



eyes



ears



se



sensory organs of smell



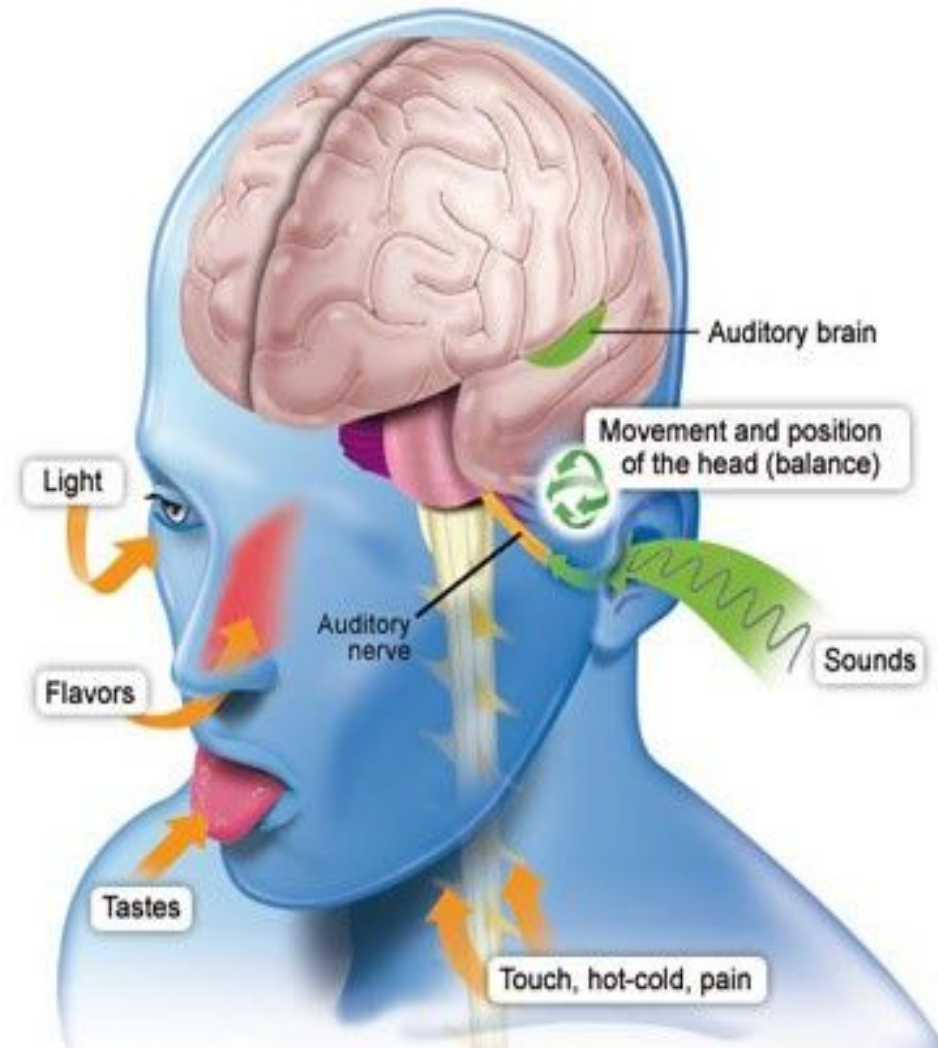
**sensory receptors in skin,
joints, muscles, and other
parts of the body**

SENSE ORGANS

(Ear and nose)

Sense organs

- Sense organs are known as the “windows of the brain” because they detect and send nerve impulses (changes) to the central nervous system
- Information reaching the cerebrum of the brain results in conscious sensation



Receptors

- **Receptors** receive certain environmental stimuli and change them into nerve impulses
- **Types of receptors:**
- **Photoreceptors** detect light (Eyes)
- **Pain receptors** sensitive to chemicals released by damaged tissues or excess stimuli of pressure or heat
- **Thermoreceptors** sense temperature (Hypothalamus and skin)
- **Chemoreceptors** are responsible for taste and smell (tongue and nose)
- **Mechanoreceptors** sense pressure, touching and hearing (Skin and ears)

