<u>Unit 7: Newtonian Mechanics – Oscillations</u> LAB: Simple Harmonic Motion

Objectives:

- In reference to a spring-mass system that oscillates vertically: Either...
 - Determine the spring constant using graphical methods, or
 - Prove¹ that displacement does not affect period.

Hypothesis: State your hypothesis.

Safety: Take care that the cars stay on the tracks.

Background: On what principles did you base your hypothesis and your procedure?

Equipment:

• Springs of a variety of lengths and gauges, hanging masses, motion sensor, force sensor, meterstick, or other

¹ You get to use standard deviation for this one, so this would be a nice opportunity to practice that skill.

Procedure:

Data Tables, Graphs, and Calculations: Note – Create your data tables and graph(s) in Excel and attach them. (Include below an error analysis that will help you conclude about your hypothesis.)

Conclusion:

• What can you conclude? Justify your conclusion(s) with evidence.

• Were there errors? If so, account for them.