THE SENSES

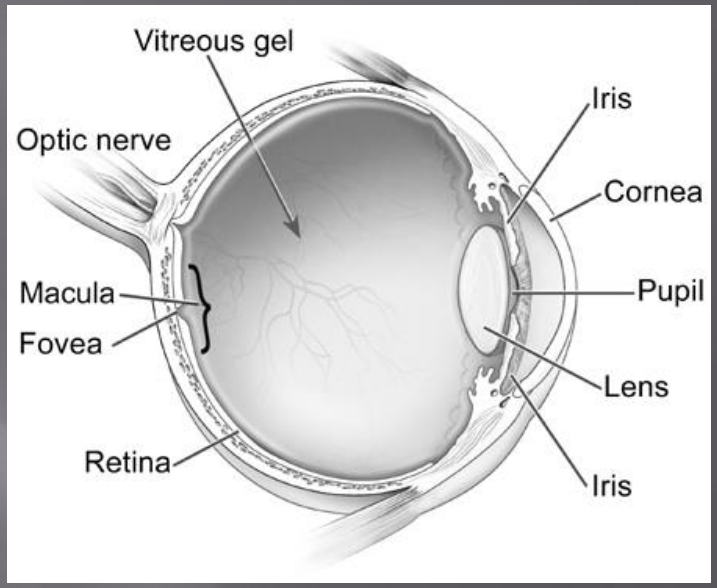
Objectives:

Section 3: The Senses

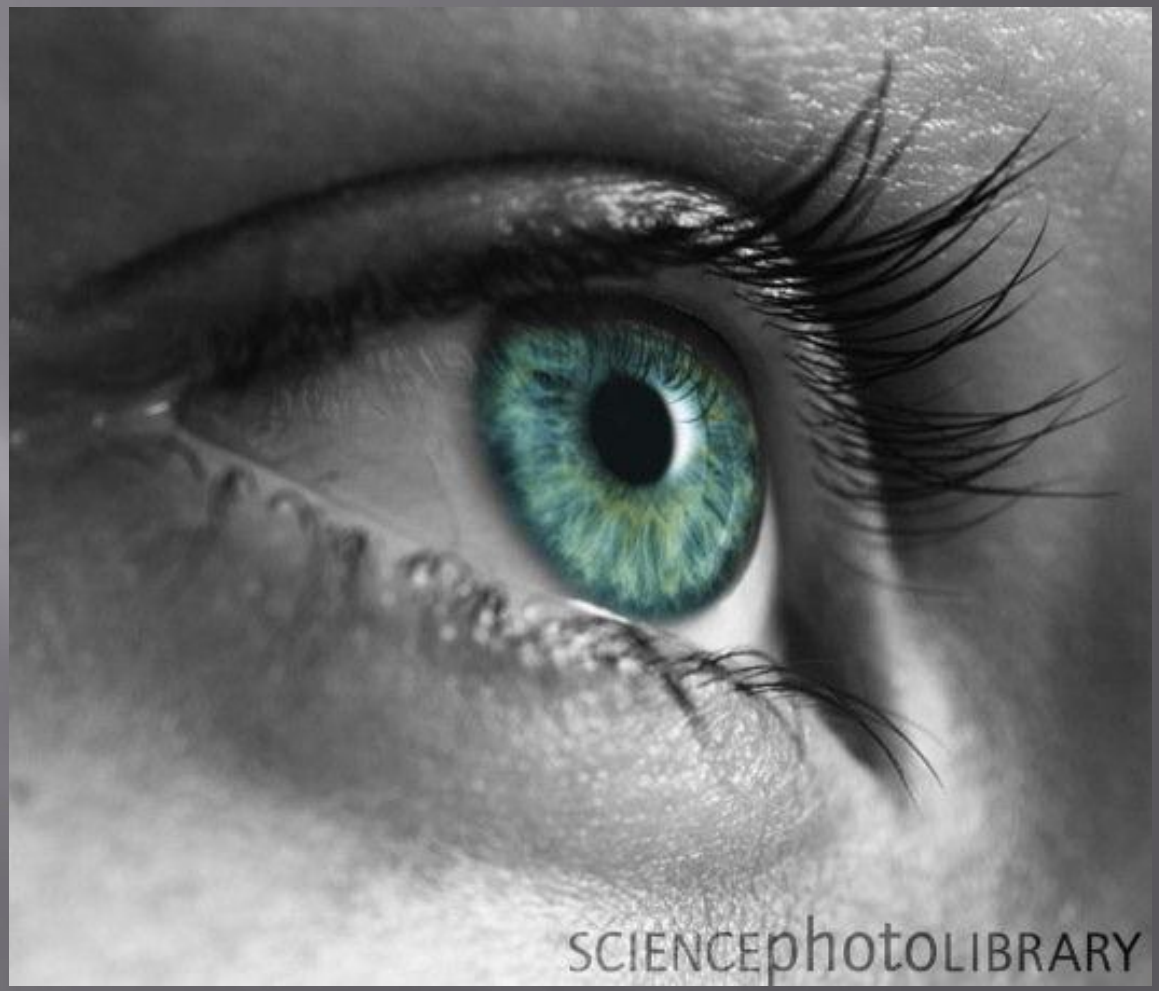
- Describe how your eyes enable you to see
- Locate and describe the functions of each of the following parts of the eye: sclera, cornea, aqueous humor, iris, pupil, lens, ciliary muscle, vitreous humor, retina, fovea, blind spot, choroids, optic nerve
- Differentiate between nearsightedness and farsightedness
- Describe how you hear and maintain your sense of balance
- Locate and describe the functions of each of the following parts of the ear: auditory canal, eardrum, semicircular canals, cochlea, auditory nerve.
- Describe how your sense of smell and taste work together
- Describe how your skin is related to the sense of touch