VISION



HEARING



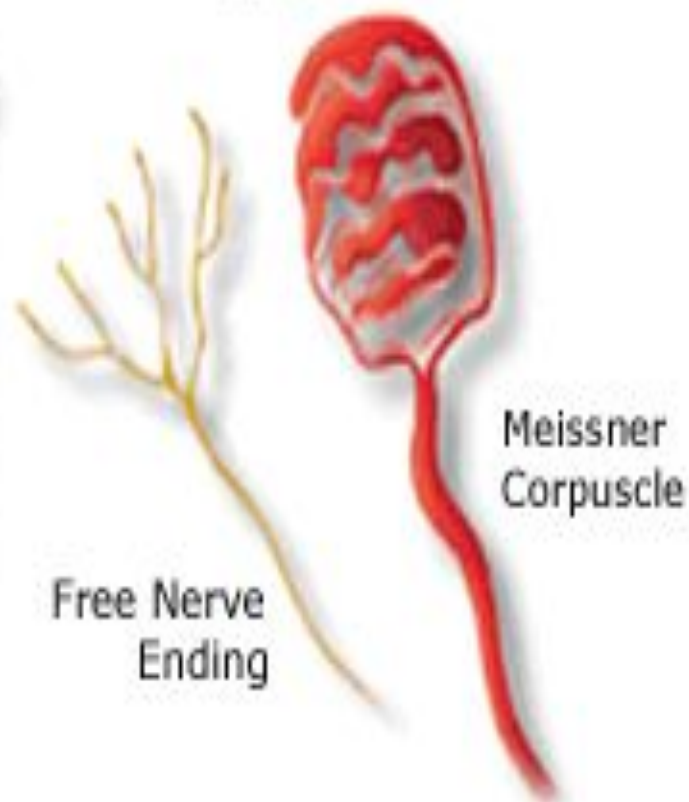
SMELL



TASTE

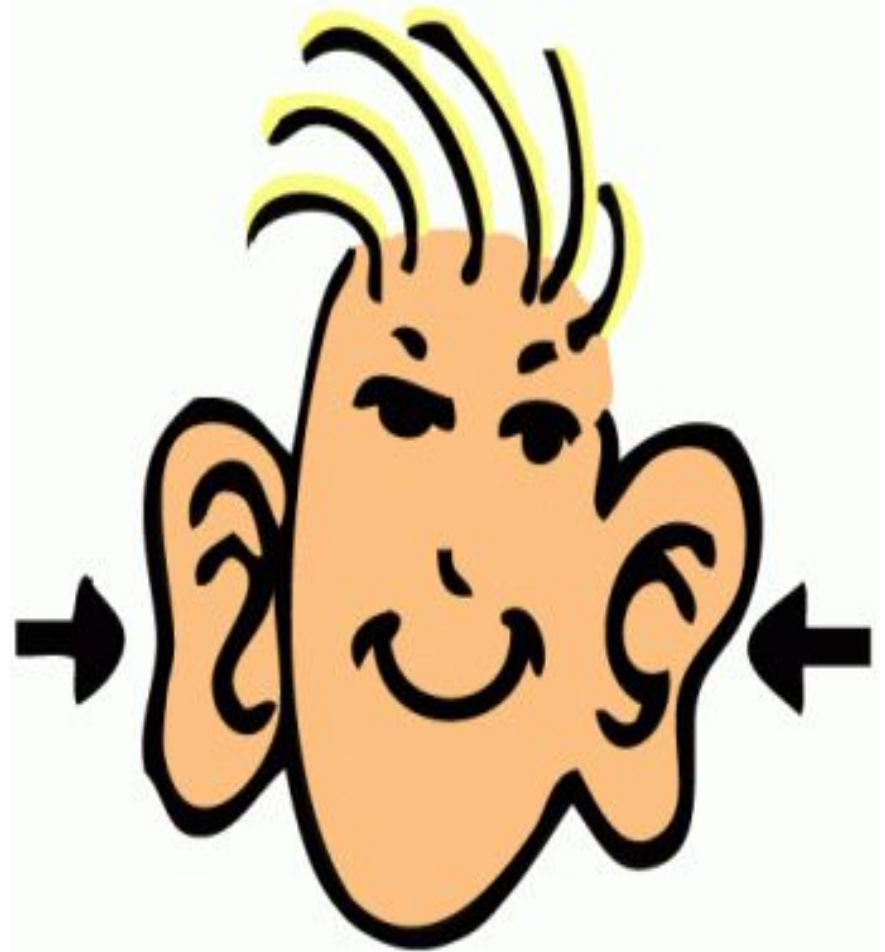


TOUCH



EARS

- It has 2 sensory functions:
- Hearing
- Maintaining balance or equilibrium



EARS

- Ear contains 3 main parts:

