

## THEORY

### 1. INTRODUCTION

The purpose of this experiment is to determine the acceleration due to gravity  $g$  using a simple pendulum. The period of oscillation  $T$  of a simple pendulum is given by the equation:

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

where  $L$  is the length of the pendulum and  $g$  is the acceleration due to gravity.

The period  $T$  is measured for different lengths  $L$  and a graph of  $T^2$  versus  $L$  is plotted. The slope of this graph is used to determine  $g$ .

The theoretical period  $T$  is derived from the equation of motion for a simple pendulum:

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## EXPERIMENT

