

Hearing & Amplification

All About Hearing Loss

How The Ear Works

The Ear is made up of three parts:

- External Ear
- Middle Ear
- Inner Ear

The picture on the right shows the three parts of the ear:

External Ear

Sounds travel through the external ear or ear canal and cause vibration of the eardrum (tympanic membrane).

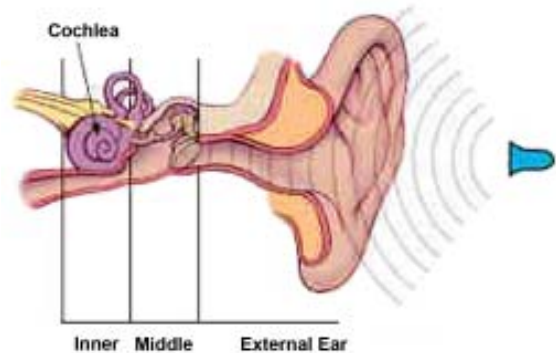
Middle Ear

Eardrum movement causes the three middle ear bones (ossicles) to vibrate. This vibration creates movement of fluid in the inner ear (cochlea).

Inner Ear

The inner ear, or cochlea, sends nerve impulses to the brain. Once the brain receives the message, we have a sensation of hearing.

The sound wave moves the eardrum and attached ossicular chain. The stapes footplate, in the round window, transfers the vibrations to the perilymphatic compartment (scala vestibuli) and to the inner ear structures. Depending on frequency, the vibration has a maximum effect (resonance) at a different point along the basilar membrane, accounting for passive tonotopy. Here on the left, a high frequency sound effects a basal portion of the cochlea.



Animated drawing by S Blatrix, from "Promenade around the cochlea" by R Pujol, S. Blatrix, T. Pujol and V. Reclar-Enjalbert, CRIC, University Montpellier 1 - INSERM