–Outer ear }
–Middle ear }

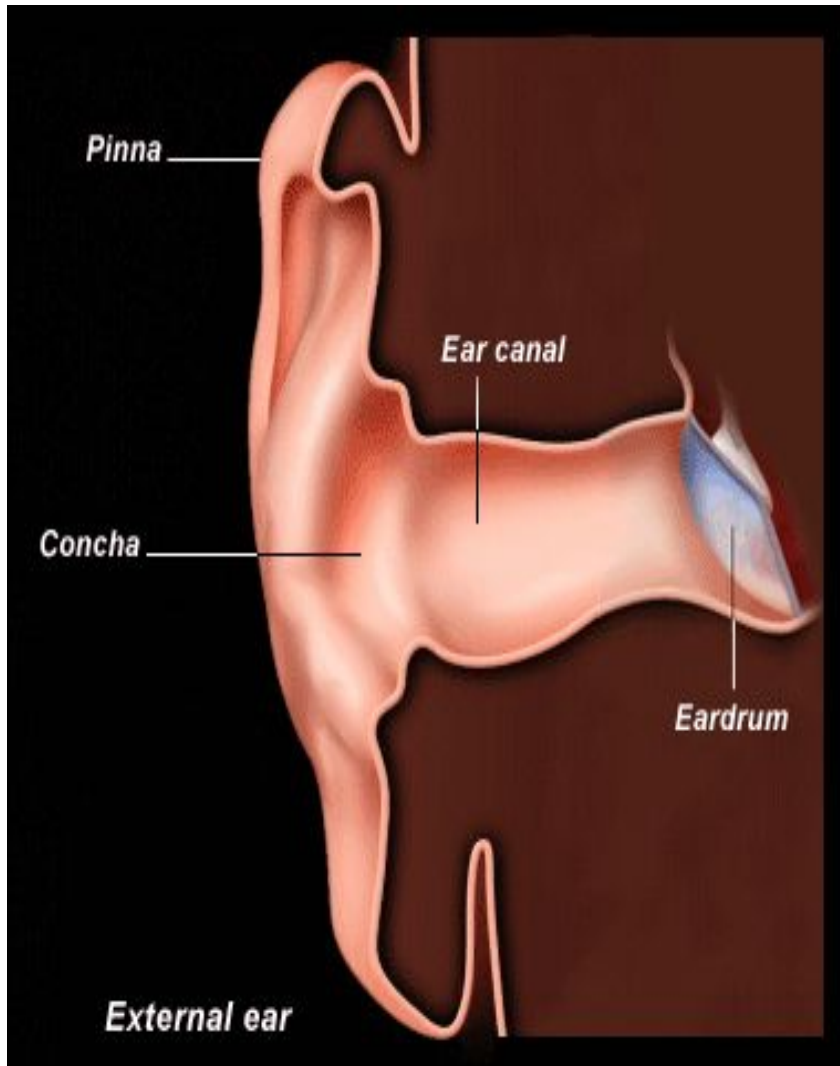
Hearing

–Inner ear }

Hearing and balance



Outer ear

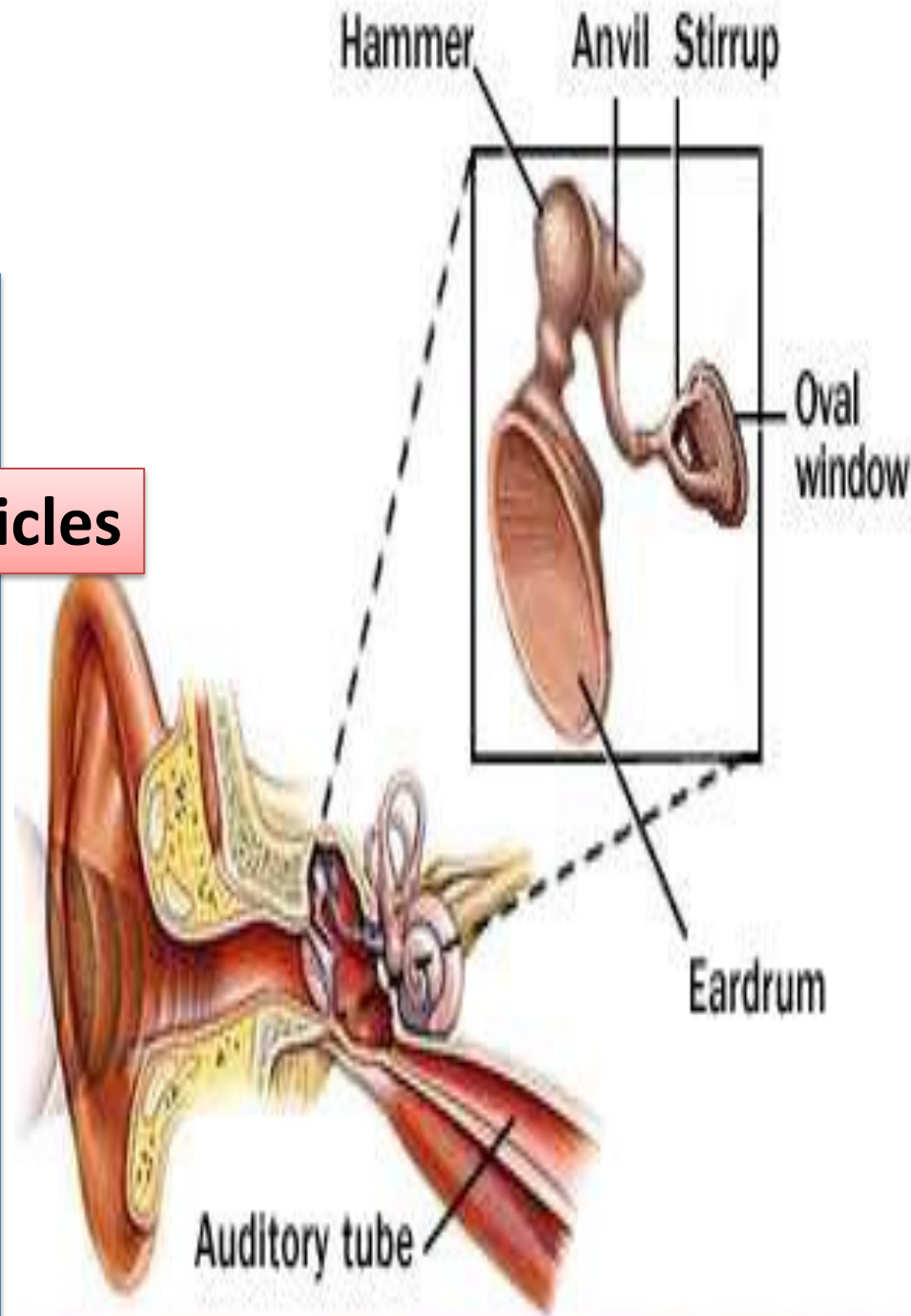


- **Auditory canal** has hairs and produces wax-like substance to filter solid particles
- The **eardrum** separates outer ear from the middle ear
