

Name: _____ Date: _____

Vibrating Volley: A 3rd Grade Sound and Light Challenge

Students gain a deep understanding of wave behavior by analyzing how energy vibrates through different materials and bounces off surfaces.

1. Imagine you are in a dark forest at night. Why can you see a cat's eyes shining when you point a flashlight at them?

- A. The cat's eyes create their own light waves.
- B. Light waves from the flashlight reflect off the cat's eyes.
- C. The cat's eyes absorb all the light waves.
- D. Sound waves from the forest make the eyes glow.

2. Sound waves can travel through a solid wooden table even faster than they travel through the air.

- A. True
- B. False

3. When a drummer hits a drum harder, the ___ of the sound wave increases, making the sound much louder.

- A. Frequency
- B. Amplitude
- C. Wavelength
- D. Pitch

4. If you are whispering to a friend underwater in a swimming pool, why does it sound different than on land?

- A. Light waves are blocking the sound waves.
- B. Sound waves disappear in water.
- C. The medium has changed from air to liquid water.
- D. Water moves too slow for sound to vibrate.

5. A stained-glass window is considered ___ because it allows some light waves through but scatters them so you cannot see clearly.

- A. Transparent
- B. Opaque
- C. Translucent
- D. Reflective

6. Why does a straw in a glass of water look like it is broken or shifted to the side?

- A. The water is reflecting the straw.
- B. Light waves speed up when entering the water.
- C. The light waves bend as they move between air and water.

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D. The straw is vibrating very fast.

7. In the vacuum of outer space where there is no air, an explosion would be completely silent.

- A. True
- B. False

8. If a bird chirps with a very high pitch, what is true about the sound waves it is making?

- A. The waves have a very high frequency.
- B. The waves have a very low amplitude.
- C. The waves are moving through a vacuum.
- D. The waves have a long wavelength.

9. When you see your shadow on the sidewalk, it is because your body is ___ and blocks the light waves.

- A. Refracting
- B. Opaque
- C. Transparent
- D. Clear

10. White light from the sun is actually made up of all the different colors of the rainbow mixed together.

- A. True
- B. False