**Hooke’s Law Lab**

**Names:**

**Objective:** To determine the spring constant for a Hooke’s law apparatus.

**Materials:** -

**Return all materials when finished.**

**Procedure:**

**1.** Adjust the mirror so that it is in line with the mass holder. Find the starting point on the mirror (the initial extension of the spring due to the weight of the mass holder). Record the initial extension.

**2.** Add Weight to the spring and measure the extension on the mirror.Repeat this step with various combinations of weights and measure the extensions. Fill in a table.

**3.** For each measurement calculate the spring constant. Remember: **F = -k X** and the force on the spring is equal to the weight on the spring and x is the Extension of the spring. Fill in a table. Show sample calculations on a separate page.

**4.** Create a Graph of Weight vs. Extension. Plot the Weight Added to the spring (y-axis) versus the Extension (x-axis) of the spring. Be sure to properly label the graph with a **Title, X and Y axis.**  Include these in your results section.

**5.** Draw the line of best fit and calculate the slope of the line of best fit.

**Discussion**

1. What do you notice when you compare the slope with the average spring constant. Explain Why?
2. Could you use this method to determine the spring rate of a car spring? Explain.

**Horse Power Lab**

Objective : Determine the horsepower of 2 members of your group. (3 members if a group of 4)

Materials:

Stairs: 1. off lobby by science wing

2. stairs right by lab

3. stairs by Mr. Leger's class

(\*Run all the way to the top of the stairs)

Results: Record your results in a table.

Sample Calculations:

Discussion :

1. Does taking the stairs two at a time make a difference in your horsepower?
2. Does this measure maximum or average horsepower? Explain

Lab Reports should be presented as normal but only one per group.