

**Module 3: Sensation and Perception**  
**Topic 3 Content: The Auditory System: How Hearing Works Notes**

**Introduction**



The Auditory System: How Hearing Works

Click **NEXT** to begin.

## Module 3: Sensation and Perception

### Topic 3 Content: The Auditory System: How Hearing Works Notes

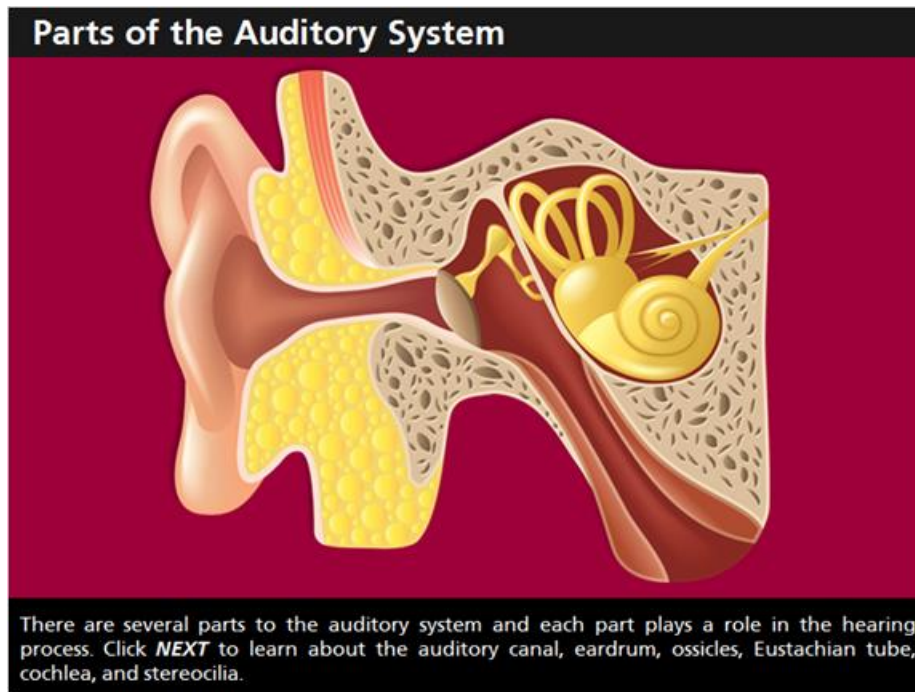
#### Hearing



Imagine that you are having a conversation with a friend. Your friend produces sound waves using his larynx, or voice box. The sound then travels to your ear as vibrations, and is transferred and converted into signals that are processed by the brain. This process is better known as hearing.

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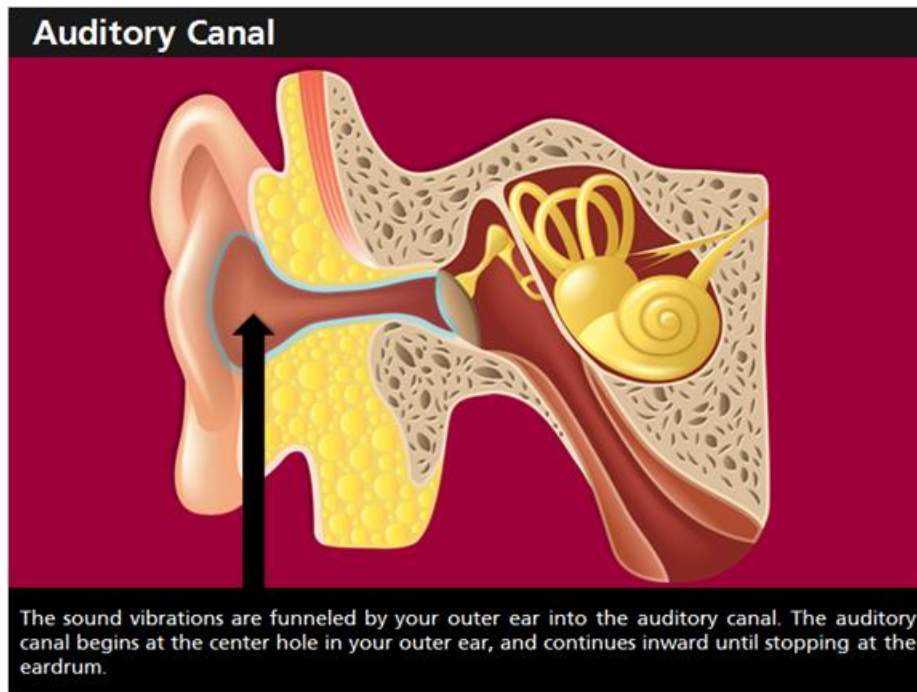
**Parts of the Auditory System**



