Name: _____ Date: _____

Vibrations

Sound is energy we can hear. As you saw in your previous sound experiment, sound is associated with vibrations. When something vibrates, it moves back and forth quickly. It is this motion that creates sound.

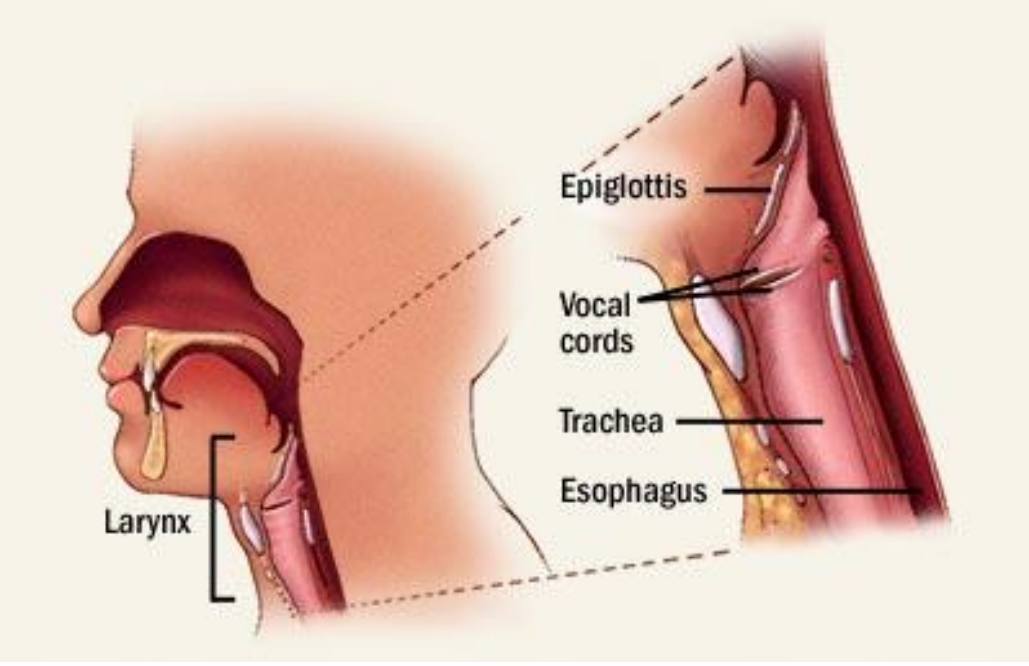
Have you ever tossed a rock into a still pond? When the rock hits, the waves move outward from the point where the rock landed. The waves start out big and get smaller as they move away. Sound travels in waves too, just like the water, and just like light does. The waves originate from the vibrating object.

<u>Your Larynx</u>

As humans, most of us are able to speak, but we do not seem to be vibrating. This is because vibrations do not need to be large to cause sound.

Your voice begins in your larynx, or "voice box." That is where your vocal cords are located. When you push air up from your lungs, it moves through your voice box, which causes your vocal cords to vibrate. This vibration makes sound. Depending on how you push the air, and how you hold your mouth, you can make many different sounds.

To locate your voice box and vocal cords, gently tough the front of your neck, near the middle of your throat. Start humming, what do you feel? Your vocal cords are vibrating, causing sound.



1. What causes sound? How does sound travel?

Sound is caused by vibrations. When an ob ject vibrates it sends a sound moving outwards in a wave.

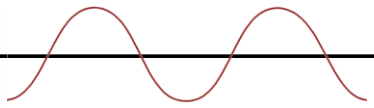
2. Describe how a human can speak (make noise)?

When you push air up from your lungs, it moves through your voice box, which causes your vocal cords to vibrate.

3. How do you think the wave from a loud sound compares to the wave from a soft sound?

A loud noise would make a larger wave than a soft sound.

Loud Sound



Soft Sound

4. Choose 2 common sounds you hear almost every day. Describe, in detail, what causes the sound.

For example – Clapping

When you clap you hit your hands together. This causes them to vibrate. The air around the hands then gets pushed away because it is in contact with the hands. The air moves away from the hands in a wave, and that wave then contacts your ear drum, allowing us to hear the clap.

5. Based on what you have learned, try to explain how a guitar works.

When you pluck a string on a guitar it vibrates. The air around the string is then pushed out and travels in a wave, which can be heard as sound.

The sound of the guitar is altered by tightening or loosening the strings. It is also different when part of the string is held down. The body of the guitar is shaped to amplify the sound (make it louder).