

Curiosity Labs™ by Merck:
playful pendulum

in this experiment you will learn...

- What **simple harmonic motion** is
- How changing one **variable** changes the speed of the pendulum

Share your results and tag us! #SPARKCuriosity

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SUPPLIES

- 2 distinctly different lengths of string
- Stack of books or tall surface
- Pencil
- Stopwatch
- Tape
- A small, round weighted object, such a washer or marble

Instructions

STEP 1

Stack the books on top of each other to create a tall surface. Tape the pencil to the top of the tall surface so that it is hanging over the edge. Be sure to use enough tape so that the pencil is sturdy.

STEP 2

Take one of the two strings, fasten, tie or tape your weighted object to one end of the string. Repeat with the other string and ensure that the amount of weighted object is equal and identical for both strings.

STEP 3

Take one string and tie the other end to the pencil.

STEP 4

Using the stopwatch, test the pendulum to determine which one swings the fastest by timing how long it takes the pendulum to swing out from and back to its original starting position. Record your time for string 1.

STEP 5

Remove string 1 and tie string 2 to the end of the pencil.

STEP 6

Repeat step 4 with string 2. Record the time to see what effect the length of the string has on the speed of the pendulum.

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FUN FACTS

Pendulums allow us to study something called simple harmonic motion and examples include mechanical clocks, metronomes and wrecking balls.



WHAT HAPPENED?

The stopwatch helped to investigate the speed and motion of a simple pendulum. The motion of the pendulum is related to the length of its string. The pendulum with the shorter string swings the fastest.