There are several parts to the auditory system and each part plays a role in the hearing process. Click **NEXT** to learn about the auditory canal, eardrum, ossicles, Eustachian tube, cochlea, and stereocilia.

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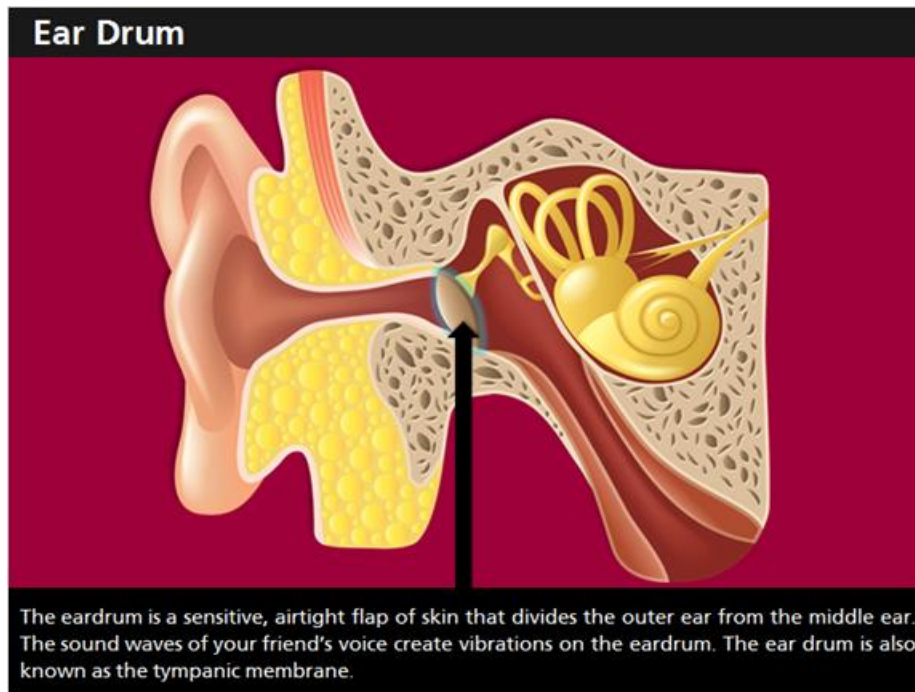
**Auditory Canal**



The sound vibrations are funneled by your outer ear into the auditory canal. The auditory canal begins at the center hole in your outer ear, and continues inward until stopping at the eardrum.

