Name _____ Date _____

Sound: Vibrations You Can Feel

Directions: Read about the buzz you can feel when you hum. Then answer each question.

Feel the Buzz

Put your fingers on the front of your throat and hum. Do you feel a buzz? That buzz is a **vibration**, a very fast back-and-forth movement. Your voice, a drum, and a guitar all make sounds by vibrating.

When the vocal cords in your throat vibrate, they push on the air next to them. That air pushes on the air beside it, and so on, until the push reaches someone's ear. Inside the ear, a thin layer called the **eardrum** vibrates too. This helps the person hear you.

Sound needs matter to travel through. It can travel through gases like air, liquids like water, and solids like a wall. In empty space, with no air or any other matter, sound cannot travel at all.

Bigger vibrations make louder sounds. The **volume** of a sound is how loud or soft it is. Faster vibrations make higher sounds. The **pitch** of a sound is how high or low it is.

1. Match each word from the humming passage with what it means.

Write the letter of the matching answer on each line.

1. _____ vibration
2. _____ eardrum
3. _____ volume
4. _____ pitch

Choices for question 1

A. A thin layer inside the ear that vibrates when sound reaches it
B. How loud or soft a sound is
C. A very fast back-and-forth movement
D. How fast a sound travels
E. How high or low a sound is

2. Ella sprinkles a few grains of rice on top of a drum and taps the drum. The rice bounces. Why?

A. The top of the drum vibrates and bumps the rice.
B. The sound blows the rice like a gust of wind.
C. The drum gets hot and makes the rice jump.
D. The rice vibrates on its own and makes the drum's sound.

3. Ella taps the drum harder, so its top vibrates with bigger movements. What happens to the volume of the sound?

A. It gets softer.
B. It gets louder.
C. It stays just as loud.
D. It stops traveling through the air.

4. A short, tight guitar string vibrates faster than a long, loose one. How does the short, tight string sound?

A. Lower in pitch
B. Higher in pitch
C. Always louder
D. Unable to travel through air

5. Use the word bank to finish the sentences about sounds Ella hears.

Word bank

vibration • solid • liquid • gas

Underwater at the pool, Ella hears a friend tap two rocks together. The sound reaches her ears through water, which is a _____. Later, she hears music from the next room through the wall, which is a _____.

6. Two astronauts float outside their spacecraft, a few meters apart, far above Earth's air. Why must the astronauts use radios to talk?

A. There is almost no air or other matter between them to carry the sound.
B. Sound travels too fast in space for ears to catch it.
C. Their voices freeze in the cold of space.
D. Their helmets are too thick for any sound to get out.

7. When Ella hums, does the same air from her throat travel all the way to her friend's ear?

A. No. The sound travels without any air or matter at all.
B. Yes. The same air rushes all the way from her throat to the ear.
C. No. Each bit of air pushes on the air next to it, so the push travels, not the same air.
D. Yes, but only when the wind blows toward her friend.

8. What would happen if Ella pressed her hand flat on the top of the drum right after tapping it?

A. The sound would keep going just as long as before.
B. The top would stop vibrating, so the drum's sound would quickly stop.
C. The sound would get louder.
D. The sound would travel farther.