Name _____ Regents Physics

Hook's Law

Intro:: Hook's Law states that the applied force on a spring is proportional to the distance the spring is compressed or elongated and the spring constant. In this lab, we will hang various masses from a spring to determine the effect of mass and force on the spring constant.

Goals: To determine the spring constant using different masses and a Hook's Law apparatus

Procedure:

1. Hang 50 g, 100 g and 150 g of masses separately on the mass hanger and record the displaced distance. Repeat each mass experiment three times to improve accuracy.

2. Calculate the spring constant for each of the three trials and record the values in the table below

Trial	Mass	F = mg	Distance displaced (x) m	Calculated spring constant (k) N/m
1	100 –g mass			
2	100 – g mass			
3	100 - g mass			
4	150-g mass			
5	150 – g mass			
6	150– g mass			
7	200-g mass			
8	200 – g mass			
9	200 – g mass			

Calculations for Force applied
Calculate the force applied to the spring in each of the three trials

. Trial 1-3 Trial 4-6 Trial 7-9

Calculations for spring constant
Calculate the spring constant in each of the nine trials

. trial 1 Trial 2 Trial 3 Trial 4

Trial 5 Trial 6 Trial 7 Trial 8

Trial 9

What can you conclude about the spring constant? Does it appear to vary depending on force applied or is it a constant. Explain.

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