

Name: _____

Pendulum Motion Lab

A pendulum is an object suspended by a string. What affects how long the pendulum will swing for?

What You Need:

Strings and weights/objects like erasers to tie to the end of the string.

What To Do:

Predict whether the pendulums with heavier or lighter weights will swing longer. Predict whether the pendulums with shorter or longer strings will swing longer. Explain.

1. Make 4 pendulums. Use a longer string and a shorter string with the same weights. Use a longer string and one heavier weight and one lighter weight.
2. Hold the pendulum in one hand at shoulder length. Pull the weight from the pendulum out and even with the top of your head. Release it. Count how many times the pendulum swung before it stopped (or time it). *(Do this 4 times)*

Record and report your findings.



Name: _____

Pendulum Recording



Try 1

Try 2

Try 3

Long Pendulum

Short Pendulum

Heavy Pendulum

Light Pendulum

Use number of full swings or time the swing from beginning of swing until it stops.

Name: _____

Pendulum Recording



Try 1

Try 2

Try 3

Long Pendulum

Short Pendulum

Heavy Pendulum

Light Pendulum

Use number of full swings or time the swing from beginning of swing until it stops.

Background Information:

Pendulum Motion Lab (*Demonstrates Newton's first and third law*)

The swing duration is effected by the length of string—the longer string should be in motion longer. The force of gravity and air resistance will eventually stop the pendulum from swinging.

HOWEVER, the weight should not make a difference to the duration of the swing. The mass has no relevance to the motion.

Note—*do students discover that the shorter string pendulums actually swing faster?*

Ask students:

Where they see pendulums being used—swings, grandfather clocks, yoyos, amusement park rides.

What direction or path does a pendulum swing? Back and forth along a curved path.