Physics Labs

Labs are due no later than one week after last class day of lab. 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

Unit 4: Energy/momentum labs

1. People Power
2. Spring Potential
3. Roller Coaster
4. 1-d simple collisions
5. Collision impulse

Lab: People Power

October 5

- Obj: Experimentally determine *your* vertical power while walking up at least 12 steps.
- Data: cumulative time and height at 4 equal intervals from one climb, no trials needed
- Calculations: Your weight in newtons and your cumulative work at the end of each interval. Show calculations once.
- Graphs: total work v. total time…use best fit line to find your average power…*do not use data points to calculate slope*
- The discussion should include, but not limited to: the shape & meaning of the graph as well a comparison of power within your group

Lab: Spring Potential

optional

- Obj: Experimentally determine the spring constant and elastic potential energy of two different spring scales
- Data: 5 equal intervals; displacement is the independent variable
- Graph: Force applied v. displacement…***use this graph to calculate*** the spring constant and elastic potential energy
- Discussion

Lab: No Free Lunch (NRG Conservation)

October 12

- Obj: Design a roller coaster for a skater. Verify the law of conservation of energy as the skater moves along the track.
- Follow the provided lab procedures and complete analysis provided. Usual lab report not needed
- Click to download the lab procedures

Lab: Simple 1D Collisions & momentum conservation

October 16

- Obj: Verify the law of conservation of momentum and the observe the differences between types of collisions using a collision simulation.
- Follow the provided lab procedures; only need to complete what is on the lab sheet
- Click to download the lab procedures