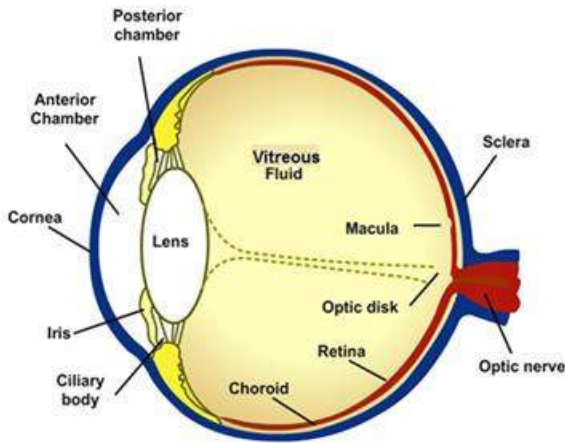


ICSE CLASS 8 BIOLOGY  
NERVOUS SYSTEM AND SENSE ORGANS

**EYE**

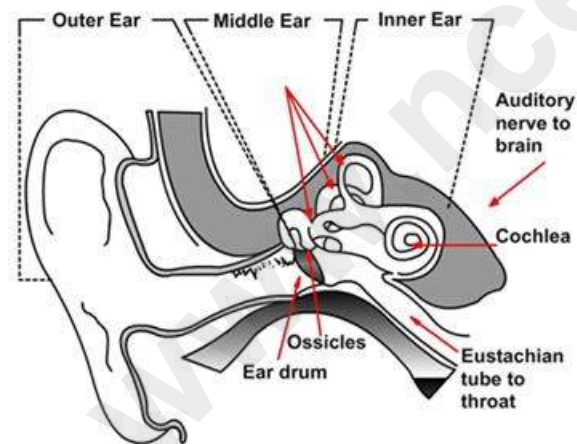


Light rays from object fall on cornea → pass through pupil and lens → converge and focus on retina → image is formed → image converted to impulses → impulses carried by optic nerve to brain → brain interprets impulses and forms a clear, three dimensional image.

Humans have **binocular vision**

- Foods rich in Vitamin A include carrots, papaya and pumpkins must be eaten every day because Vitamin A is essential for healthy eyes
- See a doctor in case of an infection or if something is lodged in the eye. Never blow directly into the eye
- Never look directly at the sun (especially during eclipse) or at a welding flame. This may damage the eye

**EAR**



Ear has three functions

- a) As organ of hearing
- b) As organ for balance
- c) Maintaining equilibrium

- The eardrum may be damaged if
  - Poked with a sharp instrument.
  - Exposed to loud sounds
  - We blow our nose too hard
  - We remove earwax with a pencil, key etc.
  - In extreme cases, damage may lead to loss of hearing so we should avoid all the above activities
- We must see a doctor if there is any infection in the ear

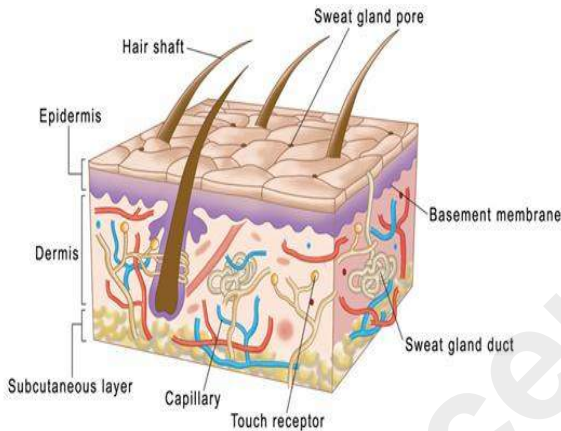
**Tongue**

- We must keep the tongue clean at all times to avoid bacterial infection
- We must see a doctor if there are blisters on the tongue



Taste buds (groups of sensory cells) → sensory hair → food dissolved in saliva → brain receives and interprets sensation

### Skin



Sensory receptors → sensory neurons → brain

- The skin is prone to bacterial and fungal infections. We must keep it clean and consult a doctor in case of any blister or sore.
- Insect bites and stings should not be neglected.
- Since the skin is sensitive to UV rays, we must try to use a sunscreen when going out in the hot sun

| Voluntary actions  | Reflex actions  |
|--|---|
| Under the control of free will and thought   | Not under control of free will  |
| Initiated and controlled by cerebral cortex of brain   | Initiated and controlled by spinal cord   |
| Stimulus → sensory receptors → sensory neurons → spinal nerves → brain → motor impulse → motor nerves → glands/nerves → effect | Stimulus → receptor organ → sensory neuron → spinal cord → effector neuron → response by muscle |
| Learned actions  | Instinctive actions   |
| Riding a bicycle, reading, swimming  | Scratching, sneezing, pulling hand away from hot object, salivation on seeing food              |
| More neurons involved, so takes longer than reflex action  | Occurs instantaneously  |