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**Eardrum**

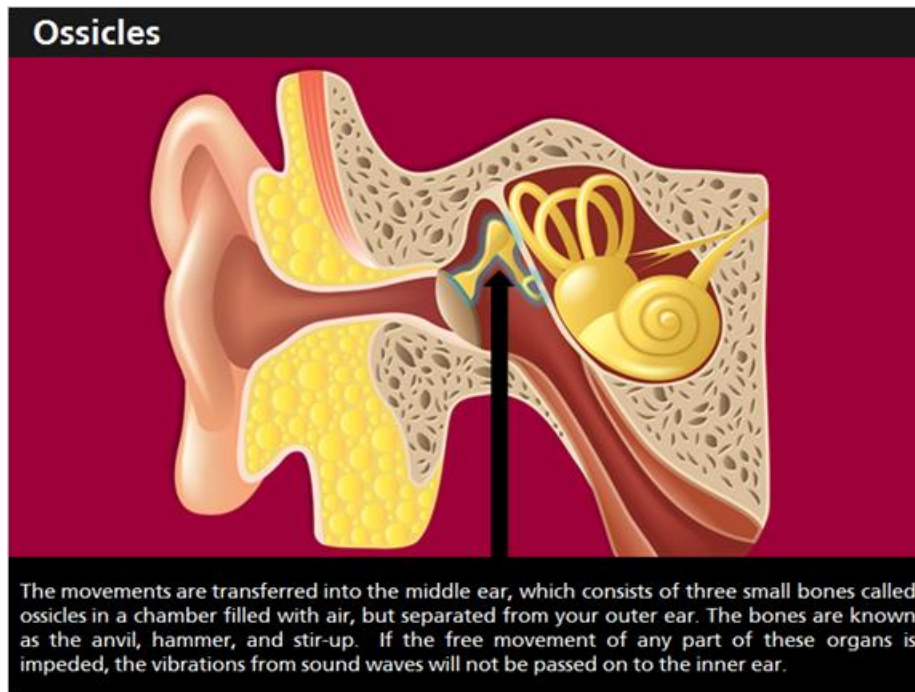


The eardrum is a sensitive, airtight flap of skin that divides the outer ear from the middle ear. The sound waves of your friend's voice create vibrations on the eardrum. The ear drum is also known as the tympanic membrane.

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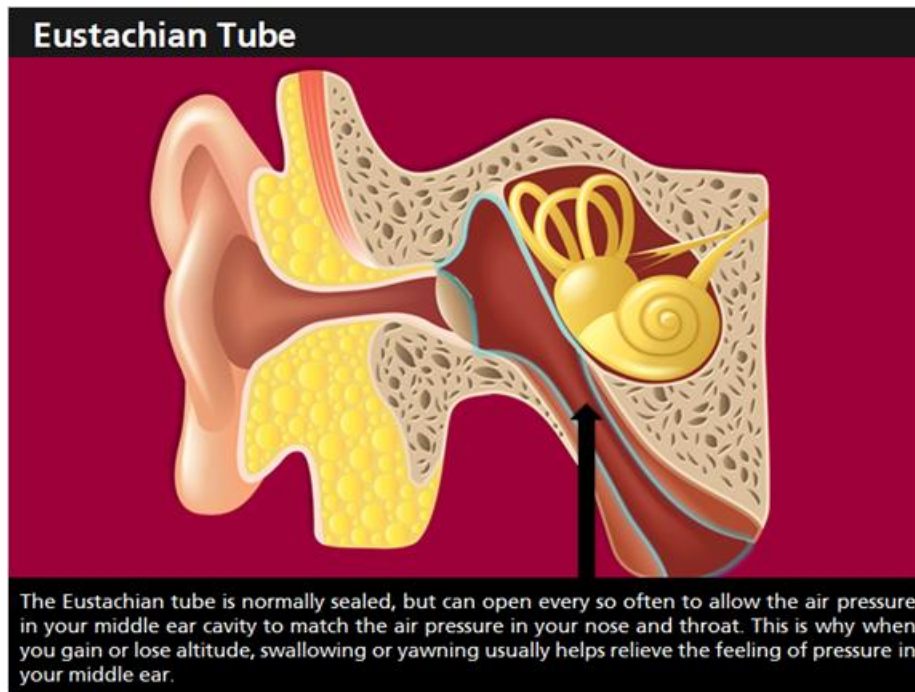
#### Ossicles



The movements are transferred into the middle ear, which consists of three small bones called ossicles in a chamber filled with air, but separated from your outer ear. The bones are known as the anvil, hammer, and stir-up. If the free movement of any part of these organs is impeded, the vibrations from sound waves will not be passed on to the inner ear.

