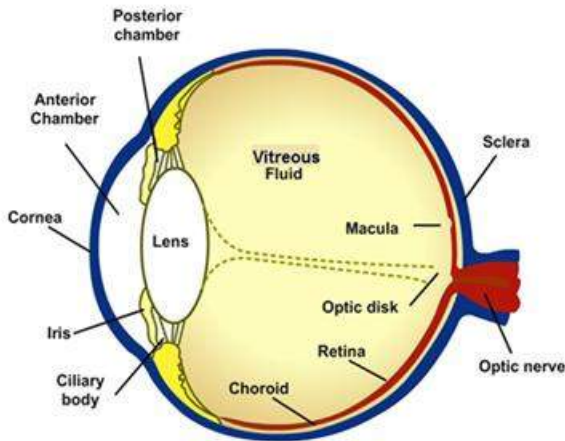


ICSE CLASS 8 BIOLOGY

NERVOUS SYSTEM AND SENSE ORGANS

EYE

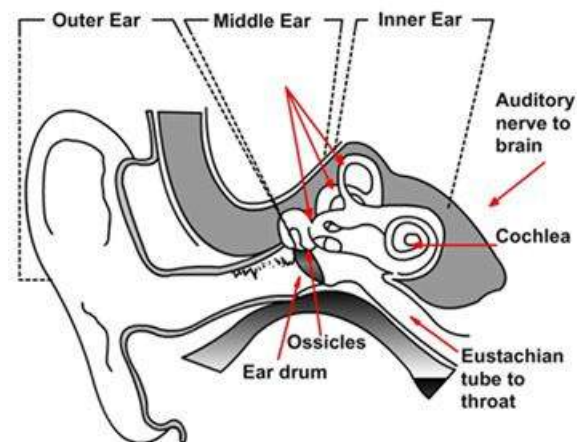


Light rays from object fall on cornea → pass through pupil and lens → converge and focus on retina → image is formed → image converted to impulses → impulses carried by optic nerve to brain → brain interprets impulses and forms a clear, three dimensional image.

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

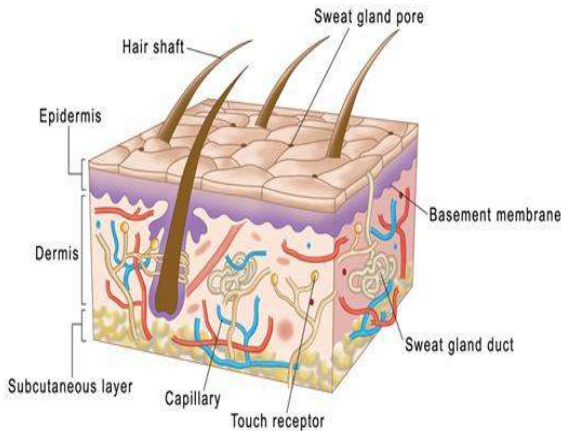
Tongue

- 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