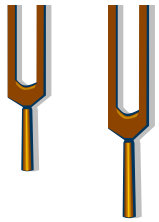
Name _____ Class _____

Tuning Forks Lab Investigation

Problem: How can we use tuning forks to investigate the different properties of sound?

Materials (per group):
2 tuning forks with matching frequencies
1 tuning fork with a different frequency
rubber striking block or bottom of shoe
large tray with 1" water



Procedure and Observations: *Take turns performing each of the tests below and record your observations. Gently strike the tuning forks against the rubber block with just enough force to start them vibrating.*

1. Hearing Sound Vibrations:

Strike the prongs of one tuning fork against the striking block and then hold the fork close to your ear.

What do you hear? _____

What happens when you touch the prongs of the fork? _____

_____Why?_____

2. Intensity of Sound Vibrations:

Strike the prongs of one tuning fork gently against the striking block and then hold the fork close to your ear. Strike the same tuning fork a little harder and listen.

How do the sounds differ? _____

Why?_____

_____

3. Frequencies:

Strike the prongs of two matching size tuning forks at the same time & listen to both.

What do you notice about the two sounds?_____

Strike the prongs of two different size tuning forks at the same time & listen to both.

What do you notice about the two sounds? _____

_____

What do you think the numbers on the tuning forks mean? _____

_____

4. Doppler Effect:

Strike a tuning fork and hold it at an arm's length in front of you. Rapidly bring the tuning fork toward your ear then away again.

How does the pitch of the sound change as the tuning fork approaches your ear?

_____

How does the pitch of the sound change as the tuning fork is moved away from your ear?

_____

5. Resonance:

Strike a tuning fork and bring it within a few centimeters of the other tuning fork with the same frequency. Then bring the second tuning fork near your ear and listen closely.

What do you hear? _____

Explain why this happens. _____

_____

Repeat step 5 with two tuning forks having different frequencies.

How are the results different? _____

_____

6. Interference:

Strike a tuning fork and bring one of the prongs to within 2 or 3 cm of your ear. Slowly rotate the tuning fork completely.

Describe any change in the loudness of the sound:_____

7. Energy Transfer:

Strike the tuning fork and touch the surface of the water in the tray with only one prong.

What happens to the water? Describe what you see._____

_____

Where does the energy start?

_____

What pattern does the energy travel in?

_____

Strike the tuning fork again and touch the surface of the water with both prongs.

What happens to the water? Describe what you see._____

_____

Where does the energy start?

_____

What pattern does the energy travel in?

_____