

Sound Waves
Formative Assessment

Name _____
Date _____ Block _____

Answer completely in the space provided. You may do any work on the back.

1. In what state of matter do sound waves generally travel at the fastest speeds?

solids

2. The speed of sound is faster when the temperature is _____.

warmer

3. Sound is a _____ wave caused by vibrations of matter.

longitudinal

4. **True or False:** Sound travels from the earth to the moon.

False

5. What is the pitch of a sound wave that has a wavelength of 0.75 m? It is a warm day and sound travels at about 350 m/s.

467 Hz; $f=v/\lambda=350 \text{ m/s} / 0.75 \text{ m}$

6. You are listening to music on the radio but it is hard to hear, so you turn up the volume. How do the sound waves change?

Loud has a greater amplitude

7. Interference of sound waves of different pitches is observed as alternating loud and soft sound or _____.

beats

8. What is the beat frequency you will hear due to the vibration of two tuning forks, one with a frequency of 320 Hz and the other a frequency of 345 Hz?

25 Hz; $f_{\text{beat}}=\Delta f$

9. The Doppler Effect results in the increase of the _____ of a sound wave as its source approaches you.

frequency

10. An echo occurs when sound waves _____ off of a surface.

reflects

11. A tuning fork with a natural frequency of 200 Hz will resonate due to another sound wave with a frequency of _____.

200 Hz

12. Waves diffract the most when their wavelengths are _____ than the size of the opening they are passing through.

longer