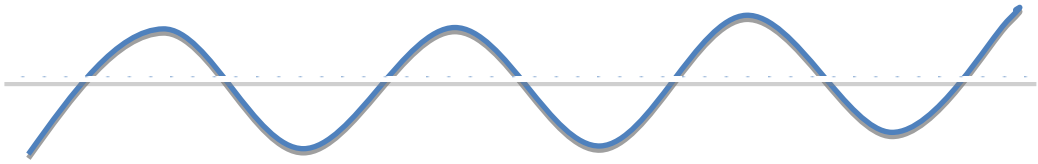
Physical Science | Slinky Lab | Date
Period

KJHS | Name

Label vocab #1, #2, #3 #4. What type of wave is shown?_____wave



Background: Waves are everywhere – they are in _____, _____, _____

1. Wavelength: _____
2. Amplitude:_____
3. Crest: _____
4. Trough: _____
5. Transverse wave:_____
6. Longitudinal wave: (pulse)_____

Objective: _____
_____

Materials:

Procedure:

A) Gather materials and then mark **0m, 1m, 2m, 3m** on the floor with tape.

Part 1.Transverse Waves:

1. You and your partner stretch a Slinky exactly 2 meters. Do not let go! Do not mangle slinky.
2. On the surface, move your hand once very quickly side to side. (chichoo). Repeat three times.
3. Draw a diagram of that the pulse looks like.

4. Does the size of the transverse wave change as it travels along the spring? (Explain)
   _____
   _____
5. Stretch slinky to the 3m mark. Repeat step # 2.
6. Does a change in the tension of the spring affect the speed of the wave?
   _____
7. What happens to the wave when it reaches the end of the spring. _____
   _____
8. What direction does the colored section of the wave move as the pulse travels down the spring?
   _____
9. Which way do you move a slinky to produce a **transverse** wave?_____

Part 2. Longitudinal Waves (start with slinky 2 m stretched)

1. Draw a diagram of what the pulse looks like.

2. Pull 20 coils together on one end, and release to produce a longitudinal wave. Watch the section that is colored.
3. Describe the movement of the color on the slinky during a **longitudinal** wave?

_____

4. Does the size of the longitudinal wave change as it travels along the spring?

_____

5. Does a change in the tension of the spring affect the speed of the pulse? (**move back to 3m**)

_____

6. What happens to the pulse when it reaches the end of the spring? (explain)

_____

Part 3: Speed of Pulse

1) Produce transverse pulses and record the TIME it takes from when they are produced to when they return to you.

2) What conclusion can you make about the speed of your small and large pulse.

Time for small pulses	
Time for large pulses	

_____

Part 4. Using one board, make your slinky "walk" four steps.

1. Draw and label your successful setup. (ramp angle, board, slinky @ rest and slinky in motion)
2. Use a protractor to measure the exact angle (from table to ramp) of the board.

3. DESCRIBE in words (20) the energy (potential and kinetic) and forces (gravity, compressional, tensional, sliding, static, etc) involved in making a slinky walk.

_____

_____

_____

_____

_____