

## Physics 112-Analysis of Pendulum Motion

Terms to know

Period-the time required for one complete oscillation (T)

Frequency-the number of oscillations in a specific time (f)

NB: Period and Frequency are the inverse of each other

**Brainstorm: What factors might affect the period of swing**

With your partner design an experiment to determine the effect of two of these factors on the period of a pendulum

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Physicists have determined that the only thing that affects the swing of a pendulum is the length of the cord according to the following equation:

$$T = 2\pi \sqrt{l/g}$$

where:

T=period of oscillation

l=length of pendulum

g=acceleration due to gravity on Earth

Set up a Table identical to the following:

Trial	Length	Exp. Results	Theoretical Results	% Deviation
1				
2				
3				
4				
5				

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Using the data collected for length from the class groups, determine the % Difference.

$$\% \text{ Diff.} = \frac{\text{Maximum-Minimum}}{\text{Average}} \times 100\%$$

Percent deviation is used to determine how much different your values are from an expected value

$$\% \text{ Dev.} = \left| \frac{\text{Expt'l} - \text{Theoretical}}{\text{Theoretical}} \right| \times 100\%$$

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