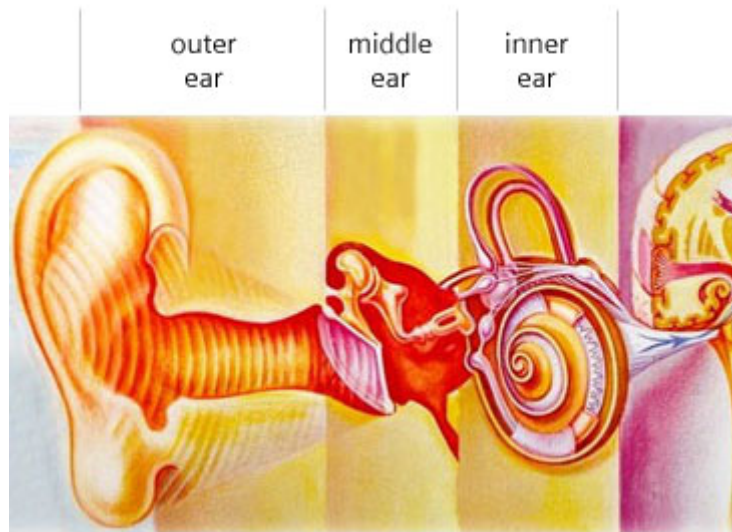


# How We Hear

The process we know as hearing begins when your funnel-shaped outer ear or pinna collects sound waves, then channels them through to the end of the ear canal, where the eardrum is located. The impact vibrates the eardrum and touches off a process in the auditory-vibrations pass from the hammer (malleus), to the anvil (incus), then to the stirrup (stapes). The stapes footplate fits into the oval window, which forms the entrance to the inner ear, where the cochlea is located.



The movements continue to the cochlea, one of the two main structures of your inner ear. It is filled with fluid and contains thousands of microscopic acoustic hair cells. (The other main structure of the inner ear, the semicircular canals, governs balance.) The fluid's wave-like action causes the acoustic hair cells to bend. This converts the mechanical sound signal into electric stimuli, which are transmitted via the auditory nerve to the brain.

The auditory nerve carries these impulses to the cochlear nucleus and then to the hearing center of the brain. Nerve pathways here divide and lead to a pair of auditory corti, one located in each half of the brain. There the central auditory system processes the auditory information.

The result of this complex process is what we perceive as "sound."