- The eardrum is hit by sounds and vibrates

Middle ear

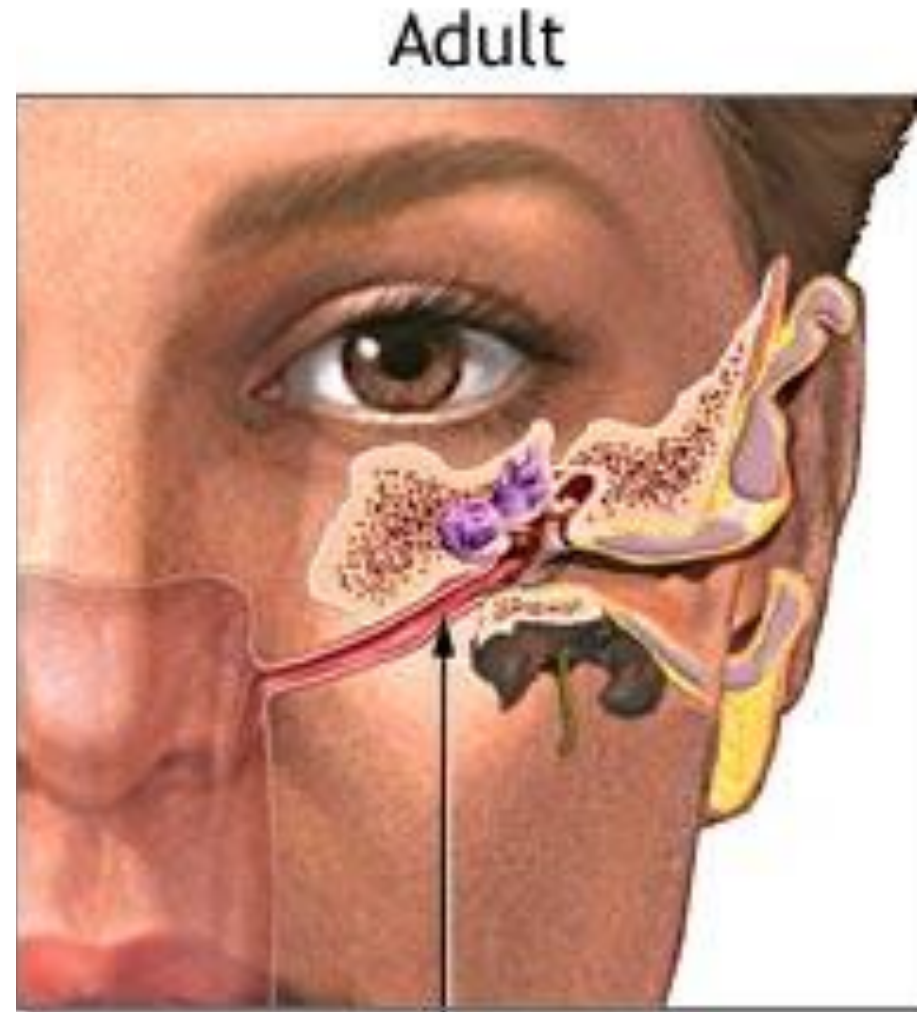
- It contains three bones:
- Hammer (Malleus)
- Anvil (Incus)
- Stirrup (Stapes)
- ***The hammer*** is attached to the eardrum, the ***anvil*** connects the hammer to the stirrup
- ***Stirrup*** is connected to the oval window

