

Name_____Hour_____Date_____

Pendulum Lab

Harmonic motion, which shares common properties as waves, is motion that repeats in cycles. Many things in nature involve harmonic motion. For example, the phases of the moon and seasons are caused by earth's harmonic motion. This investigation explores harmonic motion and wave properties with a pendulum.

For this investigation we will refer to amplitude as the angle of degree the pendulum will swing from rest or equilibrium. The number of periods will reflect the frequency of the pendulum.

We will be testing three different variables, mass, length, and amplitude to determine which variable will affect the frequency of the pendulum. You will record the time the pendulum takes to complete ten cycles. You will test each variable three times before changing each variable.

Problem: What affects the period (frequency) of a pendulum?

Hypothesis:

Use the data charts to record your data

Construct one graph representing the average values for each variable mass, length, and amplitude.
(Separate bar graphs)

Thinking about what you observed

1. Write one sentence about the motion of your pendulum using the word "cycle".
2. The *amplitude* is the maximum amount the pendulum swings away from its resting position. The resting position is straight down. One way to measure amplitude is the angle the pendulum moves away from center. Write one sentence describing the motion of your pendulum using the word "amplitude."
3. Draw a sketch that describe one complete cycle using arrows to indicate the direction the pendulum is going at each point in one cycle. (Back and forth)

Conclusion: My hypothesis