

Hookes law lab



**ASSIGN
BUSTER**

Hooke's Law Lab Objective: To determine the relationship between the elongation of a spring and the force applied (added mass). Materials:

Hooke's Apparatus Two springs Larger diameter spring (spring 1) Smaller diameter spring (spring 2) Set of masses Procedure: 1) Gather all materials 2) Attach spring 1 to the hook on the platform 3) Squeeze back of ruler to zero in the needle 4) Place each weight onto the platform 5) Measure the weight of each weight on the platform 6) Record data 7) Attach spring 2 to the hook on the platform 8) Repeat steps 2-6 9) The data must be measured to the nearest tenth Results: Table 1: (smaller spring) Mass (g) Elongation of spring (cm)

20 g	3 cm
30 g	3.8 cm
40 g	4.3 cm
50 g	4.8 cm
60 g	5.2 cm
70 g	5.9 cm
80 g	6.3 cm

20 g	0 cm
30 g	3 cm
40 g	6 cm
50 g	10 cm
60 g	14 cm
70 g	17 cm
80 g	21 cm
90 g	25 cm

Discussion: 1) The graphs from the data show that they are different for the larger spring and the smaller spring. Although they are both slanted in the same direction, they do not have the same points.

The larger spring is more slanted with a longer elongation. The smaller spring has a greater mass with a shorter elongation. 2) The two methods used to compare the corresponding equations was sketching a graph, and plotting points, and using a calculator. I prefer to use a calculator method

because it is much quicker, easier, and more accurate. 3) The type of relationship between the elongation of the spring and the mass is direct.

In a direct relationship between two quantities, as the value of one quantity increases (decreases), the value of the second quantity also increases (decreases). When the elongation increases, the mass increases as well, making the spring linear. 4) The slopes were not the same for the large spring and the small spring. The larger spring had a longer elongation than the smaller spring did.

If the slopes were the same, then the lines would be exactly parallel, which they are not. Conclusion: The objective of Hooke's Law Lab is to determine the relationship between the elongation of a spring and the force applied. In order to complete this lab, one must weigh the set of masses on each the small spring and the large spring and record the data each time a different weight was put on the scale.

This resulted in the larger spring being more slanted with a longer elongation, and the smaller spring having a greater mass with a shorter elongation.