Ossicles



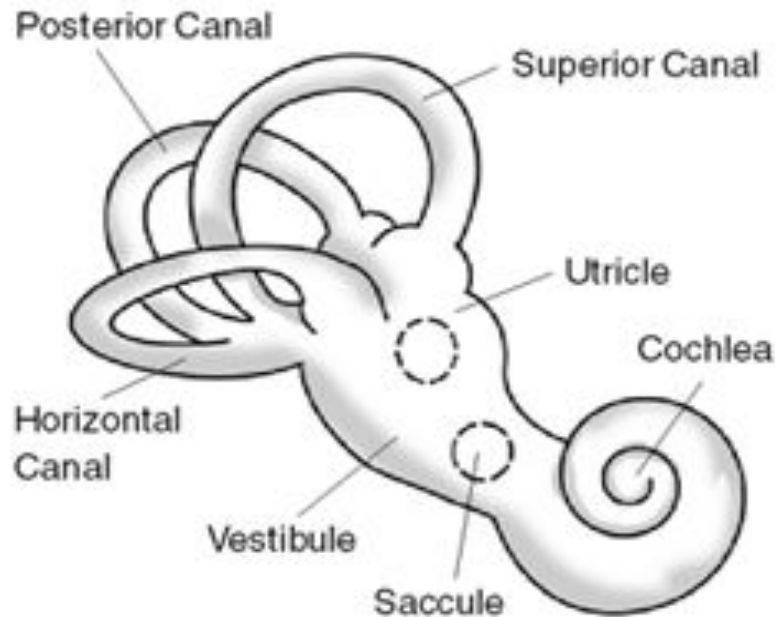
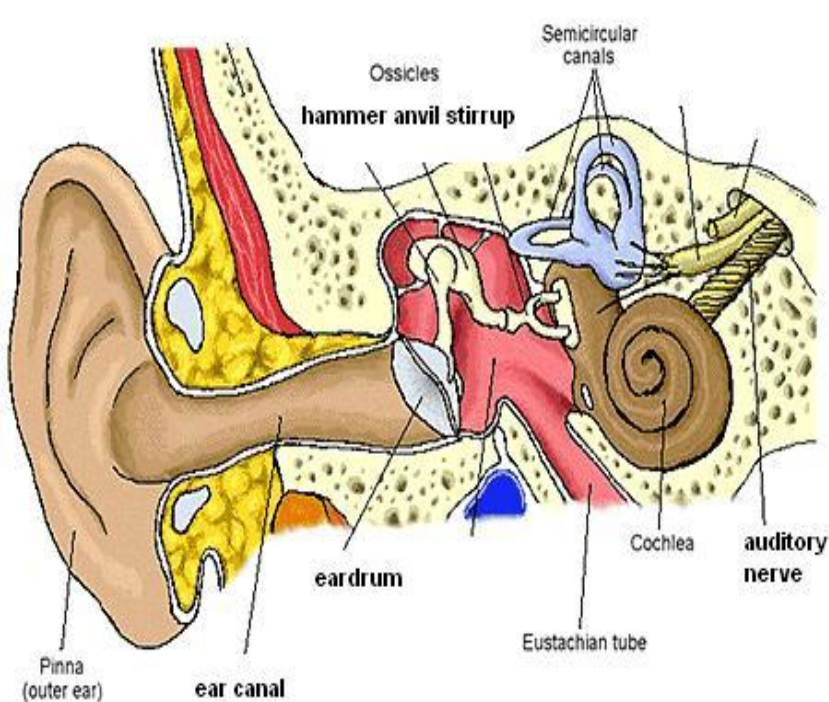
Eustachian tube

