetcs moving with constant acceleration? Include a side by side comparison of the graphs to be clear. What are sources of error for this lab?