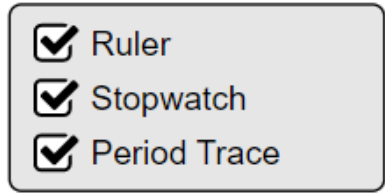
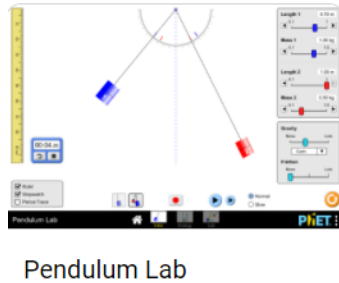


PhET Simulation: Pendulum Lab



The period of a pendulum (T) is the time required for one complete cycle to pass a given point. Period is the seconds/cycle.

Period of a pendulum

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

T = period

π = pi

L = pendulum length

g = acceleration due to gravity

LAB.

Part A)

- 1) Use the stopwatch to experimentally determine the value of the pendulum period (T)
- 2) Use the formula to calculate the pendulum period.
- 3) Compare both values (experimental and calculated)

Part B:

- 1) Predict the effect of changing the pendulum length (L) on the period (T) (increase, decrease, no change). Use the formula of T to help your prediction mathematically.
- 2) Verify your prediction experimentally using the stopwatch.

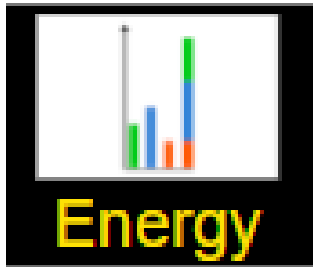
Part C:

- 1) Predict the effect of changing gravitational acceleration (g) on the period (T) (increase, decrease, no change). Use the formula of T to help your prediction mathematically.
- 2) Verify your prediction experimentally using the stopwatch.

Part D:

- 1) Predict the effect of changing the pendulum mass (m) on the period (T) (increase, decrease, no change). Use the formula of T to help your prediction mathematically.
- 2) Verify your prediction experimentally using the stopwatch.

Part E:



- 1) At what position the potential energy (PE) is maximum? Minimum?
- 2) At what position the kinetic energy (KE) is maximum? Minimum?
- 3) Is the total energy the same at every point of the swing? (principle of conservation of energy)
- 4) Explore the effect of friction on the kinetic energy. Add your observation on the thermal energy.
- 5) Explore the effect of g on the potential energy