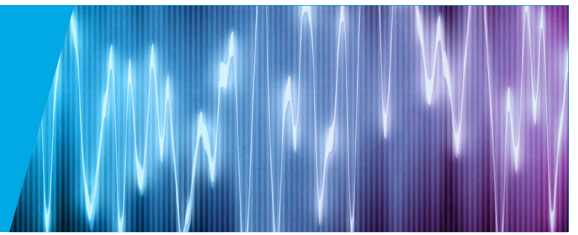


CURIOSITY AT HOME

SPOON GONG



*Did you know you can make a gong out of a teaspoon?
You'll see that sometimes the way something sounds
depends on how you listen!*

MATERIALS

- Metal teaspoon
- Long piece of string or yarn
- Science notebook or paper (optional)
- Something to write with (optional)

PROCEDURE

- Tie the middle of the string to the end of the handle of the spoon, so that the spoon hangs in the center of the length of string.
- Lift the ends of the string, one in each hand, so that the spoon hangs with the bowl downwards.
- Swing the spoon gently back and forth, so that it knocks against a hard object. Choose something that is not fragile to knock the spoon against. What do you notice about the resulting sound?
- Now wrap the ends of the string around the tips of your index fingers, and put your fingers in your ears.
- Gently knock the spoon against the same object again, keeping your fingers gently against your ears.
- What did you notice about the sound of the spoon gong this time?

WHAT'S HAPPENING?

Sound is made of vibrations. When we first knocked the spoon against something, we heard the sound of the bowl of the spoon vibrating. But when we put the ends of the string in our ears, we hear the vibration through the string itself! The string vibrates at a much lower frequency, so we hear a much lower pitch. It may also sound louder, since the vibrating string directs the vibrations directly to your ears.

Experiment continued on next page...



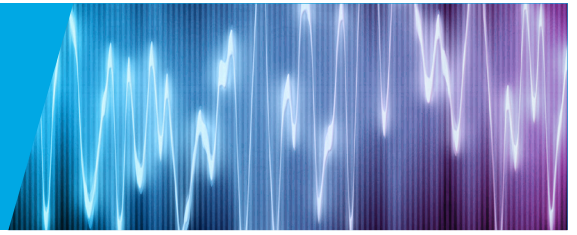
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SPOON GONG



K–2 GRADE EXPLORATION

- What words can you use to describe the sound of the spoon hitting the object? Is it loud or quiet? A short, or long sound? Does it sound high or low? Record your observations in your science notebook.
- When you hold the strings in your ears, how is the sound different? What words would you use to describe the sound now?
- Repeat the experiment above, but choose a new object to knock the spoon against. Find several more objects to test out, remembering to avoid fragile objects. What did you notice about the sound of the spoon when you knocked it against soft materials versus hard materials? What about knocking it against something plastic, metal, or wood? What words would you use to describe the different sounds?



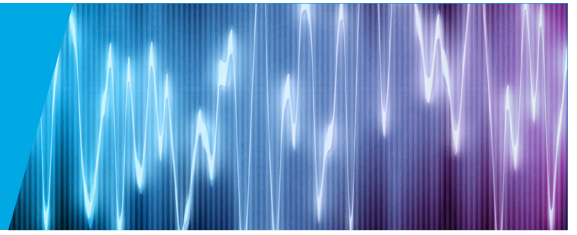
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SPOON GONG



3–5 GRADE EXPLORATION

- What is sound made of? **Hint:** place your hand gently against your throat and say “aaahhh”. What do you feel?
- Repeat the 2 experiments again. Which items do you think are vibrating to make the sounds in each experiment?
- What do you notice about the pitch (how high or low a sound is) during each of the 2 experiments? If you noticed a difference, what do you think might be causing that difference?
- Repeat the experiment above, but choose a new object to knock the spoon against. Find several more objects to test out, remembering to avoid fragile objects. What did you notice about the sound of the spoon when you knocked it against soft materials versus hard materials? What about knocking it against something plastic, metal, or wood? Record your observations in your science notebook.



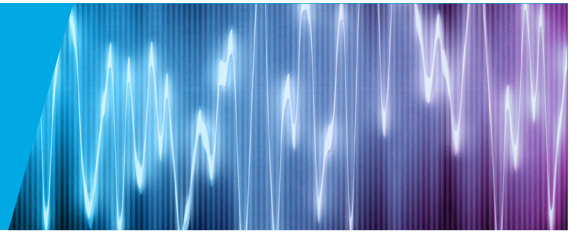
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SPOON GONG



6-8 GRADE EXPLORATION

- Sound has two qualities that we hear and use every day: Volume, which is how loud or quiet a sound is, and pitch, which is how high or low a sound is. What causes a pitch to be high or low? Try the experiment again with a bigger or smaller spoon. Did the pitch change? Record your observations in your science notebook.
- Try it again with a different-shaped spoon. Did the pitch change? How would using something large, like a ladle, sound different than a small spoon?
- Why do you think the pitch might be lower when you hold the string in your ears?
- Repeat the experiment above, but choose a new object to knock the spoon against. Find several more objects to test out, remembering to avoid fragile objects. What did you notice about the sound of the spoon when you knocked it against soft materials versus hard materials? What about knocking it against something plastic, metal, or wood? Record your observations in your science notebook.



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