The Human Ear

Pinna - is located on the outside of your head. (outer ear)

It is what we see as the ear.

Made of skin and cartilage.

Directs sound to the brain

Ear Canal - short tube that direct sound to the eardrum.

- Ear wax is formed in the tube to protect the eardrum from dirt or bugs.

Eardrum - a thin membrane that vibrates in response to sound.

- Eardrum will vibrate at the same frequency as the sound coming in. It makes a small bone in the air vibrate at the same frequency.

The Human Ear (continued)

Ossicles- Are 3 bones found in the middle ear. They are malleus, incus and stapes. These are the smallest bones in the human body.

Malleus--> Incus --> Stapes

direction vibration travels

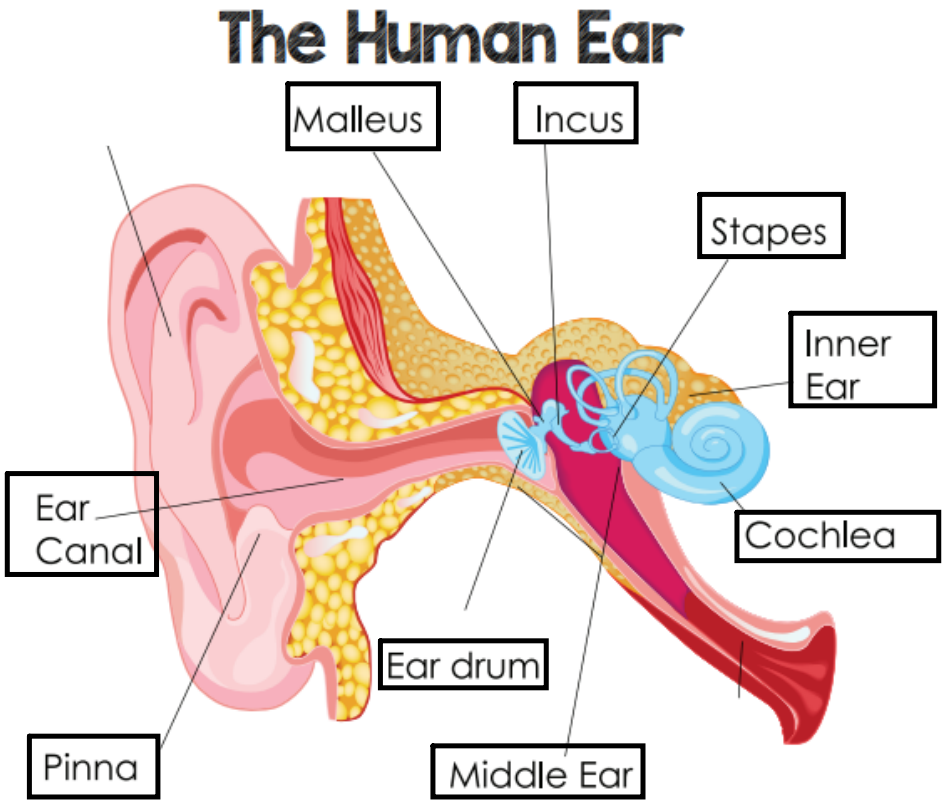
Cochlea - the inner ear.

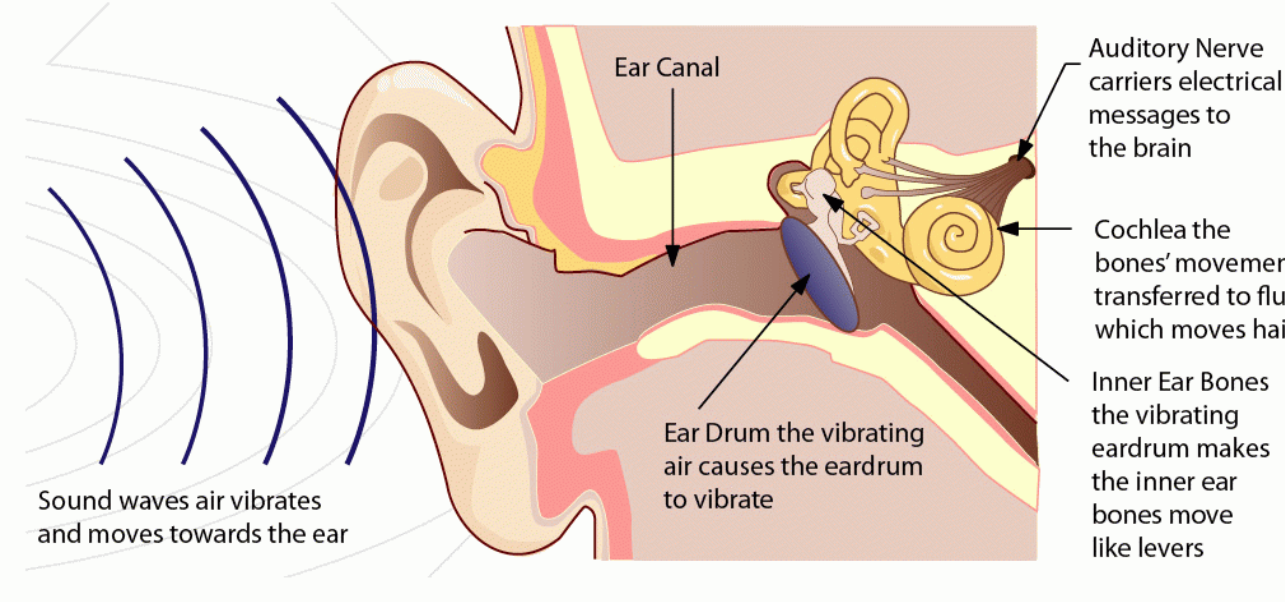
-shaped like a snail

-Fluid filled and lined with tiny hair cells.

-As the vibrations from the stapes enter the cochlea, it causes a wave in the fluid that moves the tiny hairs. These hairs trigger the auditory nerve.

Auditory Nerve - Sends electrical signals to the brain and the hearing center in the brain makes meanings of the signals as sounds we know.


The Human Ear
Malleus
Incus
Stapes
Inner Ear
Ear Canal
Cochlea
Ear drum
Pinna
Middle Ear


Ear Canal
Auditory Nerve carriers electrical messages to the brain
Cochlea the bones' movemer transferred to flu which moves hai
Inner Ear Bones the vibrating eardrum makes the inner ear bones move like levers
Ear Drum the vibrating air causes the eardrum to vibrate
Sound waves air vibrates and moves towards the ear

Trouble hearing

1) Conductive hearing loss - means that the vibrations are not passing through from the outer ear to the inner ear, specifically the cochlea.

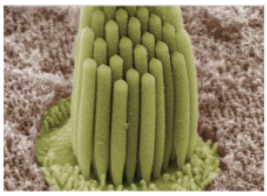
Some reasons may be build-up of earwax , an ear infection with fluid buildup, defective eardrum

Ear infections can leave scar tissue or trauma can damage the eardrum (don't put things in your ear)

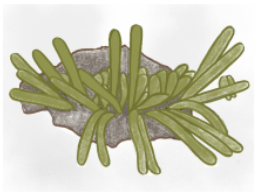
2) Sensorineural hearing loss -is caused by the damage to the hairs in the cochlea,or damage to auditory nerve, or brain damage.

As humans **grow older**, hair cells in cochlea lose some function causes hearing loss, and hearing deteriorates.

Long-term exposure to loud noises, especially high-frequency sounds, is another common reason for hair cell damage.



Hair Cells BEFORE a loud sound



Hair Cells AFTER a loud sound

Hearing loss can affect speech ability depending on when it occurs.