

Harmonic Motion

Name _____ Date _____

Source Notes:

This lab was modeled after
Experiment P31: Waves on a String
(Power Amplifier)

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.

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Activity 2: Standing Waves

It is possible however to have a wave confined to a given space in a medium and still produce a regular wave pattern which is readily discernible amidst the motion of the medium. For instance, if an elastic rope is held end to end and vibrated at just the right frequency, a wave pattern would be produced which assumes the shape of a sine wave and is seen to change over time. The wave pattern is only produced when one end of the rope is vibrated at just the right frequency. When the proper frequency is used, the

$$v = \sqrt{\frac{T}{m/l}}$$

interference of the incident wave and the reflected wave occur in such a manner that there are specific points along the medium which appear to be standing still. Because the observed wave pattern is characterized by points which appear to be standing still, the pattern is often called a standing wave pattern. There are other points along the medium whose displacement changes over time, but in a regular manner. These points vibrate back and forth from a positive displacement to a negative displacement; the vibrations occur at regular time intervals such that the motion of the medium is regular and repeating - a pattern is readily observable.

<http://www.physicsclassroom.com/Class/waves>

	λ	f	v	T	m/l	m
1						
2						
3						
4						

Calculate the mass for each string:

string A

string B

Calculate the percent error for each:

string A

string B