- It is located between pharynx and the middle ear
- It equalizes pressure in the middle ear and atmosphere



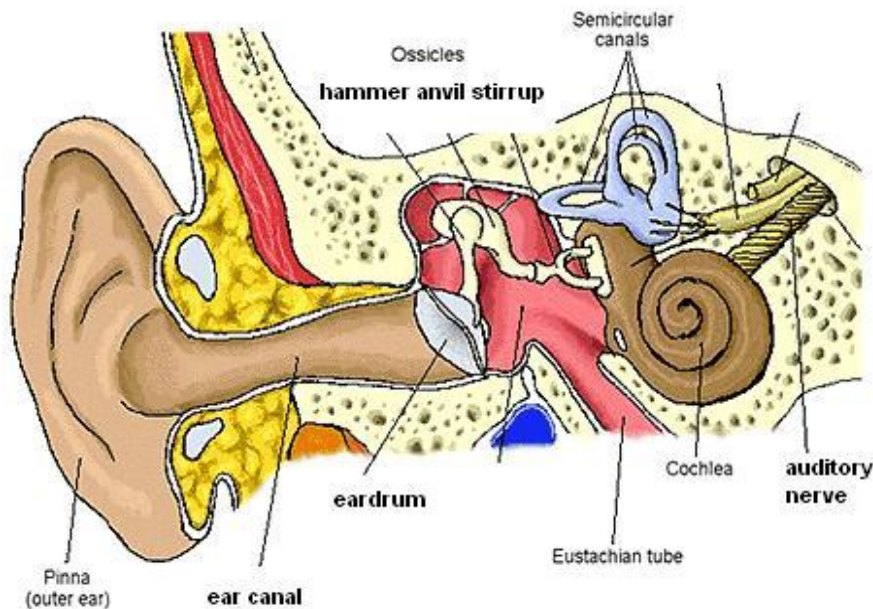
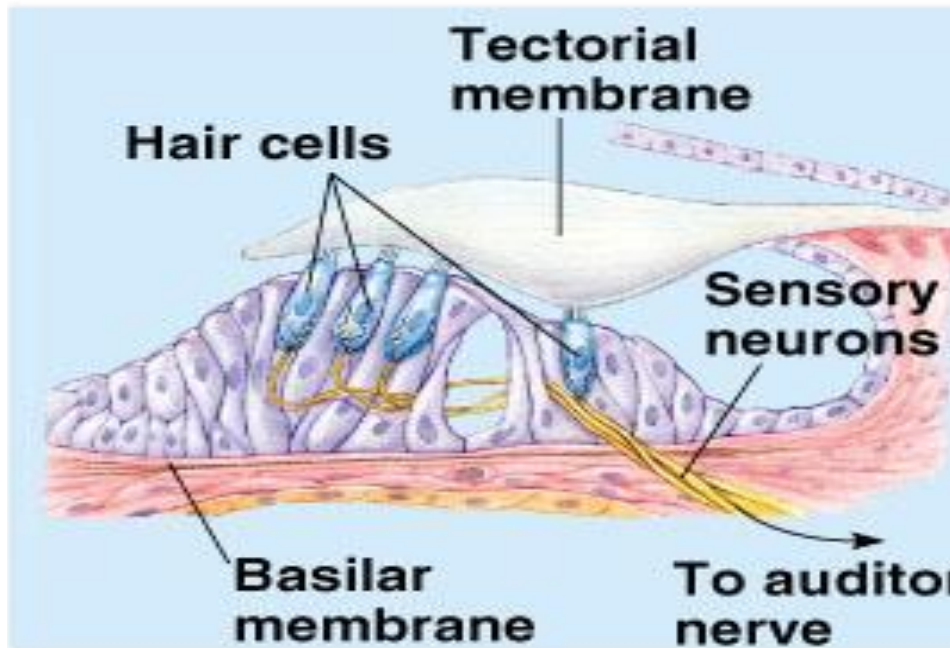
Eustachian tube

