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How We Hear

Read this page to learn how we hear sound.

First, here are the parts of the ear:

- **The outer ear**
 - The outer ear is made up of the ear flap and the **ear canal** up to the **eardrum**.
 - The ear flap is also called the **auricle** or **pinna**.
 - The ear drum is also called the **tympanic membrane**.
 - The outer ear protects the middle and inner ears.

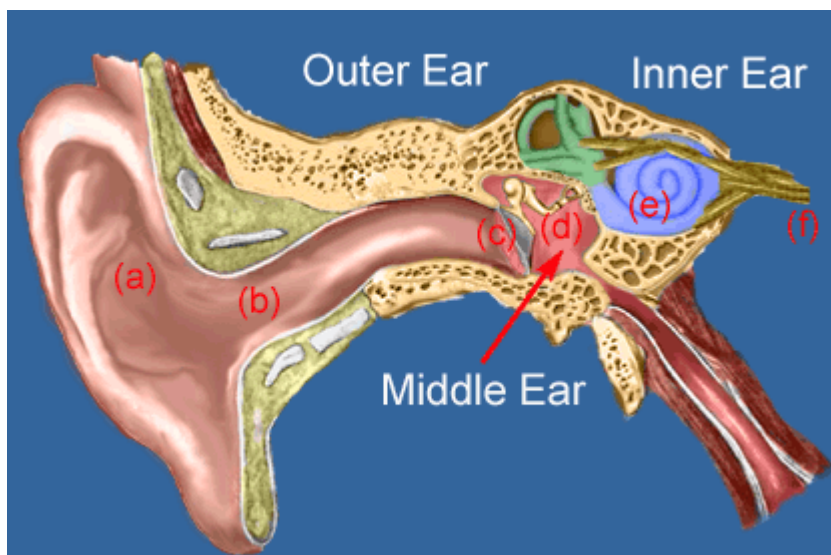


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(<http://www.bradingrao.com/>)

(a) Outer ear (b) ear canal (c) eardrum
(d) hammer, anvil and stirrup (e) cochlea (f) auditory nerve

- **The middle ear**
 - The middle ear is made up of three tiny bones and the **Eustachian tube**.
 - The **Eustachian tube** connects the middle ear to the back of the throat. It opens and closes to make the pressure between the inner and outer ears the same.
 - Three tiny bones connect the ear drum to the inner ear. The bones are called the **hammer (malleus)**, **anvil (incus)** and **stirrup (stapes)**.
- **The inner ear**
 - The inner ear is made of the **vestibular apparatus** and the **cochlea**.
 - The **vestibular apparatus** is three looping canals. They control your balance.
 - The **cochlea** turns sound into electrical signals that get sent to the brain. The cochlea is spiral-shaped.

Now, here's how sounds get from the outside to our brains.

1. Sound moves from the outside to your **outer ear**.
 - The **outer ear** passes sound to the **middle ear**.
2. Your **middle ear** passes sound to your **inner ear**.
 - Sound makes your eardrum vibrate like a drum.
 - The vibrations pass to the three tiny bones behind the eardrum. (These are the **hammer**, **anvil** and **stirrup**.)
 - The bones pass the vibrations to the **inner ear**.
3. The vibrations go to the **cochlea** in your **inner ear**.
 - Tiny hair cells in the **cochlea** pick up the vibrations.
 - The hair cells turn the vibrations into electrical signals.
 - The electrical signals are sent to the **auditory nerve**, and then the brain.
4. Your brain decides what the sound is.
 - The **auditory cortex** is the part of the brain where the signals are put with other information. The other information could be what you see, and your memories.
 - This helps us to "know" what we're hearing. (For example, you hear a car honk and think, "That's a car honking.")

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You can find this page online at:

<http://www.raisingdeafkids.org/hearing/how.jsp>