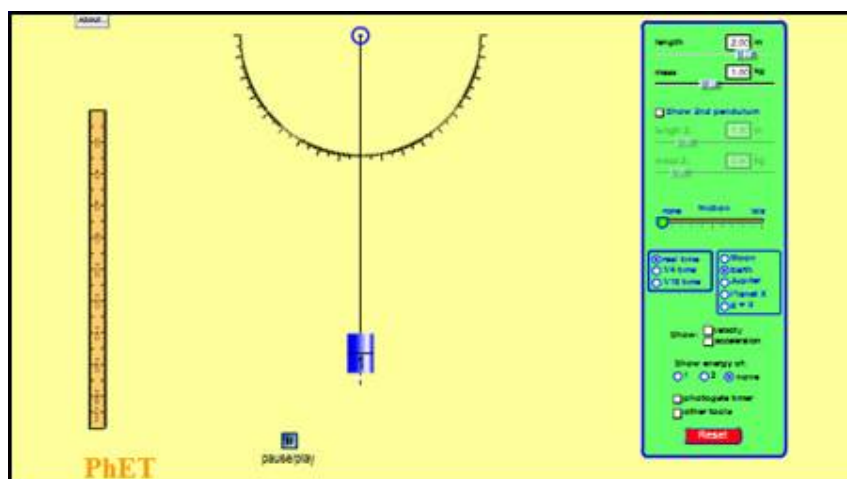


## [PDF File](#)



## PENDULUM LAB

### Unit Overview

In this activity you will investigate how variables affect the motion of a pendulum. You will discover how the period of a simple pendulum depends on the length of the string and the mass of the pendulum bob. It's easy to measure the period using the photogate timer provided with the simulation.

### Background Information

A simple pendulum has a mass ( $m$ ) “bob” hanging from a string of length ( $l$ ) fixed at a pivot point. When displaced to a small initial angle and released, the mass will swing back and forth in periodic motion. The period is the time it takes to complete one whole swing.

One day in the late 1500s, a man named Galileo Galilei was sitting in church when he noticed the lamps hanging from the ceiling were swinging back and forth. Some of the lamps were making great big swings, and others were only making little swings back and forth, but they all went back and forth pretty regularly. Galileo was a curious man, and so he decided to use his heartbeat to measure how long it took the pendulums to swing back and forth. He was very surprised by what he learned. Today, you will repeat Galileo's experiment to learn about pendulums.

**Before beginning the simulation scroll to the question section below and answer the Pre-Lab Questions 1-8.**

**Part I: Mass and Number of Swings**

**Part II: Length and Number of Swings**

**Part III: Gravity and Number of Swings**

**Pendulum Lab:** <http://phet.colorado.edu/en/simulation/pendulum-lab>

You can download the lab to your desktop. It is wise to house all of the simulations in a folder so you can refer back to them when needed.

Download the printable worksheet below, you will use this to record all of your lab information. You will attach your worksheet to question #6 in the question section.

[Pendulum Lab Activity Sheet](#)

## A Look Ahead

In the next unit we will learn about sound. Sound is a vibration carried by waves. There are many properties of sound that we will explore including the Doppler effect, resonance, interference, reflection and refraction. Both sound and light waves have some of these similar properties and we will explore light waves in later units.



Below are additional educational resources and activities for this unit.

[Unit 25 Resource 1](#)

[Unit 25 Resource 2](#)