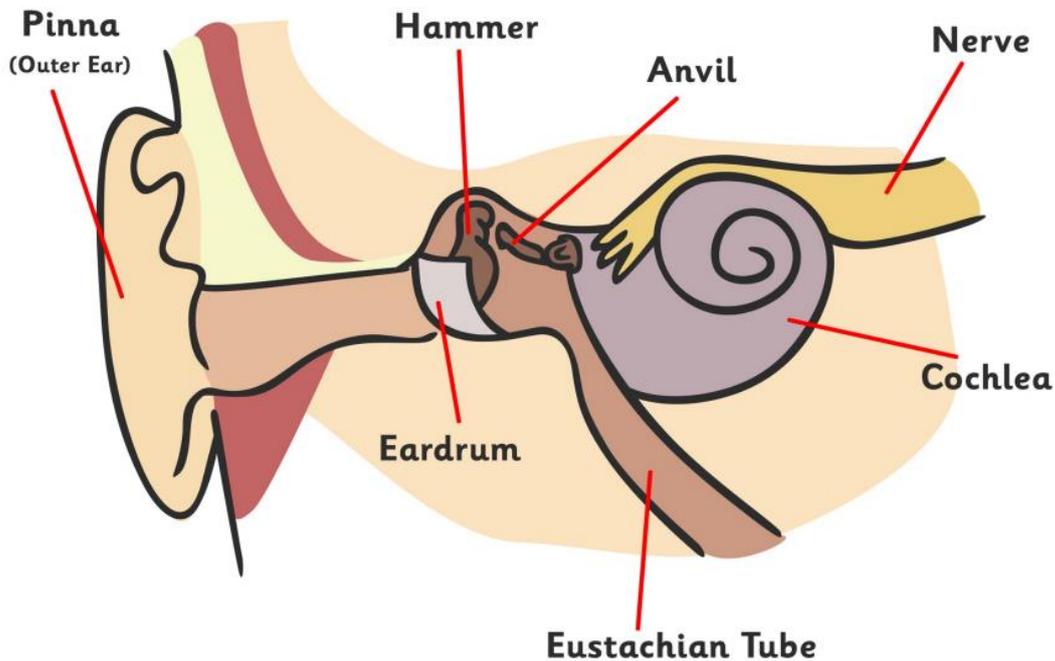


Science: 29th June.

Labelling different parts of the ear and understanding their role.

There is a powerpoint you can use online or print which is more useful as the names and roles are matched to a picture of the part, but I have written an information pack for those who it would be easier to print off.



How we hear and the role of each part of the ear explained:

<https://www.bbc.co.uk/bitesize/topics/zgdmsbk/articles/zkdkmfr>

Outer Ear

The outer ear or external ear is the visible portion of the ear, which serves as a protective organ for the eardrum. It collects and guides sound waves into the middle ear. The outer ear consists of the Ear Flap and the Ear Canal.

Ear Flap (Pinna) - The sound waves enter the ear via the ear flap or pinna.

Ear Canal (Meatus) - The ear canal is about 2 cm in length. It amplifies the sound waves and channelizes them to the middle ear. Sweat glands are present in this canal, which secrete earwax.

Middle Ear

The middle ear, located between the outer ear and the inner ear, perceives sound waves from the outer ear in the form of pressure waves. The middle ear is an air-filled cavity and consists of the Eardrum, Hammer, Anvil, and Stirrup.

Eardrum (Tympanic membrane) - The eardrum is a thin membrane that acts as a partition between the outer ear and the middle ear. It vibrates as soon as it receives sound waves.

Hammer (Malleus) - It is a tiny bone, located next to the eardrum. Since it lies adjacent to the eardrum, the vibrations from the eardrum cause the hammer to vibrate.

Anvil (Incus) - Anvil is another tiny bone next to hammer; it vibrates in response to the vibration of hammer.

Stirrup (Stapes) - Similar to hammer and anvil, stirrup is a tiny bone in the middle ear. Eventually, it also vibrates and passes the compressional waves to the inner ear.

Inner Ear

The inner ear is the innermost portion of the ear. It is filled with a water-like substance and comprises both hearing and balancing organs. The inner ear comprises the Cochlea, Semicircular Canals, and the Auditory Nerve.

Cochlea - The cochlea or the spiral tube is a rolled structure that can stretch to about 3 cm. The membrane lining of cochlea consists of numerous nerve cells. These hairlike nerve cells respond differently to various frequencies of vibrations, which ultimately lead to generation of electrical impulses.

Semicircular Canals - These are fluid-filled loops, attached to the cochlea and help in maintaining the balance.

Auditory Nerve - The electrical impulses, generated by the nerve cells, are then passed to the brain.

This way, the different parts of the human ear perform specific functions that contribute to the overall functioning of the ear. Any damage and/or disorder in the ear parts may lead to ear problems and hearing loss (deafness)

In conclusion:

The roles of the outer ear are to guide the sound in to the ear.

The roles of the middle ear are to vibrate so the sound passes through the ear.

The role of the inner ear is to help you balance and pass the sound on to the brain.