Name _____ Date _____

Science _____ Waves LAB

Let's make some WAVES . . . . .

A wave can be described as an energy disturbance that travels through a medium from one location to another. Waves are **energy moving** from one place to another. As the wave moves through the **medium** (water, air, Slinky), energy is being passed from one particle to the next. Waves occur around us every day. Some common places we experience waves are in sound, light, water and earthquakes.

In addition to being a great toy, the Slinky is an excellent device for creating and studying waves. A Slinky can easily demonstrate the two basic types of mechanical waves: longitudinal and transverse. In a **longitudinal wave**, the particles move parallel to the direction the wave is moving. In a **transverse wave**, the particles move at right angles to the direction of wave travel.

TRANSVERSE WAVES

Materials: *2 meters of string *Ribbon *Tape *Table *Safety goggles

Procedure:

1. Tie one end of the string to the leg of a table. Place one piece of tape on the leg of the table to hold the string in place.

2. Tie a piece of ribbon to the center of the string so that the ends of the ribbon hang down.

3. Hold the string at one end and pull until it is just straight.

4. Move your string up and don quickly one time so that a wave is sent through the string.

5. Observe how the string and ribbon move and record this in the space below. Use arrows, shapes, etc. to illustrate movement.

6. Try various methods to create move waves. Move your hand faster or higher to see how this affects the wave. Try moving your hand to the side instead of up.

LONGITUDINAL WAVES

Materials: *Slinky *Ribbon *Safety goggles

Procedure:

1. Tie a ribbon to one of the coils in the center of the Slinky.

2. Have your partner hold on to one end of the Slinky while you hold on to the other end. Carefully,

stretch the Slinky so that each coil is about a centimeter apart.

3. Have one partner quickly "push" their end of the Slinky forward and then back to the original starting point. This should create a longitudinal wave.

4. Observe the movement of the wave and the ribbon that is attached. Record your observations below.

5. CAREFULLY, create more longitudinal waves using different forces.

<u>QUESTIONS:</u> restate & answer thoroughly using complete sentences.

1. What is a wave? _____

_____

2. Identify the wave type.

a. _____ b. _____

3. Explain the difference between a transverse and a longitudinal wave.

_____

_____

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4. Explain one thing students should be cautious or careful about when completing this lab.

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