



Try This at Home Science: Cool Vibrations

Activity Overview:

Replicate the vibrations sound makes on your eardrum by creating an eardrum of your own!

Materials:

- A bowl
- Plastic wrap
- Rubber bands or tape
- Scissors
- Sprinkles or dry rice
- Plastic bag (optional)

Try this!

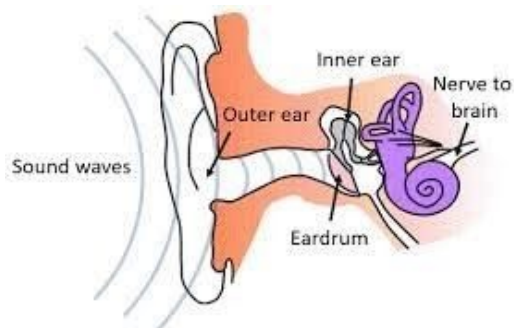
1. Cover bowl with saran wrap.
2. Secure plastic in place with tape or a rubber band. (Note: Make sure the plastic is pulled tight across the top!)
3. Add sprinkles on top of the saran wrap. (Note: For less mess, put sprinkles inside a plastic bag. Then center the sprinkles in the bag over the bowl.)
4. Hum over the plastic wrap and watch the sprinkles dance!

What's happening?

Sound is just a vibration! Those vibrations are carried in waves, and in order to be heard, those waves need to travel through a medium. As you hum, the sound is carried through the air and passes through the saran wrap. As the saran wrap vibrates, it shakes the sprinkles on top. By changing the pitch or amplitude of the sound you make, you change how many of the sprinkles vibrate.



Can you hear me now?...GOOD!



Your ear perceives sounds by capturing the sound waves' vibrations. Inside your ear canal is a thin flap of skin called the eardrum. It's stretched tightly, just like a drum, and when sound hits the eardrum, it begins to vibrate. This vibration carries through the eardrum, to three tiny bones in the middle ear. The vibrations of those tiny bones move the fluid and hairs inside your inner ear. The bending of those hairs cells is translated into electrical pulses that are transmitted to the auditory nerve and interpreted as sound by the brain.

Now try...

- ...singing a song. What parts of the song do the sprinkles vibrate a lot? Which parts don't vibrate the sprinkles at all? What does that mean?
- ...using different sizes of sprinkles. Do small sprinkles vibrate faster than big sprinkles? Do they react differently to a sound?
- ...putting a speaker in the bowl, under the plastic. What genres of music make the sprinkles vibrate the most?

For more "Try This at Home Science" activities, visit www.mi-sci.org.