



How Does the Ear Hear?

Today we are going to act out how the ear hears.

Did you ever wonder how the ear can hear? What is there about the ear that allows us to hear sound? What is inside the ear?

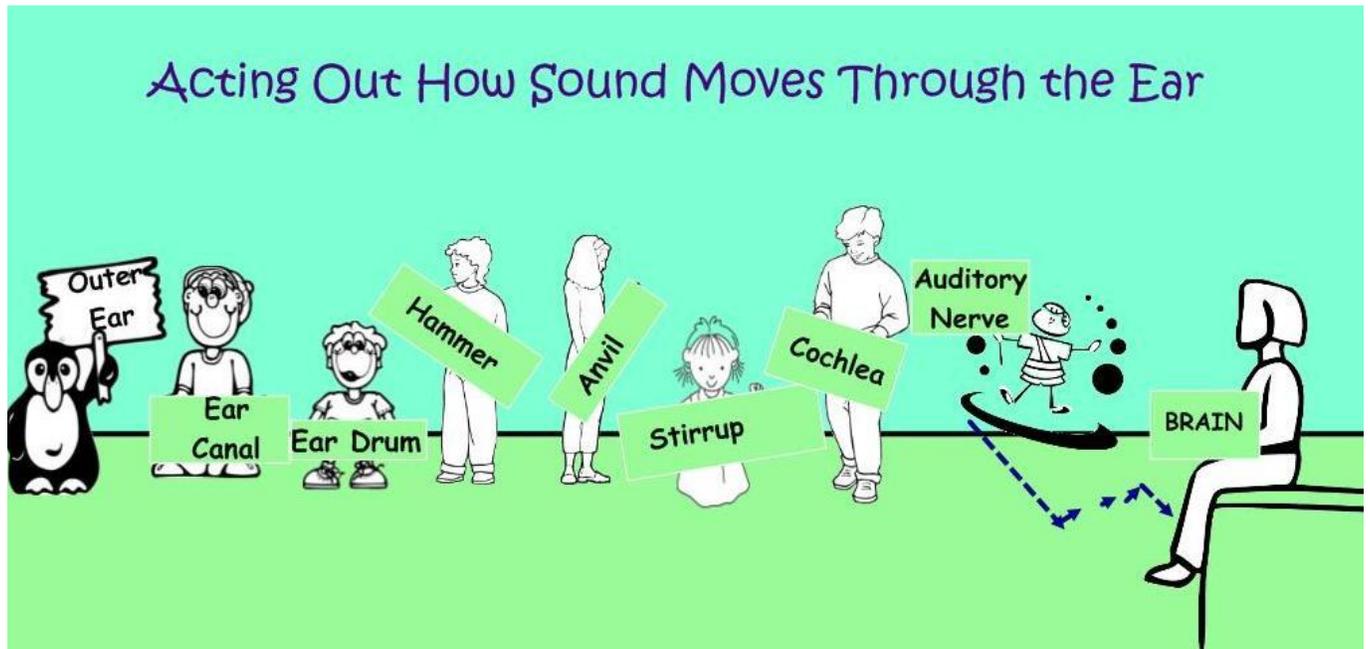


First, we need a volunteer to be the outer ear. This is the part of the ear that collects the sound waves that are in the air.

This person will stand to the far left of the audience and hold up the sign that says, "Outer Ear."

I'm giving the Outer Ear an envelope that is not to be opened until it gets to the Brain. So, the Outer Ear will hold the envelope for now.

We will have a complete ear that is something like this picture when we have all the volunteers in front of the class:

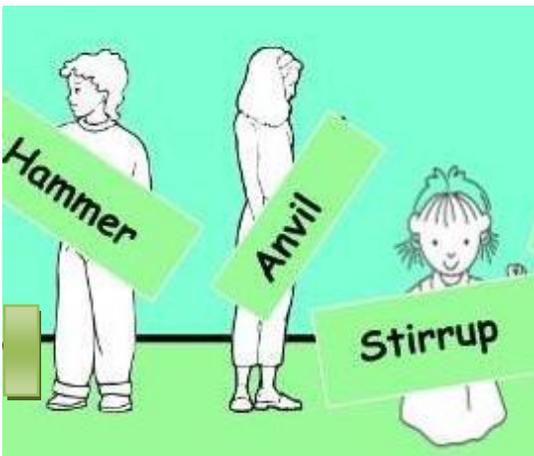


Now that we have the outer ear, we will need an ear canal. The ear canal is like a little tunnel that goes from the outer ear to the ear drum. Never put anything bigger than your elbow into the ear canal. Who will volunteer to hold up the ear canal sign, and stand next to the Outer Ear?



Now, at the end of the ear canal is the ear drum. When you have an earache, this is the part of the ear that might bulge or even tear a little. There would be pressure on the ear drum.

