Sound Explorations

Activity 1 – Phone Disco or the Dancing Pepper
Procedure:
- Turn off the vibrate alert. Turn ringtone up to high and place a mobile phone in a tall glass.
- Stretch a small piece of cling wrap over the glass and tighten. Secure with rubber band.
- Sprinkle pepper (or paper disco dancers) on the cling wrap.
- Use a second phone to call the phone in the glass.

1. What did you observe with the pepper or the paper dancers? __________________________________________
   __________________________________________

2. Conservation of energy means that energy cannot be created or destroyed. Explain how this demonstration supports that statement.
   ________________________________________________________________________________________

3. List one energy transformation that occurs in this demonstration.
   ________________________________________________________________________________________

Activity 2 - Tuning Fork Explorations
Procedure:
- To produce a sound with a tuning fork, hold the handle and strike tines on a rubber stopper or your knee. Hitting the tuning fork on a hard surface may bend the tines.

4. One at a time, strike two different length tuning forks. How are the sounds different? _________________________________
   ________________________________________________________________________________________

5. Why are the sounds different? _________________________________________________________________
   ________________________________________________________________________________________

Procedure:
- Strike a tuning fork and place in a dish of water.
- Repeat with a different tuning fork.

6. Describe what happens and why it happens. ______________________________________________________
   ________________________________________________________________________________________

Procedure:
- Strike the tuning fork and place the handle on the bone behind your ear.

7. Explain your experience and why this happened. _________________________________________________
   ________________________________________________________________________________________
Procedure:
- Have a partner hold a string attached to a ping pong ball. Strike a tuning fork. Bring the tuning fork near the ping pong ball.

8. What happens to the ping pong ball? ________________________________

Activity 3 – Duck Call with a Straw

Procedure:
- Use your fingers or teeth to squeeze and flatten the end of a straw.
- Cut flattened end to a point.
- Flatten again with your teeth.
- Blow into flattened end causing the straw to vibrate and “quack like a duck”.
- Cut off the end of the straw to change the length and blow to compare the sound.

9. Compare the sounds with two different straw lengths? ________________________________
   ______________________________________________________________

10. Using the word “wavelength”, explain why the straws have different sounds? ______________

   ______________________________________________________________

11. What part of the sound wave have you changed? ________________________________

Activity 4 – Water Whistle

Procedure:
- Using your scissors, cut partially through the straw. The cut should be ALMOST all the way through the straw but leave a small piece uncut to keep the two straw sections attached.
- Bend the straw into a right angle at the cut being careful not to break the straw segments
- Fill a cup or glass ¾ full of water. Slide the longer section of straw into the water.
- Keeping the straw at a 90° angle, place your lips on the shorter end of the straw and blow with a light, constant breath.

12. What happens to the pitch when you change the length of the straw underwater? ______________

   ______________________________________________________________

Activity 5 – Craft Stick Harmonica

Procedure:
- Using the craft sticks, toothpick, paper and rubber bands, follow your teacher’s instructions.

13. What is vibrating to produce the sound? ____________________________________