Name: _____ **Date:** _____

Answer Key: Sonic the Hedgehog's Super Speed Sound & Light Lab for Kindergarten

Young scientists analyze shadowy secrets and mysterious vibrations, moving beyond surface observations to evaluate how energy interacts with different materials.

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1. If you put a thick, heavy blanket over a ringing bell, what is the most likely reason the sound changes?

Answer: A) The blanket traps the vibrations so they can't reach your ears.

Sound is caused by vibrations; thick materials absorb those vibrations and block them from traveling through the air to our ears.

2. A shadow will look exactly the same if you use a clear glass window instead of a solid wooden door.

Answer: B) False

Shadows are created when light is blocked. Clear glass lets light pass through, so it won't create a dark shadow like a solid door does.

3. Imagine you are in a dark room with a flashlight. To make a shadow of a toy look much BIGGER on the wall, you should move the toy _____.

Answer: A) closer to the flashlight

Moving an object closer to the light source blocks more of the light's path, which projects a larger shadow on the surface behind it.

4. You tap a glass of water with a spoon. Then, you fill the glass with more water and tap it again. Why does the sound change?

Answer: C) More water makes the glass vibrate slower, changing the pitch.

The amount of matter (water) affects how fast the glass vibrates. More water slows the vibrations, creating a lower sound.

5. If you are in a room that is perfectly pitch black with no light at all, you can still see your favorite colorful toy if you wait long enough.

Answer: B) False

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Eyes require light to see. Without a light source reflecting off an object, it is impossible for the human eye to perceive color or shape.

6. When you shout into a long, empty tunnel and hear your own voice come back to you, this is called an _____.

Answer: B) Echo

An echo occurs when sound waves hit a hard surface and bounce back to the person who made the sound.

7. Why does a straw look 'broken' or bent when you put it in a glass of water?

Answer: B) The light bends when it moves from air into water.

This is called refraction. Light travels at different speeds through air and water, which tricks our eyes into seeing a bend.

8. To communicate with a friend across a very noisy playground without using your voice, you could use a _____ to send a light signal.

Answer: A) Mirror

Mirrors reflect light. By angling a mirror toward the sun, you can create a bright flash to get someone's attention from far away.

9. Sound waves can travel through a solid wooden table.

Answer: A) True

Sound waves can travel through gases (air), liquids (water), and solids (wood). In fact, sound often travels faster through solids!

10. If you want to make a drum have a very QUIET sound, which action should you take?

Answer: B) Tap the drum very gently with one finger.

The volume (loudness) of a sound depends on the energy of the vibration. A gentle tap creates a small vibration, resulting in a quiet sound.