The ear drum divides the outer and middle ear.

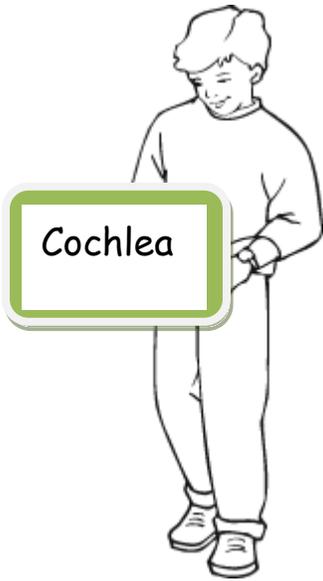


Next in line after the outer ear, ear canal, and ear drum we will need volunteers to be the hammer, anvil, and stirrup. These are three tiny bones in the middle ear that also move when sound waves travel through your ear. But do you know what, the ear still hasn't actually heard anything. The parts have just moved a little!

Let's check if our ear parts are in order:

1. Outer ear
2. Ear canal
3. Ear drum
4. Hammer
5. Anvil
6. Stirrup

Good, now let's see what is next!



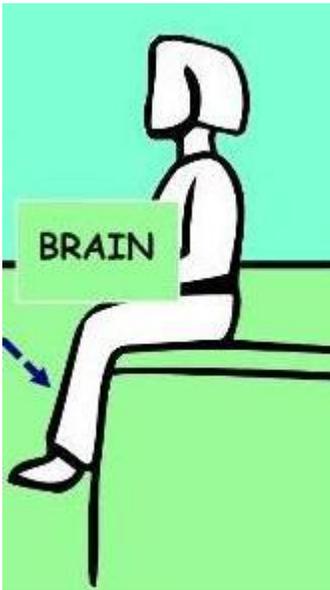
We need a volunteer to be the Cochlea.

The *hair cells* in the cochlea move very fast when sound waves hit them. They vibrate. The *hair cells* change the clapping sound to a kind of *electricity*.

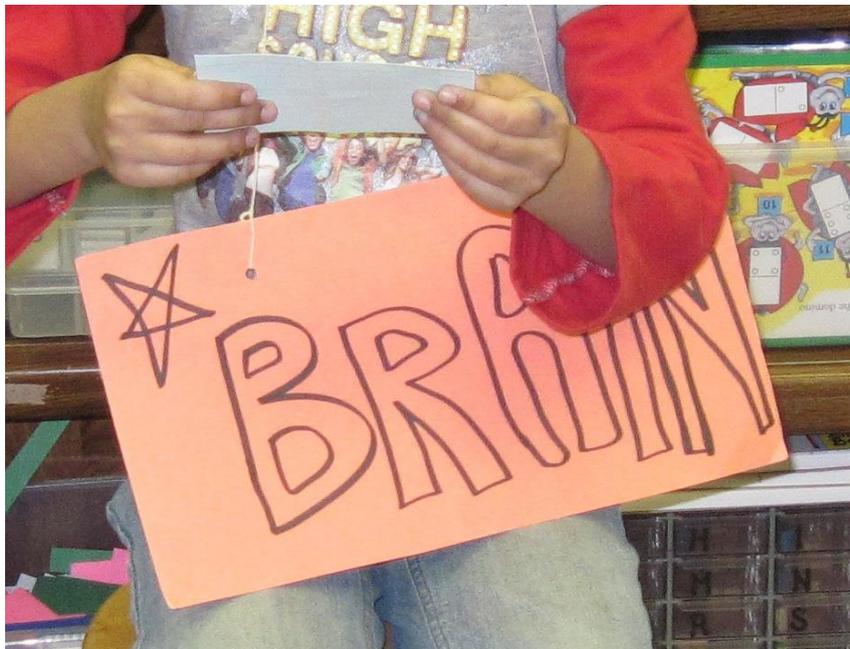
The Cochlea is in the inner ear.



Next we need a volunteer to be the Auditory Nerve. The Auditory Nerve carries the sound waves to the Brain to interpret the sounds into "hearing." The *electricity* moves up the *auditory nerve* to your brain.



The brain uses the sound waves to hear what the sounds really are. The brain hears! The ear and ear parts collect sound waves and move them along to the auditory nerve and finally the Brain! So, now we will pass the envelope along in order from the outer ear to the brain. Wiggle (to show the sound waves) as you pass the envelope along. The Brain will open the envelope and tell us what sounds the ear collected.



Now, each sign holder, give your sign to another student and let's see if the next set of students can line up in the right order and send sound waves to the Brain.

Link to site with much information about hearing as well as a great diagram of the outer, middle, and inner ear:

http://clerccenter.gallaudet.edu/Clerc_Center/Information_and_Resources/Info_to_Go/Hearing_Loss_Information/Hearing_Loss_Younger_Children.html