Inner ear



- The inner ear has three areas: semicircular canals, vestibule and cochlea
- The semicircular canals and the vestibule are related to **equilibrium**
- The cochlea is concerned with **hearing**

Cochlea



- The hair cells of the cochlear canal, called the organ of Corti, synapse with **cochlear (auditory)** nerve
- The ***cochlear nerve*** generates nerve impulses that go to the brain stem
- Finally to the temporal lobe of the *cerebrum*, where they are interpreted as sound

Eardrum

Ossicles

Semicircular canals

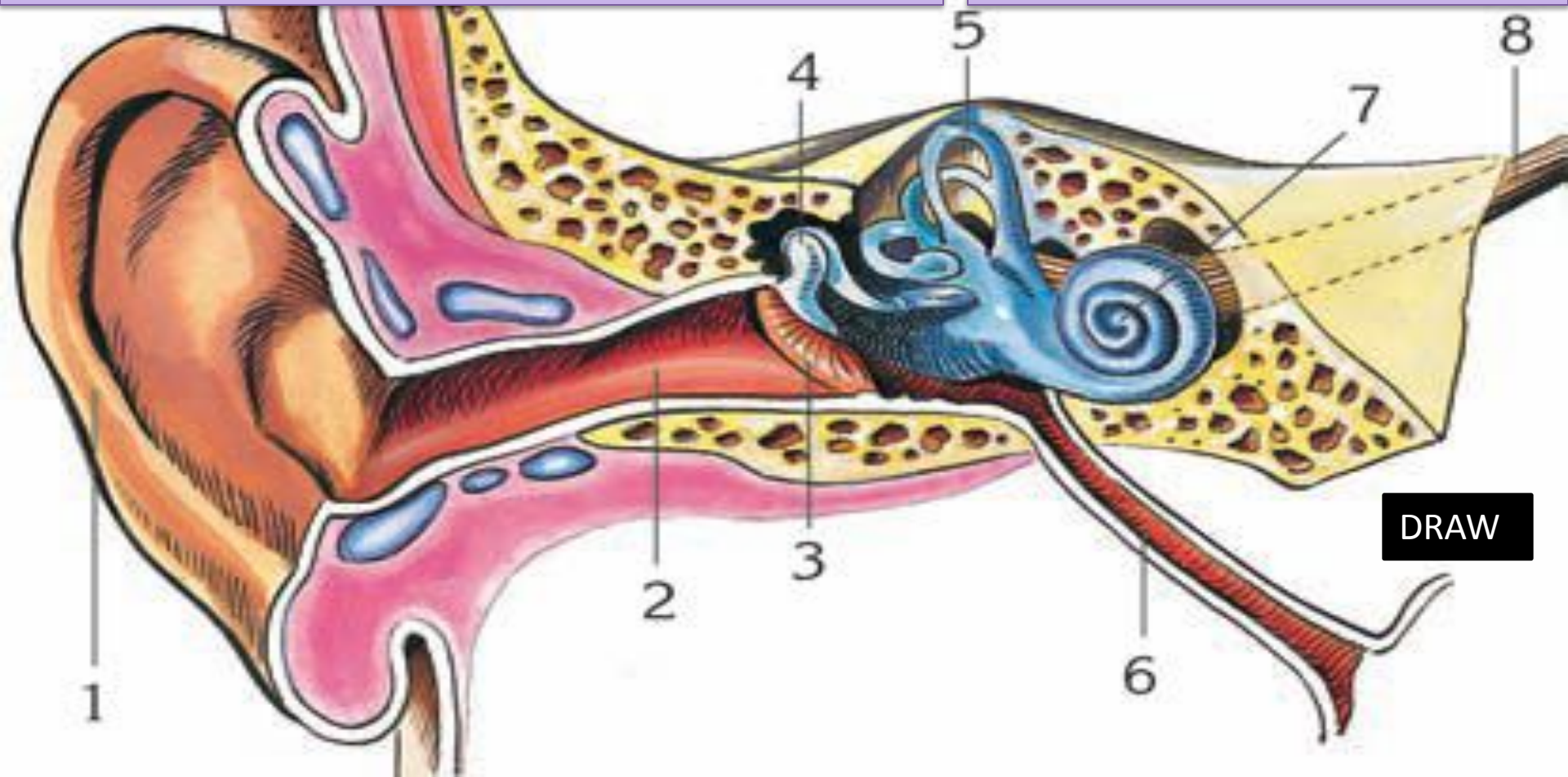
Auditory nerve (acoustic nerve)

