

Name _____ Date _____ TOC#: _____

Slinky Lab

- Begin by stretching the Slinky 2 meters (6 feet) between your partner and yourself. One person will hold each end.
- You will be timing the waves on the Slinky (one complete trip, back and forth).

P-WAVES (PUSH –PULL):

1. Practice first by pulling the Slinky toward you a bit and then pushing it away. Notice that a wave travels along the Slinky from you to your partner.
2. You will do 3 trials of the P-wave, timing the wave as it does one complete trip back and forth. Record the information on the STUDENT SHEET and sketch the movement of the Slinky.
3. Take the average (find the mean) of the 3 trial times.

You should see that the vibrating parts of the Slinky move back and forth along the same direction in which the wave is traveling. This type of wave is called a longitudinal wave or a compression wave, and it is a model for seismic **primary** waves, or **p-waves**. They're known as primary waves because they are the fastest of the earthquake waves, arriving first at distant points.

S-WAVES (SIDE TO SIDE):

1. Shake one end of the Slinky from side to side. Notice that a different type of wave travels along the Slinky. This time the sections of the Slinky move from side to side (horizontally), but the movement of the Slinky is at right angles to the direction of the progressing wave.
2. You will do 3 trials of the S-wave, timing the waves as it does one complete trip back and forth. Record the information on the STUDENT SHEET and sketch the movement of the Slinky.
3. Take the average (find the mean) of the 3 trial times.

This time you should see a type of wave is called a transverse wave. A transverse wave can move through the bulk of a solid although it cannot move through liquid or gas. The transverse wave you made with the Slinky proves a model for seismic waves called **secondary** waves, or **s-waves** that travel through solid rock. There are really 2 types of S waves. S-H (S-Horizontal) waves (which you just demonstrated) and S-V waves (S-Vertical) which you could demonstrate by moving the Slinky up and then down and watching the wave.

COMPLETE THE BOTTOM OF STUDENT SHEET by answering questions A, B and C.