

# Pendulum Experiment

Aim: To find the size of the gravity on earth

Mass of Bob (kg)	Total Time (s)	Total Oscillations	Time Period (s)
3	44.627	22.271	2.006
5	44.624	22.247	2.006
1	44.560	22.213	2.006
2	44.464	22.163	2.006

The length of the string is 1m.

Using the relationship:

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

$$\text{Or, } \sqrt{\frac{l}{g}} = \frac{T}{2\pi}$$

$$\text{Or, } \frac{l}{g} = \frac{T^2}{4\pi^2}$$

$$\text{Or, } g = \frac{4\pi^2 l}{T^2}$$

Now, substituting for  $l$  and  $T$  we get  $g = \frac{4\pi^2 \times 1m}{(2.006s)^2} = 9.81ms^{-2}$  (2 d.p)