

Ear Anatomy

Everyone knows that ears are for hearing. If people have trouble hearing speech or the sounds of everyday life, they are hearing impaired. When you are hearing impaired, at least one part of the auditory (hearing) pathway is not working correctly. Whether or not you are able to hear, it is important for you to know the parts of your ear and how they work.

Outer Ear

The **Pinna** helps gather sound and directs it down the **Ear Canal (External Auditory Meatus)** toward the **Eardrum**. The sound vibrations cause the eardrum or **Tympanic Membrane** to vibrate. The outer ear ends at the tympanic membrane.

Middle Ear

The **Middle Ear** consists of a small air-filled space. Inside this space are three small bones. These three small bones, called **Ossicles**, form the **Ossicular Chain**. Each bone fits tightly into the next one. It is possible for them to become disarticulated or move out of position. This may happen from a very strong hit to the head. Each part of the ossicular chain has a specific name. The **Hammer (Malleus)** receives the sound vibrations from the tympanic membrane. The vibrations are then passed to the **Anvil (Incus)**. The vibrations are finally passed to the **Stirrup (Sapes)**.

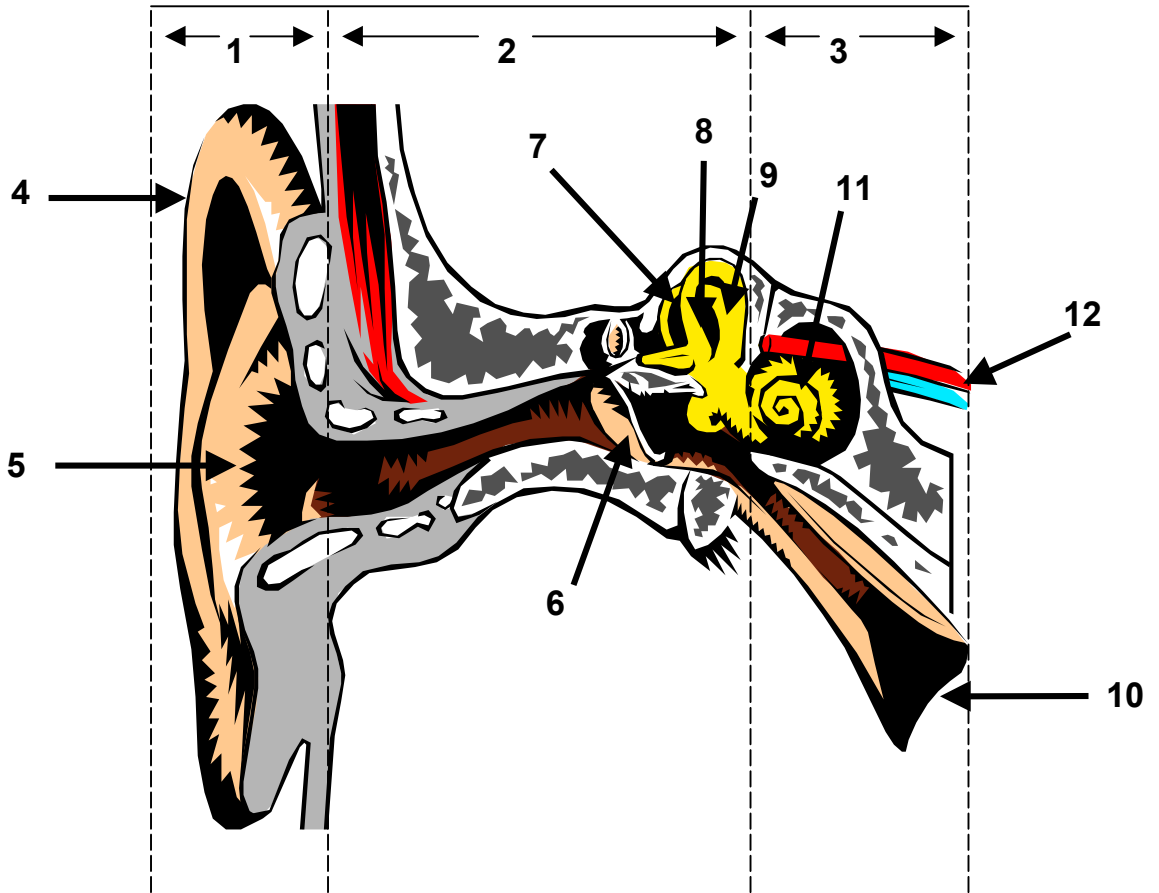
The **Eustachian Tube** is another part of the middle ear. It allows air in or out of the middle ear when a person swallows or yawns. When the Eustachian tube is not functioning properly, it can cause a hearing loss. If either the outer or middle ear is not working, a person has a **Conductive Hearing Loss**.

Inner Ear

The **Cochlea** is one of the main parts of the **Inner Ear**. The cochlea is a snail-shaped organ where vibration is changed into nerve energy. The cochlea has three compartments that are separated by two thin membranes. Four rows of **Hair Cells** stick out from one of the membranes. As the stapes vibrates back and forth, it changes the fluid pressure inside the cochlea. The change in the fluid causes the hair cells to bend. The bending of the hair cells changes the vibration into a nerve impulse. The nerve impulse travels through the **Auditory Nerve** to the portion of the brain that receives and understands the nerve impulse from the ear. If any part of your cochlea is not working correctly, you have a **Sensory-Neural Hearing Loss**.

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Directions: Name the parts of the ear indicated below.



1. _____

7. _____

2. _____

8. _____

3. _____

9. _____

4. _____

10. _____

5. _____

11. _____

6. _____

12. _____

13. Explain how you hear.