

Physics Lab

PhET Pendulum Lab Name:

Synopsis

In this lab you will design experiments to describe how variables affect the motion of a pendulum.

Materials

- PhET Pendulum Lab
https://phet.colorado.edu/sims/html/pendulum-lab/latest/pendulum-lab_en.html

Procedure

1. Play with Pendulum Lab to figure out what variables affect the motion of a pendulum and write qualitative descriptions for each variable. For example using the Skate Park simulation, you might have written “The mass of Skater doesn’t effect the how high the Skater goes even if track friction is on” and “If the friction is high, the skater doesn’t go as far.”

Include your findings in a google document that you will eventually turn in on google classroom.

2. Design experiments to find the best equation for the relationship for length and period.
 - (a) Make a data table with at least 10 points in a google sheet.
 - (b) Make a scatter plot type of chart. (If you know how, add a trend line to this graph.)
 - (c) Include the graph you make in your document
 - (d) Describe in your own words what the relationship is.
3. Design experiments to find the best equation for the relationship for initial angle and period.
 - (a) Make a data table with at least 10 points in a google sheet.
 - (b) Make a scatter plot type of chart. (If you know how, add a trend line to this graph.)
 - (c) Include the graph you make in your document
 - (d) Describe in your own words what the relationship is.
4. (Bonus for everyone except AP) Graph the angular and linear velocity of the pendulum as it moves through it’s entire range.

Hints:

- (a) Examine the Potential and Kinetic energies of the pendulum at different points along it’s path.
- (b) Remember that there’s a slow-motion button.
- (c) You better use that ruler.