Cochlea

Eustachian tube

Auditory canal

Pinna



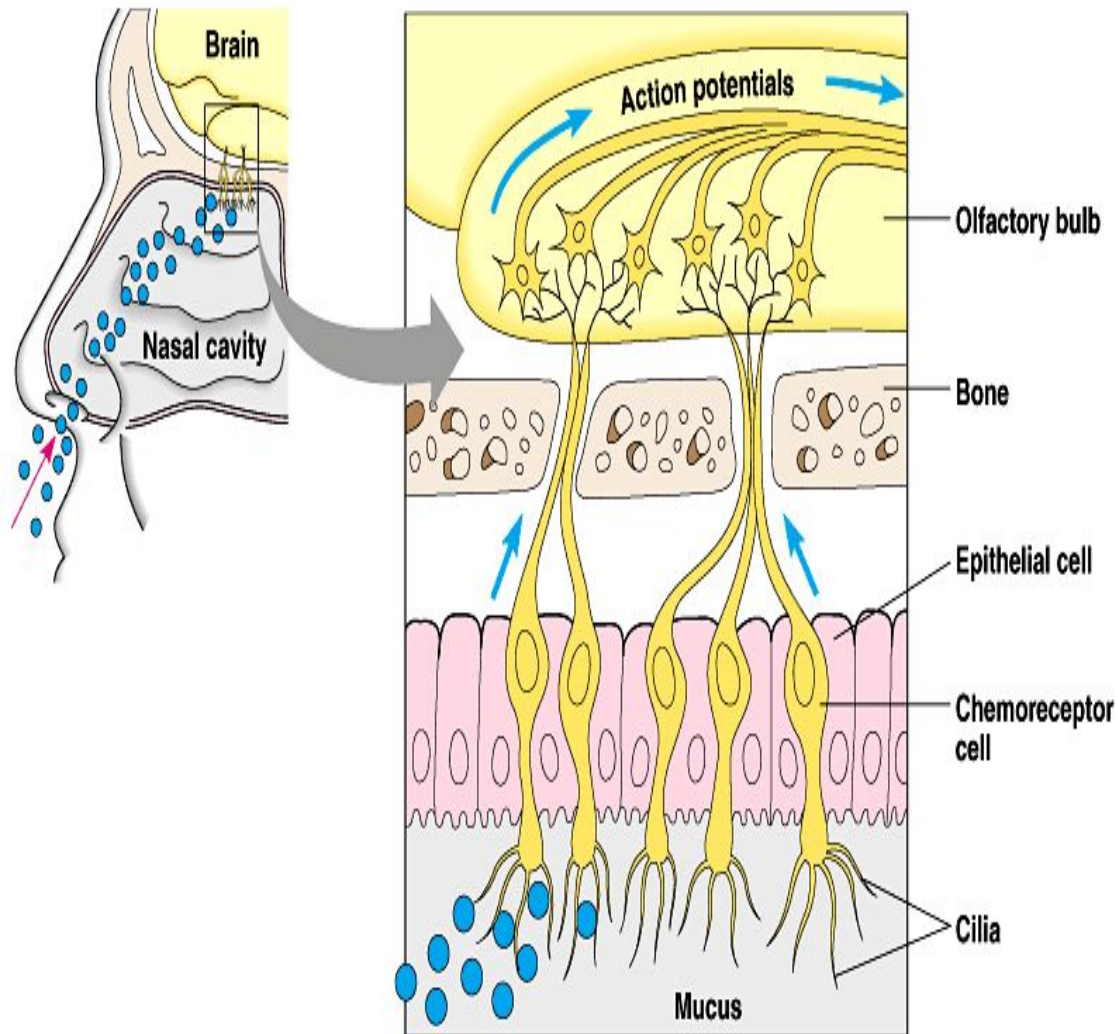
DRAW

Nose



- Nose is the organ of the body involved in both respiration and smell
- The reception of smell takes place in chemoreceptors located in nasal cavity

Nose



- Area of chemoreceptors in the nasal cavity is known as the **olfactory region**
- This region has olfactory nerves
- The message of smell is carried to the brain by the **olfactory nerves**

