

Harmonic Motion

Name _____ Date _____

Source Notes:

This lab was modeled after classic Hooke's law demonstrations.

Jim Haine - Wissahickon High School, Ambler PA.
1997(?)
Modified 2010

Teacher Notes:

as of 2011, the springs were available from Pasco

http://store.pasco.com/pascostore/showdetl.cfm?&DID=9&Product_ID=56449&Detail=1

Modifications:

This version of the lab was also designed to meet district initiatives for student graphing skills.

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Activity 1: Hooke's Law

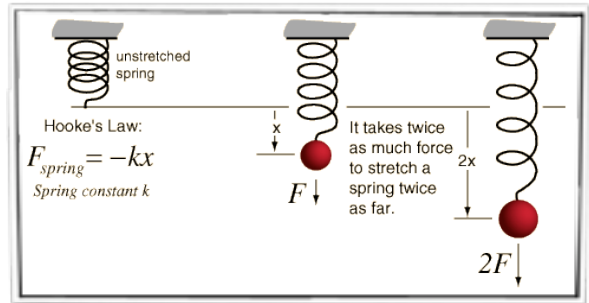
One of the properties of elasticity is that it takes about twice as much force to stretch a spring twice as far. That linear dependence of displacement upon stretching force is called Hooke's law.

<http://hyperphysics.phy-astr.gsu.edu/HBASE/permot2.html>

$$F = kx$$

Directions:

At each station, you will hang additional masses from the springs and measure how much they stretch. For each stretch, measure from the top of the spring to the bottom of the mass hanger.



Which Spring:			
#	mass	weight	stretch
1			
2			
3			
4			
5			
6			

Which Spring:			
#	mass	weight	stretch
1			
2			
3			
4			
5			
6			

Which Spring:			
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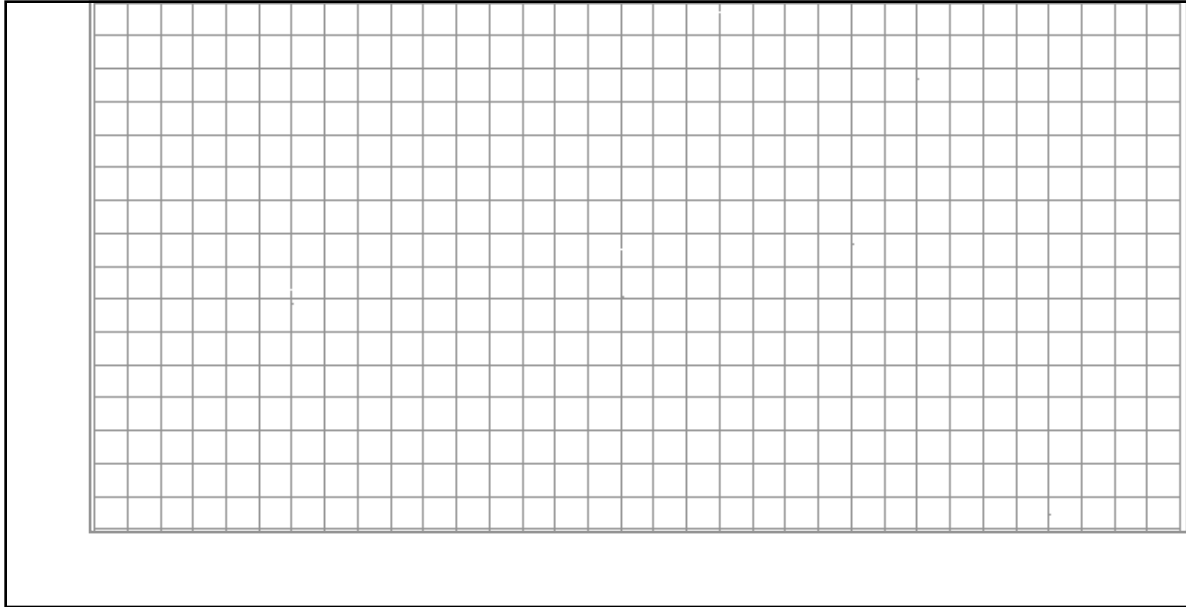
Grade

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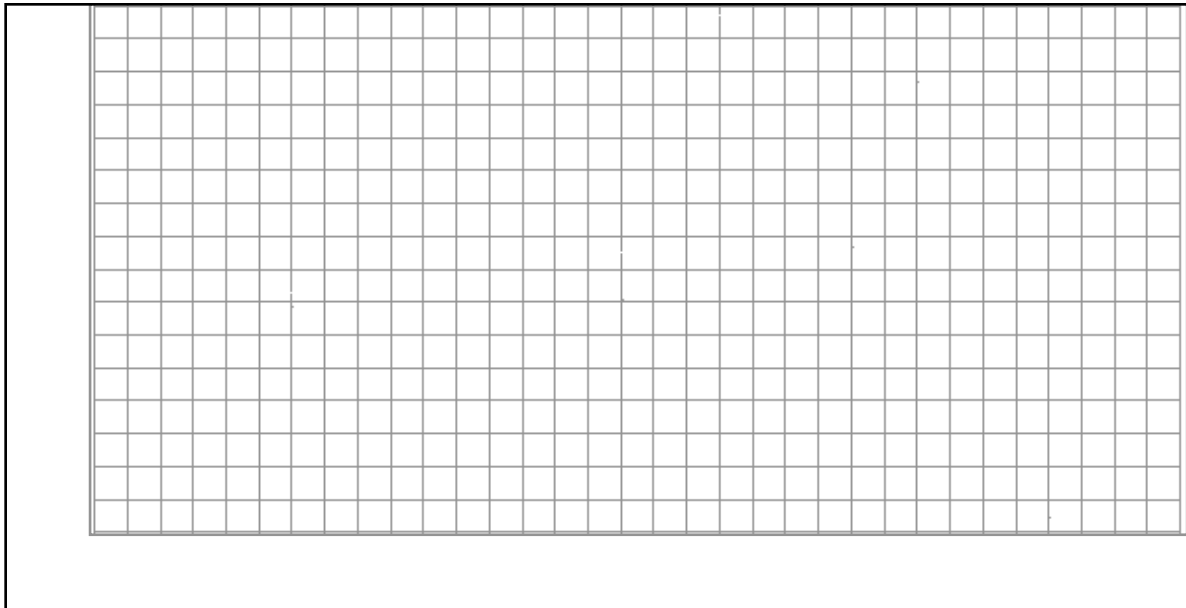
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Graph:

Pick 2 of your springs and graph your results. Place the weight on the y axis and the length on the x axis. Find the slope of each graph to find the spring constant.



k = _____



k = _____

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Criteria	Points	Possible
Title		1
X-axis labeled with units		1
Y-axis labeled with units		1
X-axis subdivided into scale		1
Y-axis subdivided into scale		1
Data pairs plotted correctly		1
Data trend summarized with line- of best-fit		1
Data trend summarized with sentences		3
TOTAL		10 points

Grade