

Name: _____ Date: _____

Answer Key: Shadows or Echoes? First Grade Light and Sound Challenge

Examine 10 high-level scenarios to predict how light and sound change when they hit different barriers and materials.

1. If you are hiding behind a thick wooden door, why can your friend still hear you talk but cannot see you?

Answer: A) Sound can move through the door, but light is blocked.

Solid objects like wooden doors block light waves, creating a shadow, but sound waves can vibrate through the material or find small gaps to travel through.

2. True or False: If you vibrate a rubber band very slowly, the sound it makes will have a very high pitch.

Answer: B) False

Pitch depends on speed; slow vibrations create a low pitch, while fast vibrations create a high pitch.

3. A mirror helps you see your face because the light _____ off the shiny surface and back to your eyes.

Answer: B) bounces

Reflection happens when light hits a smooth, shiny surface and bounces back, allowing us to see an image.

4. You are in a large, empty gym and shout 'Hello!' Why do you hear your own voice a second time?

Answer: C) Sound waves bounced off the wall and came back.

An echo is a sound wave that hits a hard surface and reflects (bounces) back to your ears.

5. To make a drum sound much _____, you should hit it with more force to make bigger vibrations.

Answer: C) louder

Volume is related to the strength of the vibration; more force creates bigger waves which we hear as a louder sound.

6. True or False: In a completely dark room with no windows and no lamps, you can eventually see your toys once your eyes get used to it.

Answer: B) False

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We can only see objects if there is a light source to reflect light off of them; without any light, we cannot see anything.

7. If you place a flashlight behind a piece of clear plastic wrap, what will happen to the light?

Answer: C) The light will pass through to the other side.

Clear materials are transparent, meaning they allow light waves to pass through them easily.

8. When you put a heavy blanket over a radio, the music sounds different because the blanket _____ the sound vibrations.

Answer: A) traps/soaks up

Soft, fuzzy materials like blankets absorb sound vibrations, making the sound quieter or muffled.

9. Why does a straw in a glass of water sometimes look like it is broken or bent?

Answer: B) Light changes direction when it moves through water.

This is called refraction. Light slows down and bends when it moves from air into water, which tricks our eyes into seeing a 'bent' straw.

10. True or False: Sound can travel through water, which is how whales talk to each other from far away.

Answer: A) True

Sound waves need a medium to travel; they can move through air, solids (like walls), and liquids (like the ocean).