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**Eustachian Tube**

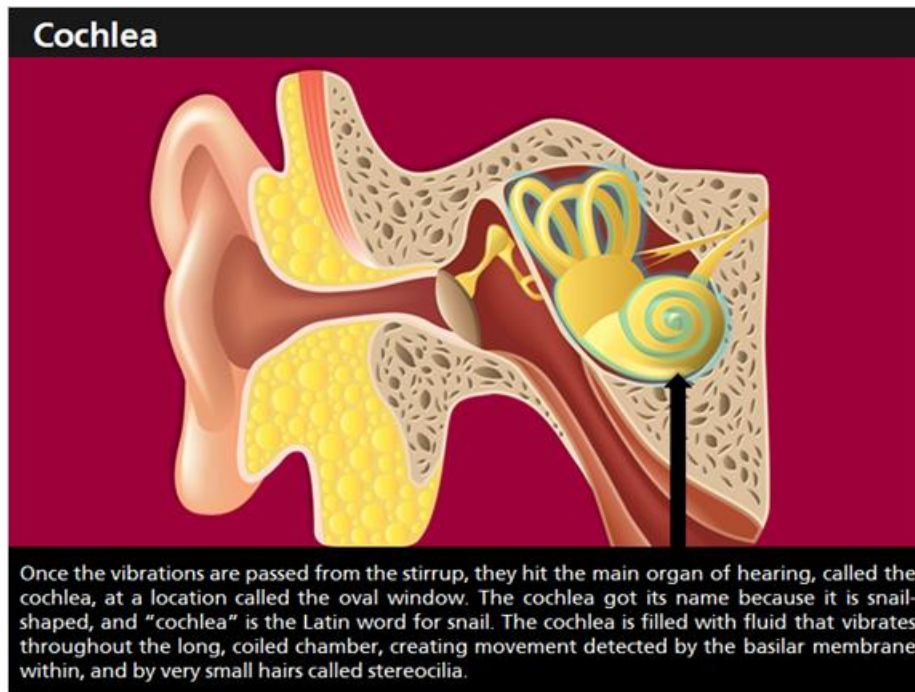


The Eustachian tube is normally sealed, but can open every so often to allow the air pressure in your middle ear cavity to match the air pressure in your nose and throat. This is why when you gain or lose altitude, swallowing or yawning usually helps relieve the feeling of pressure in your middle ear.

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#### Cochlea



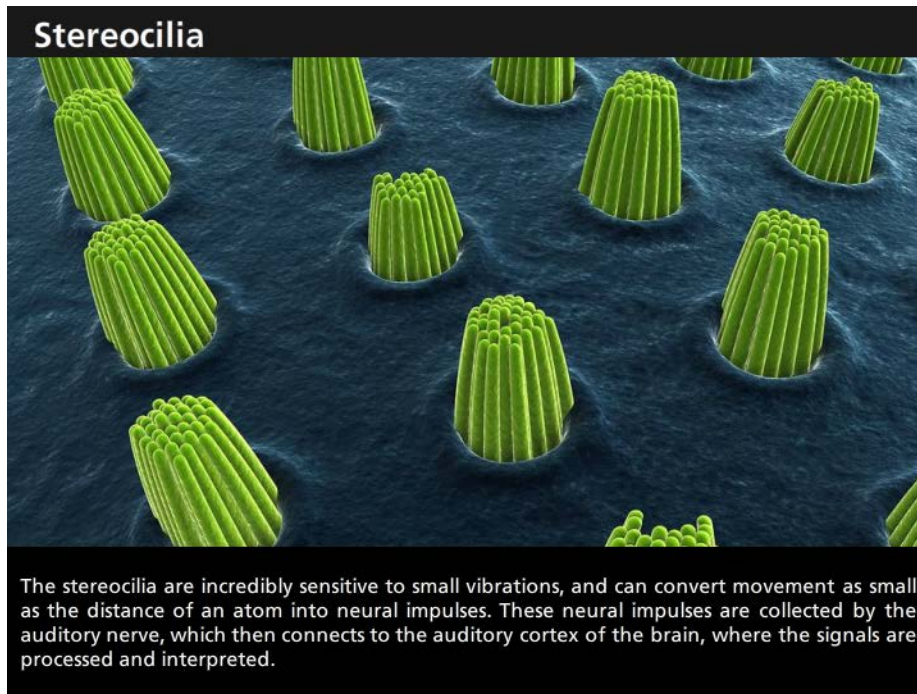
Once the vibrations are passed from the stirrup, they hit the main organ of hearing, called the cochlea, at a location called the oval window. The cochlea got its name because it is snail-shaped, and "cochlea" is the Latin word for snail. The cochlea is filled with fluid that vibrates throughout the long, coiled chamber, creating movement detected by the basilar membrane within, and by very small hairs called stereocilia.



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#### Stereocilia



The stereocilia are incredibly sensitive to small vibrations, and can convert movement as small as the distance of an atom into neural impulses. These neural impulses are collected by the auditory nerve, which then connects to the auditory cortex of the brain, where the signals are processed and interpreted.