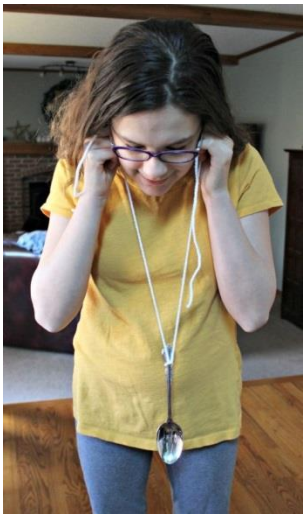
# Try This at Home Science:
# Feel the Sound

**Activity Overview:**
Learn how sound is a vibration that our brain turns into the sounds we hear!

**Materials:**
- 2 metal spoons
- 3 feet of string
- Scissors
- Drawer handle or second volunteer

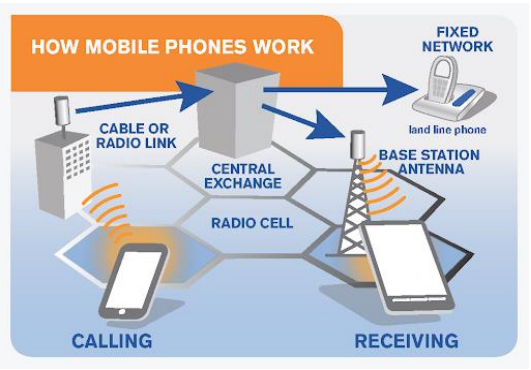
**Try this!**
1. Tie the handle of one spoon in the middle of the string.
2. Wrap one end of the string around a drawer handle or several times around your volunteer's finger.
3. Wrap the other end of the string several times around your own finger.
4. Hold your finger wrapped in string to your ear.
5. With the second spoon hit the tied spoon.
6. Observe.
7. Unwrap the string from the drawer handle, and wrap it around a finger on your other hand. See photo below instructions.
8. With the second spoon hit the tied spoon.
9. Observe.



**What's happening?**
Sound is a vibration which will travel until it hits something where it can either bounce back or be absorbed. Every time we hear a sound our ears are collecting the vibrations of the sound on our ear drum, then the brain interprets the vibrations as different sounds. In this case, we are feeling the vibrations made by the spoon, similar to when we feel the windows in our car vibrate when the music is really loud.

Every time the spoon attached to the string is struck, a sound wave or vibration moves up the string to our finger, and our finger then moves the sound wave into our ear! As soon as the sound wave reaches our ear drum the vibrations create an electrical response in our brains which the nerves are responsible for detecting. Once the electrical impulses have made it to the auditory cortex of the brain, the signals are sorted and we can then interpret the electrical impulses into the sounds we hear. So every sound we hear is just our brain making sense of vibrations like special codes!

## Cell phones work this way too!




All cell phones transform sound waves into electrical impulses. Depending on the type of phone being used, these electrical impulses can be transmitted in one of two ways. In the case of a landline phone, a phone that is connected to the wall by a cord, the electrical impulses travel through the cord from one phone to another. In the case of a cell phone, once the sound vibrations are turned into electrical impulses there is an extra step where the impulses are transformed into radio waves. Those radio waves travel to a nearby cell phone tower or Wi-Fi router and are then sent to a receiver connected to a cell phone or landline.

## Now try…

- Use different sized metal utensils and repeat the experiment. What did you notice? Was the sound the same or different?
- Compare the sounds between wooden and metal utensils and repeat the experiment. What did you notice? Were the vibrations more or less noticeable with the wooden utensils?
- Repeat the experiment by replacing the string with a thicker cord, twine, or yarn. What did you notice? Was the string a more or less effective sound transmitter?
- Wi-Fi routers are like our ears and can only handle so much data at once. If too many devices are using the same signal, it can slow the connection down. Try turning different devices off. Does your connection improve?

## Additional Information

https://www.youtube.com/watch?v=MBLWeuUn7M4