

Section 1

Understanding Life Systems

EXPLORATION 2

Understanding How We Hear

Investigate how our ears allow us to hear sounds.



Hearing is important to us. It helps us communicate, lets us enjoy music, and also keeps us safe by warning us of danger by letting us differentiate between sounds. Sound is what we hear when an object vibrates. This causes movement in the air particles around it. They bump into other particles and so on. This movement causes sound waves. These waves travel through the air from the source of the sound and into our ears. Our ears allow us to hear the difference between the pitch and the volume of sounds.

Examples

	Pitch how high or low a sound is		Volume how loud or quiet a sound is
high	an alarm 	loud	a scream 
low	thunder 	quiet	a whisper 

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In this experiment, you will learn how our ears sense sound.

Level of Difficulty:

easy

Time Needed:

10 minutes

Hypothesis:

Check ✓ to show your hypothesis.

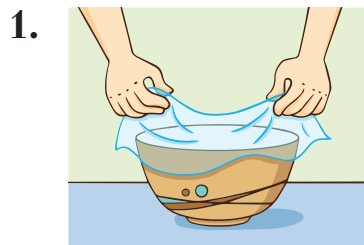
- Our eardrums work like a drum.
- Our eardrums do not work like a drum.



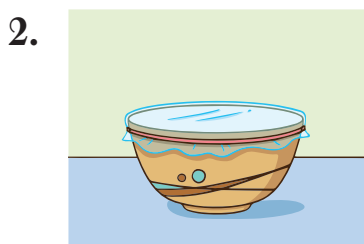
Materials:

- a big bowl
- a plastic plate
- a spoon
- plastic wrap
- sprinkles
- an elastic band

Steps:



Stretch a sheet of plastic wrap over the bowl.



Put the elastic band around the bowl to keep the plastic wrap in place.

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3.



Put some sprinkles on the plastic wrap.

4.



Hold the plastic plate close to the sprinkles and hit the plate using the spoon to make some noise.

5. Observe the sprinkles.

Write to tell what happened to the sprinkles as you hit the plate.

Conclusion:

Read the conclusion. Circle the correct word.

The sprinkles “jump” as the plate is hit. The plastic wrap acts as a drum, just like our eardrums, to receive the vibrations produced by hitting the plate.

My hypothesis was **correct / incorrect** .

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Explanation:

When you hit the plate, vibrations were made. These vibrations travelled through the air and caused the plastic wrap to vibrate too. The vibrations of the plastic wrap made the sprinkles jump. The jumps allowed you to see sound waves in action.

Our ears work in a similar way. Our eardrums are like the plastic wrap in the experiment. When sound vibrations travel down the ear canal, they hit the eardrum and make it vibrate. Then the vibrations are changed into signals that are carried by the nerves to the brain.



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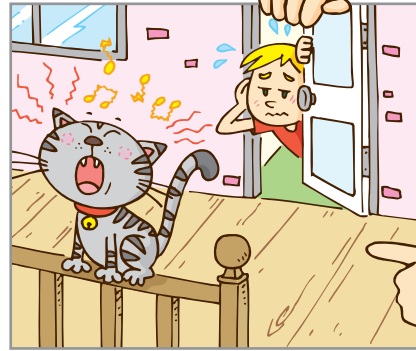
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Our ears are very important and complex organs that allow us to detect pitch (high like a siren or low like thunder) and volume (loud or quiet). Together, pitch and volume often tell us different and important things.

My cat always screams loudly at a high pitch.



Use your sense of hearing to explore sounds indoors and outdoors. Then write to complete the table.

	What Made the Sound	Pitch high/low	Volume loud/quiet
Indoors	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
Outdoors	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>