

# Sound Waves Lab

## Traveling Sound

Name \_\_\_\_\_ Date \_\_\_\_\_

Partners \_\_\_\_\_

### Stuff you need:

Hanger; string; metal scoopula; plastic bottle; wood spoon; yarn, different thicknesses of string, thin wire.

### Steps you do:

1. Cut a piece of string about half a meter long and tie it to the neck of a metal hanger.
2. Wrap each end of the string around a finger on each hand about the same amount.
3. Have your partner strike the hanger with the scoopula several times.

Observe and describe the sound as you hear it through the air. \_\_\_\_\_

\_\_\_\_\_

4. Repeat while holding the tips of your fingers in your ears: have your partner strike the hanger several times. (Each one in the group must try this. You can't hear it without doing it yourself.)

Describe the sound now as heard through the string. \_\_\_\_\_

\_\_\_\_\_

Why do you think the sound is different? \_\_\_\_\_

\_\_\_\_\_

5. Repeat steps #2-4 using a metal scoopula instead of a hanger, bang it with another scoopula or pencil. Compare the sounds of the scoopula with those of the hanger. How were they alike? \_\_\_\_\_

\_\_\_\_\_

How were they different?

\_\_\_\_\_

6. Repeat #2-4 using the plastic bottle and then the wooden ruler. Make a chart and compare the loudness of the sounds made with each item. (Page 2)

7. Repeat steps 1-6 but use a different suspension (dental floss, thicker string, wire, yarn, etc).

**Type of Suspension: STRING**

Items	Loudness:		Pitch:	
	Soft	High	Low	High
Coat Hanger				
Scoopula				
Meter Stick				
Ruler				
Plastic Bottle				

**Type of Suspension: \_\_\_\_\_**

Items	Loudness:		Pitch:	
	Soft	High	Low	High
Coat Hanger				
Scoopula				
Meter Stick				
Ruler				
Plastic Bottle				

**Type of Suspension: \_\_\_\_\_**

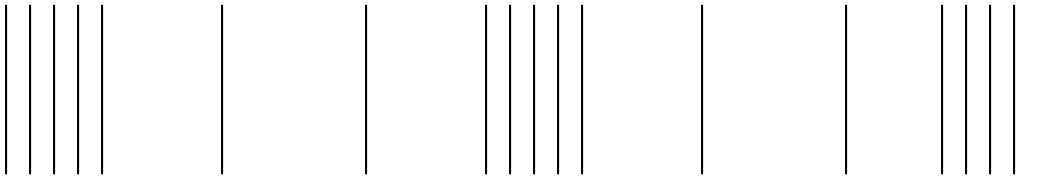
Items	Loudness:		Pitch:	
	Soft	High	Low	High
Coat Hanger				
Scoopula				
Meter Stick				
Ruler				
Plastic Bottle				

**Draw a picture of what is happening in each incident:**

(that is, show the sounds waves and how they are getting to your ear).

**Picture without finger in the ear.**

1. What is the MEDIUM that the waves use to get to your ear? \_\_\_\_\_
2. What type of wave is a sound wave? Longitudinal or Transverse.
3. Label the following on the wave below: **Wavelength, Compression, Rarefaction.**



4. A Rarefaction is a place in the wave where there is \_\_\_\_\_ (little, a lot) of particles.
5. A Compression is a place in the wave where there is \_\_\_\_\_ (little, a lot) of particles.

**Picture with fingers in the ear.**

6. What is the MEDIUM that the waves use to get to your ear? \_\_\_\_\_
7. One thing I learned today is....

## Tuning Fork Lab

1. Strike the prongs of the tuning fork with a pencil and rubber stopper and hold the fork close to your ear. What happens?

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2. What happens when you touch the prongs of the fork?

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3. Strike the prongs of the tuning fork and place the ends of the prongs in a full plastic beaker of water. What happens?

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4. Strike the tuning fork and gently hold your pencil with the rubber stopper up the tuning fork. What happens?

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5. Using a drawing and words explain how the tuning fork produces sound.



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YOUR DRAWING