Helpful Links

- Kids' Health: Eyes
- Kids' Health: Ears



Eye Parts

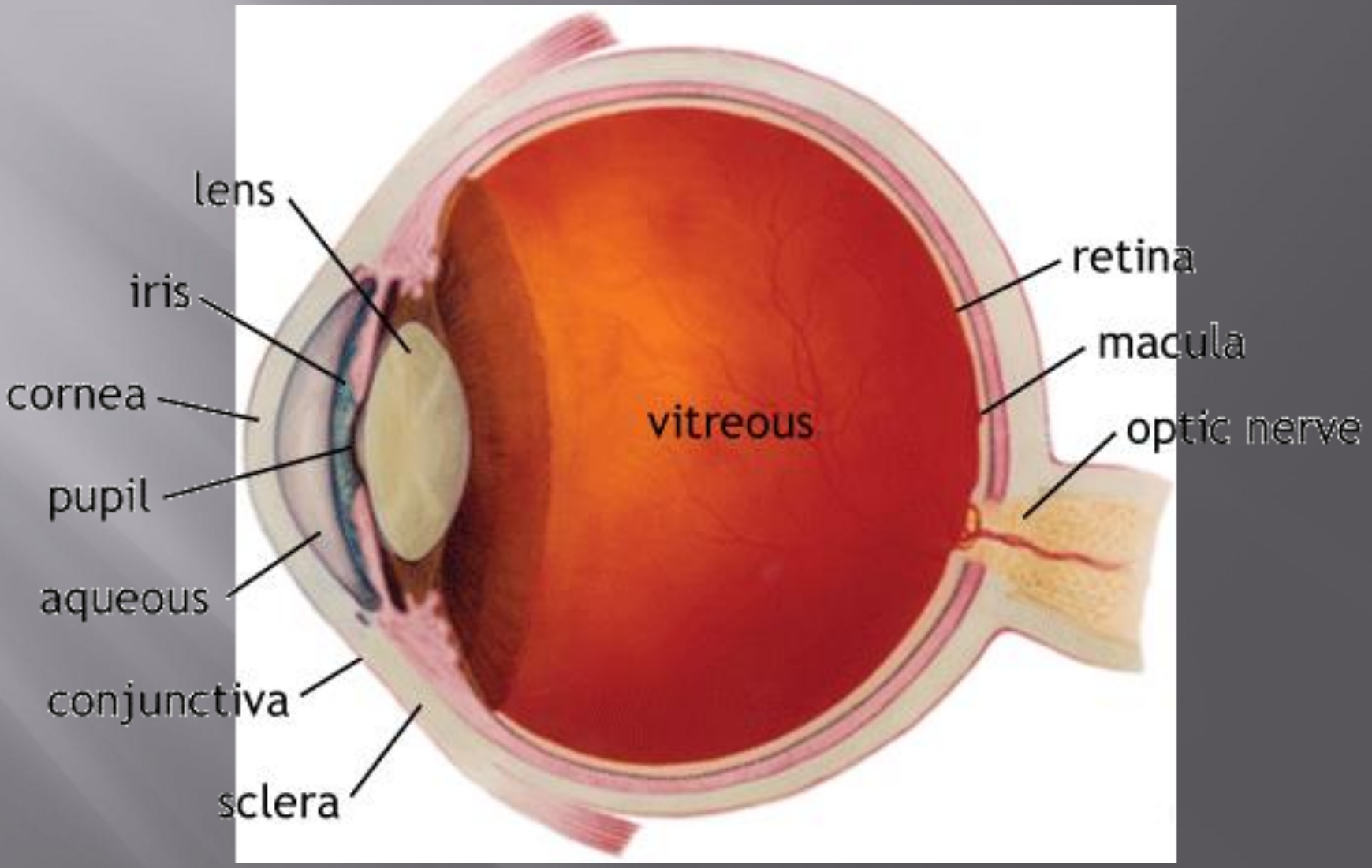


1. **Optic Nerve** – sensory nerve sends impulses to cerebrum
2. **Blind spot** - retina attaches to nerve; **no** vision
3. **Fovea** – sharpest vision
4. **Retina** - receptor; changes light to impulses

Eye Parts (cont.)

