

SOUND

SAMACHEER, Science - Physics, Class - VIII, Term - III, Chapter - IV

Explore the properties of sound.

Introduction:

Sound is the only thing we hear. It plays an extremely important role in day to day communications. Sound is a form of energy that travels as a longitudinal, mechanical, pressure wave through a medium. It can travel through any medium, but it cannot travel through a vacuum. There is no sound in outer space.

Most sound that we hear are transmitted through air. However any elastic substance, whether solid or liquid, gas or plasma - can transmit sound.

Sound waves have two main properties – amplitude, and frequency. In this lesson, students will explore these properties of sound through various activities

OBJECTIVE

- To explore the various aspects of sound such as amplitude and frequency.

Investigation 1: Tapping stretched rubber band

Give a rubber band and ask the students to stretch it using a pencil box or notebook. Place two objects (pens/pencils/erasers) under the rubber-band to elevate it. Using the pointer finger, pluck the rubber band.

After plucking the rubber band, touch it with a finger while it is



Distance between the two objects	Loudness of the sound produced	Sharpness of the sound produced
10cm		
7cm		
4cm		

still vibrating.

- Do you feel a vibration?
- As you touch, does the vibration continue as before or does it stop? Why?
- After the sound stops, does the rubber band continue to vibrate?

Pluck the rubber band with a constant force. Observe the loudness and sharpness of the sound produced for each distance.

Investigation 2: Hitting it hard

Concept: Amplitude is the characteristic of the wave that determines the loudness or the feebleness of the sound.

Students are asked to observe different types of sounds produced by tapping a spoon/wooden scale on a table. They are first asked to tap it slowly and gradually increase the force of tapping.

At the end of the activity, the teacher helps the students relate loudness of the sound to the amplitude of the wave. The greater the loudness, the higher the amplitude. Amplitude of the sound depends on the energy applied by the source.

Activity 2: Rainbow Spring

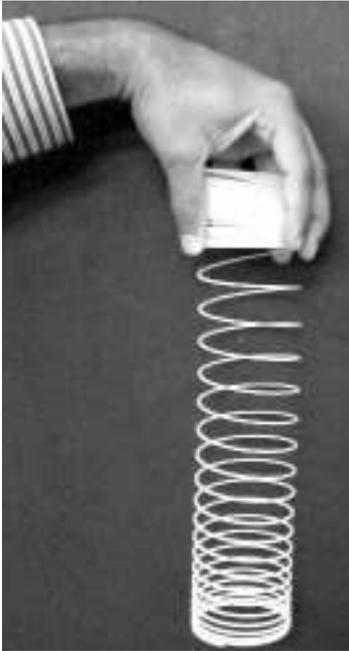
Materials required:

- A rainbow spring (plastic)
- Ruler/ measuring tape

Procedure:

Class Setting: Pair / group activity

Hold the rainbow spring, stretch it by 10cms and leave it. Count the number of times the spring bounces in 10 seconds.



Calculate the frequency by dividing the no. of bounces by ten.

Table 1: To calculate the frequency of a sound wave

Trial No	No. of bounces