

Physics Labs

Labs are due no later than one week after last class day of lab. There is no late, only turned in or not. Feedback is based on accuracy. Grade is based on completion.

- Title (Provided)
- Objective (Provided)
- Diagram(s) of setup/procedure
- Data (tables); minimum* of 5 data points consisting of trials

Physics Labs

- Graph(s)
 - use to show relationships between variables
 - General shape of data: line, curve, none
 - Best fit of shape; determine slope if linear
- Calculations – must show work for one, record all results
- Written Discussion
 - What, why, how
 - Results: “answer” to objective using data, calculations, and graphs to support
 - Experimental error: procedural difficulties, “human error”?, never calculations

Lab: Bouncing Ball

- Obj: Determine the relationship between the initial height of a ball dropped and the final height after it bounces off the ground
- Graph the results
- Discussion

Unit 1: One-Dimensional kinematics labs

1. Army Trucks
2. Ram Trucks
3. Slow Roller
4. Freefall

Lab: Army Trucks

- Obj: Given a pair of constant speed toy army trucks, verify the slow/fast labels using a graph of the data.
- No calcs, the discussion needs to explain how the graph shows slow/fast.

Lab: Ram Truck

- Obj: Completely describe the motion of a toy truck by graphing the distance v. time of the truck's motion data.
- No calcs, the discussion should focus on the slope of the line/curve.

Lab: DiscGo

January 24

- Obj: Describe the motion of a rolling disc down an incline. Determine the average velocity, final velocity, and acceleration of the disc from start to various positions along the incline.
- Calculations: v , v_f , a for the disc to reach each position ...show proof for one position
- Graphs: position v. time (connect dots) and final velocity v. time (best fit line/calculate the slope)
- The discussion should include: the shape & meaning of each graph and the value & meaning of the slope of the final velocity v. time. Was the acceleration constant (or at least consistent)?

Lab: Dropping Stuff

January 25

- Obj: Experimentally determine if the acceleration due to gravity depends on the mass of the object.
- Calculations: acceleration for all objects...show proof for one, results for all
- The discussion should include: % error relative to 9.8 m/s^2 for each object

Lab: Throwing Stuff/Hangtime

January 29

- Obj: Experimentally determine the initial velocity, final velocity, and maximum height of an object propelled straight up into the vacuum you can breathe.
- Data: One event should be fine, no trials
- Calculations: show proof for initial velocity, final velocity, and maximum height. Have Mr. Teters approve before you write the discussion.