

Name: _____ Date: _____

Answer Key: The Secret Language of Whales and Fireflies: Pre-K Light and Sound

Little scientists investigate how vibrations travel through deep water and how glowing bugs use light signals to talk across a dark field.

1. If a whale sings at the bottom of the ocean, but a boat makes a very loud 'honk' nearby, why might the baby whale be confused?

Answer: B) The boat's sound waves mix with the whale's waves

When two different sounds happen in the same place, their waves interfere with each other, making it hard to hear just one signal clearly.

2. A firefly uses a tiny light to talk to friends. If we put a thick, black box over the firefly, its friends can still see its message.

Answer: B) False

Light waves travel in straight lines and cannot pass through opaque objects like a solid black box, so the message is blocked.

3. When you shout into a deep canyon and hear your voice come back a second later, the sound wave is _____ off the rock wall.

Answer: C) bouncing

This is an echo! An echo happens because sound waves hit a hard surface and bounce back toward your ears.

4. Imagine you are in a dark room with a flashlight. If you point it at a shiny silver tray, where will the light go?

Answer: C) It will jump back toward you or the wall

Shiny surfaces like silver trays act like mirrors, reflecting light waves so they change direction and bounce off.

5. If you tap a drum very softly, the sound wave is small and the noise is quiet. If you hit it very hard, the wave has more _____.

Answer: A) energy

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Loudness is related to energy. Pushing harder on the drum creates a wave with higher amplitude, carrying more energy.

6. Space is very quiet because there is no air for sound waves to wiggle through.

Answer: A) True

Sound is a mechanical wave that needs a medium (like air or water) to travel. Since space is a vacuum, sound cannot move there.

7. Why does a straw in a glass of water sometimes look like it is broken or bent into two pieces?

Answer: B) The light slows down and bends in the water

This is called refraction. Light waves change speed when they move from air into water, which makes things look bent.

8. A honeybee flaps its wings very fast to make a high buzz. If the bee flaps slower, the _____ of the sound changes.

Answer: B) pitch

Pitch depends on how fast something vibrates. Faster vibrations make higher sounds, and slower vibrations make lower sounds.

9. Light can travel through the empty, dark parts of outer space where there is no air.

Answer: A) True

Unlike sound, light waves are electromagnetic and do not need a medium (like air) to travel; they can move through a vacuum.

10. If you want to hide from a flashlight beam, which object would be the best to hide behind?

Answer: C) A thick wooden door

Wood is opaque, meaning it stops light waves from passing through. The other options are transparent and let light pass through easily.