

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Answer Key: Will the Music Stop? Advanced Kindergarten Sound and Light Challenge

Young scientists design tiny theaters and sound-proof boxes to see how energy moves through different materials in our everyday world.

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**1. If you wanted to hide a secret toy inside a box so no one can see it, which material would be the best to use for the walls of the box?**

**Answer:** C) Thick black cardboard

Cardboard is opaque, meaning it stops light waves from passing through, effectively hiding the object inside.

**2. Imagine you are making a 'cup phone' with a friend. To make the sound travel best through the string, the string must be \_\_\_\_\_.**

**Answer:** B) Pulled very tight

Sound is a vibration; a tight string allows those vibrations to travel clearly from one cup to the other.

**3. True or False: If you vibrate a rubber band very fast, it will make a higher sound (pitch) than if it vibrates slowly.**

**Answer:** A) True

Frequency determines pitch; faster vibrations create a higher-pitched sound.

**4. You are building a 'Shadow Theater.' If you move your finger closer to the light source (the flashlight), what happens to the shadow on the wall?**

**Answer:** D) The shadow gets much bigger

Blocking more of the light's path near the source creates a larger area of darkness (shadow) further away.

**5. To stop an alarm clock from sounding too loud, you should wrap it in \_\_\_\_\_ material like a fluffy pillow.**

**Answer:** B) Soft and bumpy

Soft, porous materials absorb sound energy rather than reflecting it, making the sound quieter.

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**6. Why does a spoon look 'broken' or bent when you put it inside a glass of water?**

**Answer:** B) Light waves bend when they move from air to water

This is called refraction; light changes speed and direction when it moves through different materials like water.

**7. True or False: Sound waves can travel even if there is absolutely no air or matter (in a total vacuum).**

**Answer:** B) False

Unlike light, sound needs a medium (like air, water, or wood) to vibrate through.

**8. If you want to see your reflection while brushing your teeth, you need a surface that is very \_\_\_\_\_.**

**Answer:** C) Smooth and shiny

Smooth, shiny surfaces reflect light waves back to your eyes in an organized way, creating a clear image.

**9. You tap a glass full of water, and then you tap an empty glass. Which glass will likely produce the higher sound?**

**Answer:** A) The empty glass

The empty glass has less mass to move, so it can vibrate faster, creating a higher pitch.

**10. True or False: Different colors of light are actually different types of light waves moving in different ways.**

**Answer:** A) True

Each color has its own unique wavelength; red has long waves, while violet has short waves.