

Name \_\_\_\_\_ # \_\_\_\_\_  
 Regents Physics

Date \_\_\_\_\_  
 Mr. Mangiacapre

### **Period And Length Of A Pendulum**

Word-process this lab using the standard format we have used all along.

Notes from teacher discussion - Use the information below in your introduction -

Why is an understanding the pendulum important? \_\_\_\_\_

\_\_\_\_\_

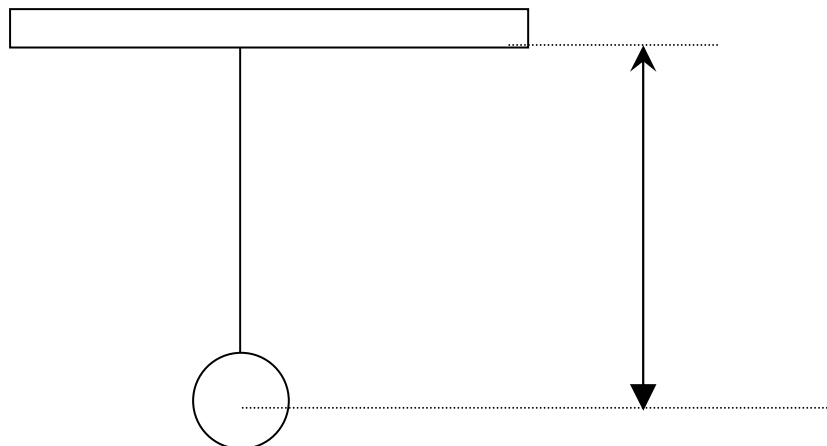
Period - \_\_\_\_\_

What effects the period of a pendulum? What doesn't? \_\_\_\_\_

\_\_\_\_\_

- Purpose:**
- (a) To find the mathematical relationship between the period (T) of a pendulum and it's length.
  - (b) To come up with an equation that relates period to length using  **$y = mx + b$**  (using  $(T^2 \text{ vs. } l)$  plot)
  - (c) To use the equation you found to find the period of a pendulum with a length of \_\_\_\_\_  
**(to be announced next week)**
  - (d) To use the equation:  $T = 2\pi\sqrt{L/g}$  to calculate the acceleration due to gravity
  - (g).

**Important:** Measuring the length of the pendulum



\*\*\*Measure from the top pivot point of the string to the MIDDLE of the bob

**Data** (Reproduce this data table in the SIMPLE TABLE format you've used all along)

Length (cm)	Time for 10 vibrations (second)	Period (Time for one vibration) (second)	Period <sup>2</sup> (second) <sup>2</sup>
0	0	0	0
10			
20			
30			
40			
50			

### Plotting Data

**First Plot** - Period vs Length

/

**Second Plot** - Period <sup>2</sup> vs Length

Put L on the vertical axis for both plots

Finding the Equation using  **$y = mx + b$**  for the **second graph**

**y** variable on the second plot? \_\_\_\_\_ (Variable on vertical axis)

**x** variable on the second plot? \_\_\_\_\_

m value (slope) \_\_\_\_\_

b value (y intercept) \_\_\_\_\_

Substitute all these values into  **$y = mx + b$**

**Mandatory** - On page 2 of your lab: Replicate the pendulum drawing on the first page of this worksheet using your word processors' drawing tools. **Give your drawing a centered title and be sure to include the label and the caption.**