

Sound and Wave Test

- _____ 1) The fastest transmission of sound is through...
 - A) liquids.
 - B) solids.
 - C) gases.

- _____ 2) Sound travels as a ...
 - A) series of compressions and rarefactions.
 - B) series of compressions only.
 - C) wave without a medium.

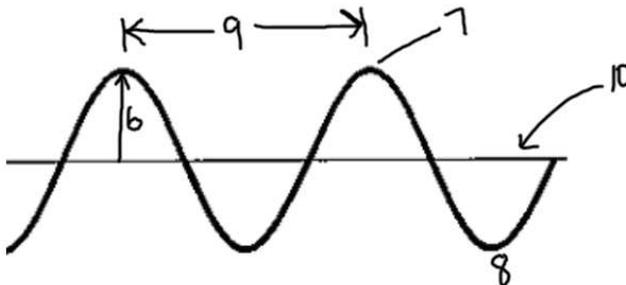
- _____ 3) The speed of sound in air is...
 - A) the same as the speed of light.
 - B) faster than the speed of light in air.
 - C) much slower than the speed of light in air.
 - D) slightly less than the speed of light in air.

- _____ 4) The sound of thunder reaches us after we see the flash of lightning because...
 - A) average human vision is better than average human hearing.
 - B) light travels much faster than sound.
 - C) no molecules carry the sound energy.
 - D) sound travels faster than light.

- _____ 5) Intensity, or loudness, of sound is directly related to...
 - A) frequency.
 - B) wavelength.
 - C) amplitude.
 - D) pitch.

Label the wave

- 6. _____
- 7. _____
- 8. _____
- 9. _____
- 10. _____



- _____ 11) Decibels are units of measurement for sound...
 - A) intensity.
 - B) pitch.
 - C) frequency.
 - D) harmony.

- _____ 12) High pitch is produced by sound waves that have...
 - A) acoustical properties.
 - B) ultrasonic properties.
 - C) high frequencies.
 - D) low frequencies.

- _____ 13) Human ears hear sounds in the range of...
- A) less than 20 Hz.
 - B) 20 Hz to 150,000 Hz.
 - C) 2 Hz to 1800 Hz.
 - D) 20 Hz to 20,000 Hz.
- _____ 14) Humans can't hear the sounds produced by bats for echolocation because their pitch is too high, called ...
- A) they are infrasonic.
 - B) they are ultrasonic.
 - C) they are intrasonic.
 - D) they are intersonic.
- _____ 15) Resonance...
- A) amplifies sound.
 - B) causes destructive interference.
 - C) creates an echo.
 - D) increases sound speed.
- _____ 16. When a compressional wave travels through matter, the **particles** of matter _____.
- A. do not move at all.
 - B. move back and forth, but **are not** carried along with the wave.
 - C. move back and forth and **are** carried along with the wave.

MATCHING:

- | | | |
|------------------|---------------|--------------|
| A. Wave length | B. Wave Speed | C. Trough |
| D. Pitch | E. Crest | F. Frequency |
| G. Rest Position | H. Decibels | I. Amplitude |

- _____ 17. High point in a water wave
- _____ 18. Low point in a water wave
- _____ 19. The highness or lowness of a note
- _____ 20. Distance between two neighboring crests or compressions
- _____ 21. How fast the crests or compressions of a wave travel
- _____ 22. The number of crests or compressions passing a point **per second**
23. A lightning strike is seen and then there is thunder 2.5 seconds later. How far away was the lightning strike?

24. Sounds that are higher than human hearing are called _____ and they are called _____ if too low to hear.
25. What does SONAR stand for?

Factors that affect pitch in a string	When this factor is increased , then pitch changes like this...
26.	
27.	
28.	

29. What is an echo?

30. About how fast is the speed of sound in...

Air _____ m/s

Water _____ m/s

Steel _____ m/s

31. If I were traveling at 750 m/s, how would that be stated in terms of Mach? Mach _____

32. From **fastest** to slowest, how does sound travel in gas, solids, and liquid?

_____, _____, _____
fastest _____ slowest

33. If you pluck the string lightly on a guitar it makes a soft sound. When you pluck the string harder the sound is louder. If we were **drawing** the wave on paper, what was changed about the sound wave? _____

34. If a 1.4 m long wave has a frequency of 250 Hz, then what is the speed of the wave? _____

35. In outer space, none of the other astronauts can hear you if you were to hit two sticks together. Why not?

36. A sound is made near a building and you hear an echo 4 seconds after making a sound. How far away is the building? _____

37. When the pitch of sound changes because of motion, this is called _____

38. Sound travels faster and slower depending on the temperature. How does cold affect speed? _____

39. When two waves collide and they form a temporary larger wave, the interference is _____.

40. The sound that you hear when a plane breaks the sound barrier is called a _____.