

Mississippi 8th Grade Science Practice Quiz – Sound Waves

Questions 1–3: Collect Data & Construct Explanations (P .8.6.1)

1. A student measures the frequency of a tuning fork using a sound sensor and records the following data:

Tuning Fork	Frequency (Hz)
A	256
B	512
C	128

Which conclusion is best supported by the data?

- A) Fork B produces the lowest-pitched sound.
- B) Fork C produces the highest-pitched sound.
- C) Fork A produces a sound higher in pitch than Fork C.
- D) All forks produce the same pitch.

2. A student strikes a metal rod and observes the sound waves on an oscilloscope. The waves are tall and close together. What can the student conclude about the sound?

- A) The sound is loud and high-pitched.
- B) The sound is soft and low-pitched.
- C) The sound is loud and low-pitched.
- D) The sound is soft and high-pitched.

3. Students investigate how temperature affects the speed of sound in air. They notice that sound travels faster on a warm day than on a cold day. Which explanation is scientifically correct?

The observation is incorrect; temperature does not affect sound speed.

- B) Cold air molecules are closer together, slowing sound.
- C) Sound travels slower in all gases than in solids.
- D) Warmer air molecules move faster, increasing the speed of sound.

Questions 4–7: Investigate Sound as a Wave Phenomenon (P .8.6.4)

4. A student observes that a sound wave passes through air, water, and a solid rod. Which statement best explains why sound travels fastest through the solid?

- A) Molecules in solids are closer together, transmitting vibrations more quickly.
- B) Solids are denser, so sound slows down.
- C) Sound cannot travel through solids.
- D) Solids absorb sound energy, making it faster.

5. A student sets up two identical tuning forks, one struck in air and one submerged in water. Which observation is expected?

- A) The fork in water sounds lower in pitch than the one in air.
- B) The fork in water sounds louder and may travel farther.
- C) The fork in air does not produce sound.
- D) Both forks sound identical in volume and pitch.

6. Students investigate interference by playing two tones at the same frequency but slightly different pitches. They hear alternating loud and soft sounds. What is this phenomenon called?

- A) Resonance
- B) Beats
- C) Reflection
- D) Diffraction

7. A student observes a string vibrating when plucked, producing a sound. Which property of the wave can be determined by counting the number of vibrations per second?

- A) Amplitude
- B) Wavelength
- C) Frequency
- D) Speed

Questions 8–10: Investigate Sound (P .8.6.5)

8. A student notices that a sound seems quieter when standing behind a wall. Which explanation best describes this observation?

- A) The wall absorbs some of the sound energy, reducing its amplitude.
- B) Sound cannot travel around walls.
- C) The frequency of the sound changes behind the wall.
- D) The sound wave becomes faster after passing the wall.

9. A violin and a flute play the same note at the same loudness. Why do they sound different to the human ear?

- A) They produce different frequencies.
- B) They have different wave amplitudes.
- C) They produce different wave timbres (overtones).
- D) One is louder than the other.

10. A sound wave travels fastest through what material?

- A) It travels the same
- B) Liquid
- C) Gas
- D) Solid