



## **DID YOU HEAR THAT? GET READY TO OPEN YOUR EARS AS WE LEARN ABOUT SOUND!**

From music on the radio to footsteps on the ground, sounds are everywhere! Sounds are made when something vibrates, or shakes back and forth, and sends out waves of energy. How strong or weak a vibration is will affect how loud the sound is. How fast or slow the sound waves are will affect how high or low the sound is. We can't see these waves of energy, but we can sense them with our ears. Some things make sounds on purpose, like the sounds animals make to communicate with each other and the musical instruments people play to create songs. Other things, like rain or a slamming door, unintentionally make sounds as different objects touch each other. No matter what creates the sound, different sounds help us understand and interact with the world around us!

### **DAY 4:**

### **SOUND OFF!**

There are many different sounds we can hear all the time, from the low rumble of a car engine to the high-pitched crying of a baby. When a sound is made, the vibrations create waves of energy that travel to our ears. Sometimes sounds can be too loud or uncomfortable to listen to, so we might cover our ears or close a door to block them. When a sound wave travels through something that creates friction, or resistance to the wave moving, the wave will lose some of its energy and the sound that reaches our ears will be quieter or muffled. There are many different materials that can absorb or block sound and some work better than others. Let's do an experiment to find out what works best!

#### **Before you start, you should have:**

- Phone or music player to create sound
- Styrofoam pieces or packing peanuts
- Thick cloth or washcloth
- Tin foil
- Paper
- Tape
- Small cardboard box (large enough to hold the phone with a few inches of empty space around the phone)
- Piece of paper or journal
- Pen, pencil or other writing utensil

## Get started:

1. Look at the different items.
  - Which do you think will block the most sound? Why?
  - Which do you think will block the least sound? Why?
2. Turn on the phone or music player. Make sure the volume will be the same for each item you will test. You can either repeat the same song or use the same phone alarm sound. Make sure the music is not too loud as listening to loud noises can be bad for your hearing.
3. Put the phone in the cardboard box and tape it shut. Listen to the music.
  - Does the music sound louder or softer? Record the results in a journal or on a piece of paper.
4. Open the box. Surround the phone with the Styrofoam pieces and tape the box shut. Listen to the music.
  - Does the music sound louder or softer? Record the results in a journal or on a piece of paper.
5. Open the box and remove the Styrofoam. Wrap the phone in the cloth and tape the box shut. Listen to the music.
  - Does the music sound louder or softer? Record the results in a journal or on a piece of paper.
6. Open the box and remove the cloth. Surround the phone with tinfoil and tape the box shut. Listen to the music.
  - Does the music sound louder or softer? Record the results in a journal or on a piece of paper.
7. Open the box and remove the tin foil. Surround the phone with crumpled paper and tape the box shut. Listen to the music.
  - Does the music sound louder or softer? Record the results in a journal or on a piece of paper.
8. Turn the phone off.
9. Think about what you observed.
  - Which material blocked the most sound? Why do you think so?
  - Which material blocked the least sound? Why do you think so?
  - What else could you use to better block the sound?
10. Share the results of the experiment with someone!

## Keep exploring!

- Try different materials or combinations that will block the sound the most.
- Try to find something that will make the sound louder.

## More information on sound:

<https://www.dkfindout.com/us/science/sound/loudness/>



[https://www.youtube.com/watch?v=HMx0HKwWmU8&list=PLQlnTldJs0ZQRzLgW42JXOV\\_KjtG7Xck&index=3](https://www.youtube.com/watch?v=HMx0HKwWmU8&list=PLQlnTldJs0ZQRzLgW42JXOV_KjtG7Xck&index=3)



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## What did you discover?

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