

Harmonic Motion

Name _____ Date _____

Source Notes:

This lab was modeled after
Experiment P19: Simple Harmonic Motion - Mass on a Spring
(Force Sensor, Motion Sensor)

Created by Pasco for their Science Workshop Software in 1996

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

Teacher Notes:

Modifications:

Pasco switched software to Data Studio so some modifications were added.

The original .sws files were modified to the new .ds format. (around 2005?)

Grade

Harmonic Motion

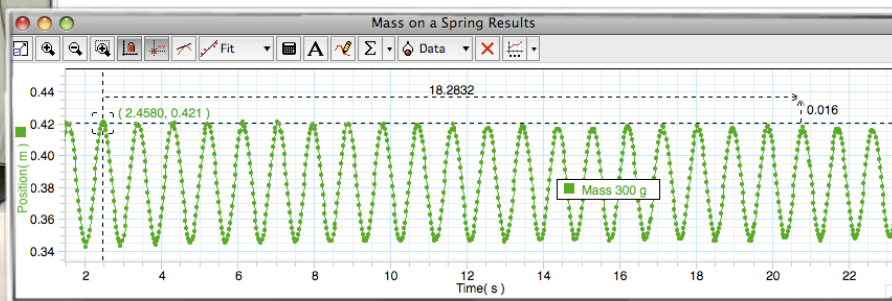
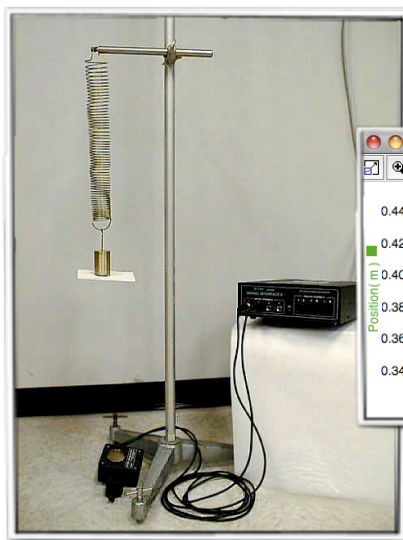
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Activity 3: Period of an Oscillating Mass on a Spring

Use the Pasco Motion Sensor to find the period of a mass on a spring.

Select two of the same springs from the Hooke's Law Activity. For each spring, start with enough weight such that the masses can demonstrate regular harmonic motion. Record the motion of at least 20 oscillations. Record the time for exactly 20 "bounces". To find the period, simply divide by 20.

$$T = 2\pi \sqrt{\frac{m}{k}}$$



#	mass	spring A		spring B	
		(20) T	T	(20) T	T
1					
2					
3					
4					
5					
6					

Grade

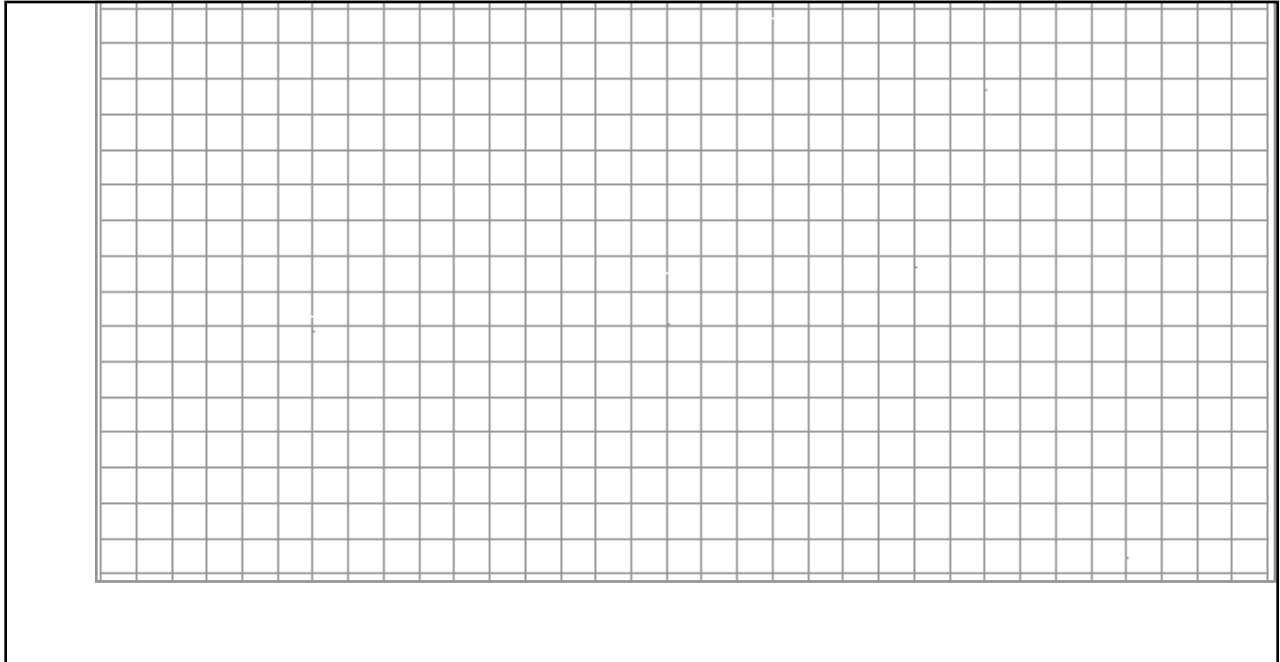
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Graph Results

Create a graph for each of the two springs. Plot the period on the y axis and the *square root of the mass* on the x axis. When you find the slope of each line use the equation to solve for the spring constant of each spring.

Spring A



Spring B

