Name_____

Class_____Date_____

The Simple Pendulum

Aim

To design an experiment that includes controls.
To determine whether the length of the string and the mass of the bob affect the period of the swing of a pendulum.

Information

A simple pendulum can be constructed out of a piece of string with a weight at the end. Preferably, the pendulum should not swing more than 15^{o} away from the vertical for these experiments.
The period of a pendulum is the time for one complete cycle - ie the time for it to swing there and back again. The length of the pendulum is from the pivot to the centre of mass of the pendulum bob, but for this experiment it is "near enough" to measure to the bottom of the mass carrier.

Equipment

Stopwatch
String
Mass carrier and masses up to 400g
Retort stand and clamps etc
Metre rule
Electronic Balance
Protractor
Any other equipment you can justify

Method

This will be of your own designing. However, the key to the exercise is to remember that you are dealing with three variables - period, length and mass. It may be better to think of this as two separate experiments, using period and one other variable in each experiment.
When you present your results, consider whether a table or graphs would be better. (Graphs are not always better - especially if there is no trend in the data.) Be careful to calculate the errors, as you must take these into account when you decide if the results are significant.

Interpretation

What do the results show? Are the results accurate enough to make a firm decision, or can you suggest a further experiment that would help confirm any possible trends?

S. Hersey