

Sound Transmission

In this lab, you will investigate different properties of sound by completing a series of mini-experiments. In the first experiment, you will produce sounds using different materials. In the second experiment, you will investigate sound transmission through different materials. And in the third experiment, you will investigate echoes. Be sure to follow your teacher's safety and cleanup instructions.

Experiment 1

MATERIALS:

- Tuning fork
- Rubber stopper
- Glass container of water
- 2 rulers, one metal and one wooden

PROCEDURE:

1. Carefully strike the tuning fork on the edge of the rubber stopper.
2. Hold the tuning fork close to your ear. Gently touch the end of the fork to your hand.
3. Record your observations below

4. Strike the tuning fork on the rubber stopper again.
5. Place the prongs of the fork on the surface of the water in the glass.
6. Record your observations below.

7. Hold one end of the wooden ruler on the edge of a table.
8. Push down on the other end of the ruler and release.
9. Repeat steps 7 and 8 several times, using different lengths of the ruler hanging over the edge of the table.
10. Record your observations below.

Experiment 2

MATERIALS:

- Wooden rod, at least 2 cm in diameter
- Nail
- Metal rod, at least 2 cm in diameter
- Plastic rod, at least 2 cm in diameter
- Paper or cardboard tube, at least 2 cm in diameter

PROCEDURE:

1. Hold one end of the wooden rod near your ear and scratch the other end with the nail.
2. Can you hear the sound through the wood? What about through the air? Record your observations below.

3. Repeat steps 1 and 2 using metal, plastic, and cardboard rods or tubes. Record your observations below.

Experiment 3

MATERIALS:

- Meterstick

PROCEDURE:

1. Stand about 50 meters from the wall and clap your hands. Listen for the echo.
2. Clap your hands twice and listen for two echoes.
3. Clap fast enough that you begin a new clap just as you hear the echo from a previous clap. Do you still hear echoes? What does the time between claps tell you? Record your observations below.

Lab Summary

Review your observations and write a summary of the results for each experiment.

EXPERIMENT 1:

EXPERIMENT 2:

EXPERIMENT 3: