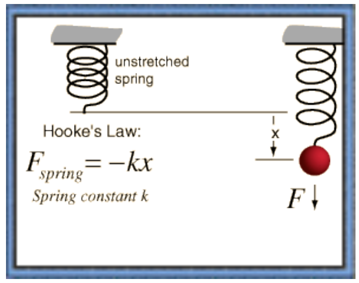
Harmonic Motion

Name ____________________ **Date** _____________

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:			
#	***mass***	***weight***	***stretch***
1			
2			
3			
4			
5			
6			

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

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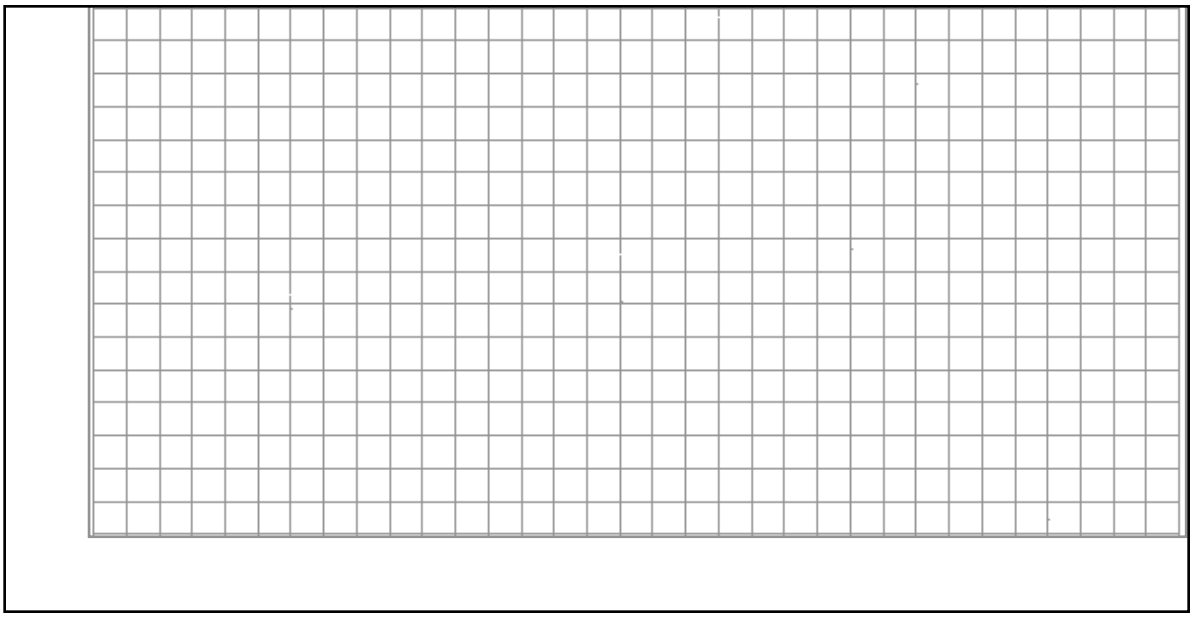
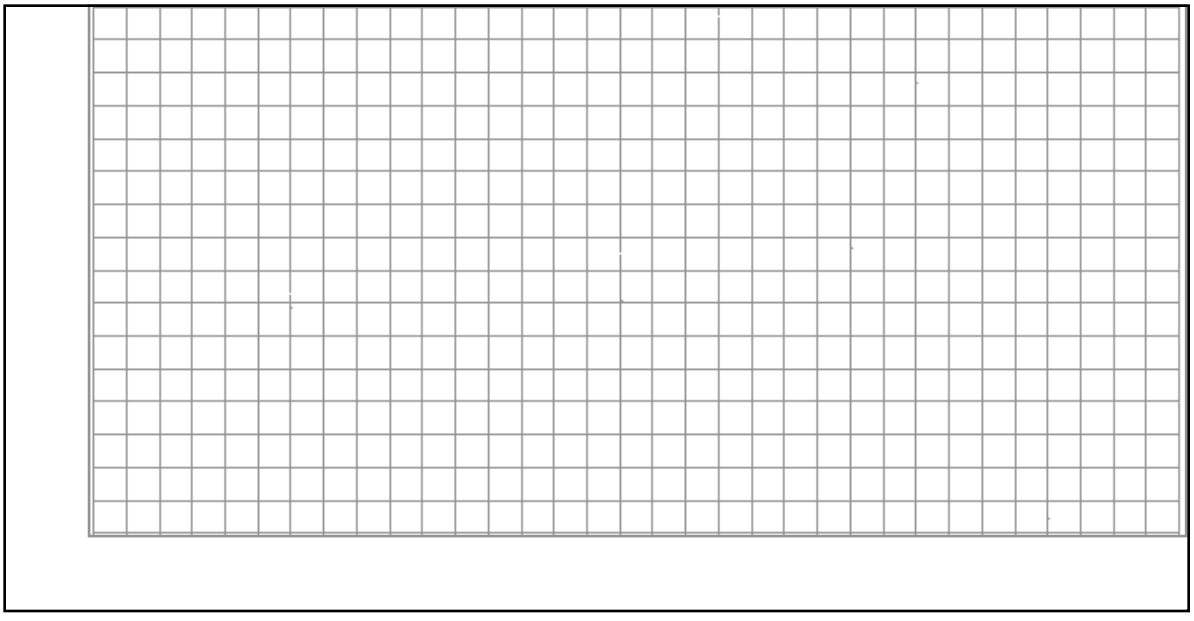
Graph:

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