**A simple pendulum**

Tie a cord at least 2 m long to some object like a stone or a small metal ball. Suspend this in a doorway or from a hook in the ceiling and start it swinging through a large arc. Count the number of swings it makes in 10 seconds and then multiply to see how many swings it makes per minute.

Next swing the pendulum through a short arc and determine the number of swings per minute. Repeat each of the above manipulations several times and take the average in each case. Does the length of the arc affect the time of vibration of a pendulum?

Keep the length of the pendulum the same but change the material used for a weight. Repeat the manipulations suggested above. Does the material in the bob affect the time of vibration of a pendulum?

Repeat each of the above experiments, but use a pendulum that is only half as long. Does the length of the pendulum affect its rate of vibration? How does it affect it?

*EXPERIMENTS WITH GRAVITY*