

# Reproducing measurements of a time period with different instruments\*

*Muhammad Sabieh Anwar*  
Centre for Experimental Physics Education  
LUMS School of Science and Engineering

November 29, 2015  
Version 2015-1

The measurement of a physical quantity could be achieved using different instruments or measurement techniques. Whether two experiments yield comparable values determines the ‘reproducibility’ of measurements which is distinct from the concept of ‘repeatability’. In the present task, you are required to measure the time period of a simple pendulum using two sets of equipment: a stopwatch and a timer. These instruments use different measurement techniques. Determine whether your measurements are reproducible or not. Do the values compare in the statistical sense?

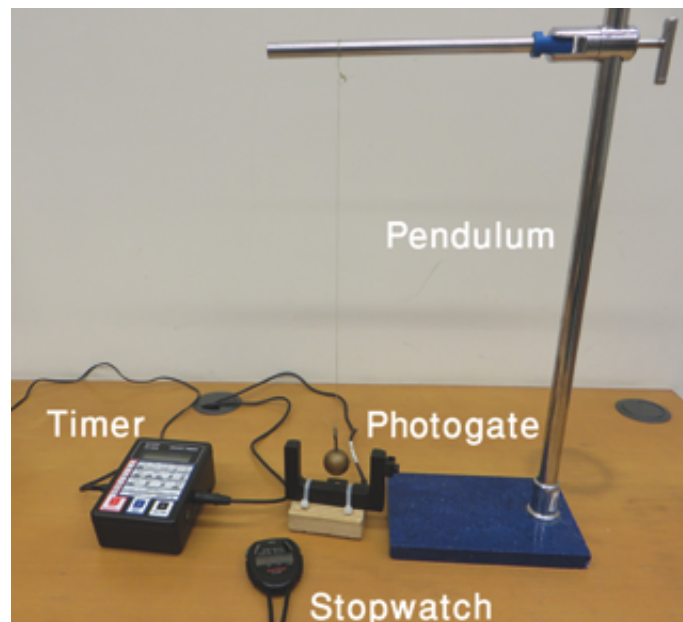


Figure 1: Equipment provided for measuring a pendulum’s time period.

Take care of measurement precision and take into account all uncertainties. From the time period, estimate the length of the pendulum.

---

\*No part of this document can be re-used without explicit permission from the author(s).