5. Aqueous humor - shapes cornea
6. Pupil - allows light to enter (hole in center of eye)
7. Cornea - bends light into pupil
8. Lens - focuses light onto retina
9. Iris - controls amount of light (color part of eye)
10. Ciliary muscles - pull lens for focusing
11. Vitreous humor – jelly-like liquid gives eye shape and holds retina in place
12. Sclera - protective covering (white of the eye)
13. Choroid - blood vessels

Eye Diagram


lens
iris
cornea
pupil
aqueous
conjunctiva
sclera
vitreous
retina
macula
optic nerve

Find your blind spot! Using the diagram below, fixate on the cross, close your right eye and hold the figure about 1.5 feet from your face. When the filled circle disappears, its image is on your blind spot. Fixate on the lower cross. Note how the line appears continuous.

Computer scanned images of the eye

The iris is as individual as a finger print and even more detailed!

Define Melanin -

Vision Problems

Nearsightedness

- Trouble seeing objects far away
- Concave lens for correction

http://www.flickr.com/photos/leenda_k/2990685689/

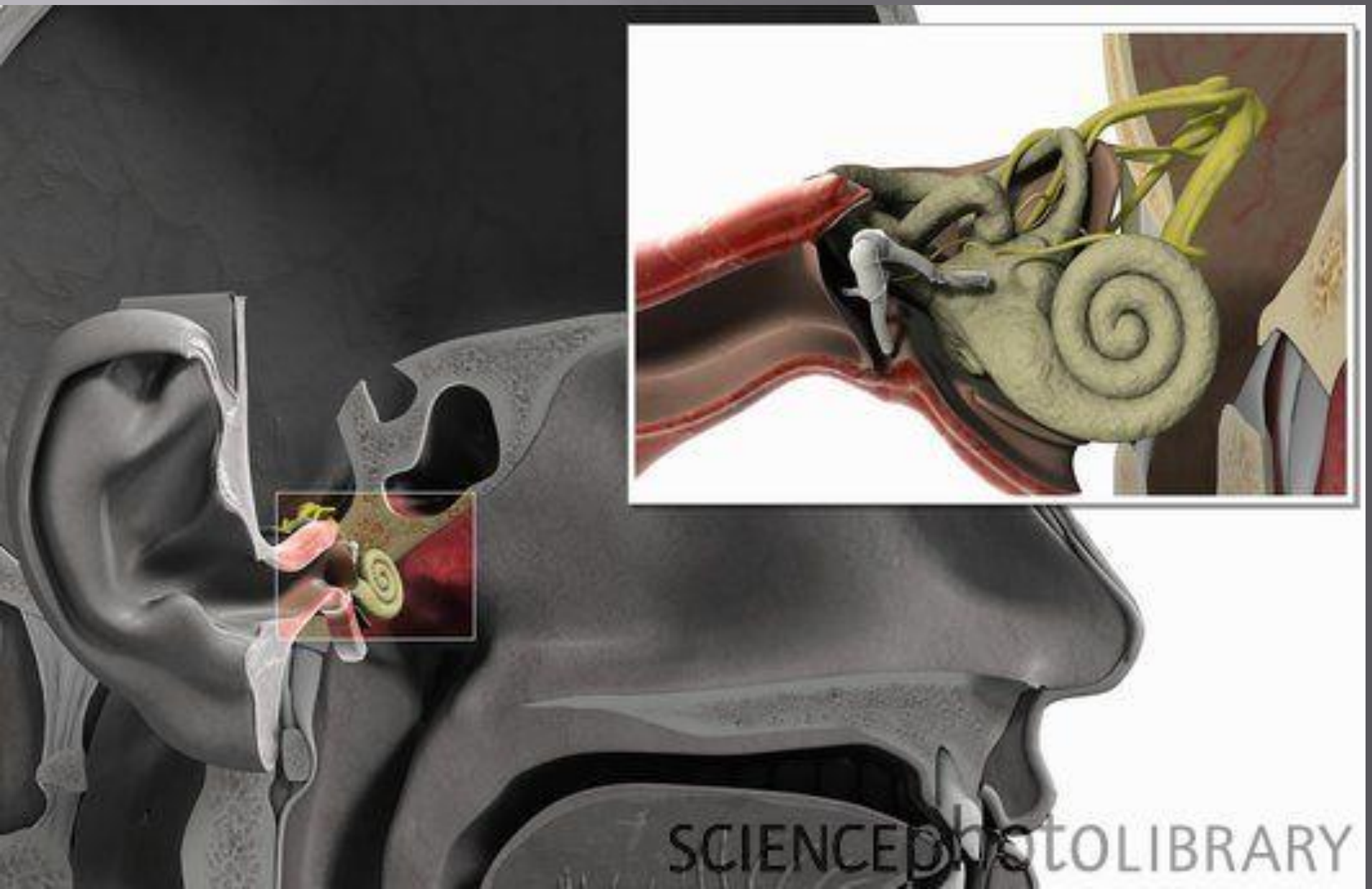
Farsightedness

- Trouble seeing objects close up
- Convex lens for correction

Hearing

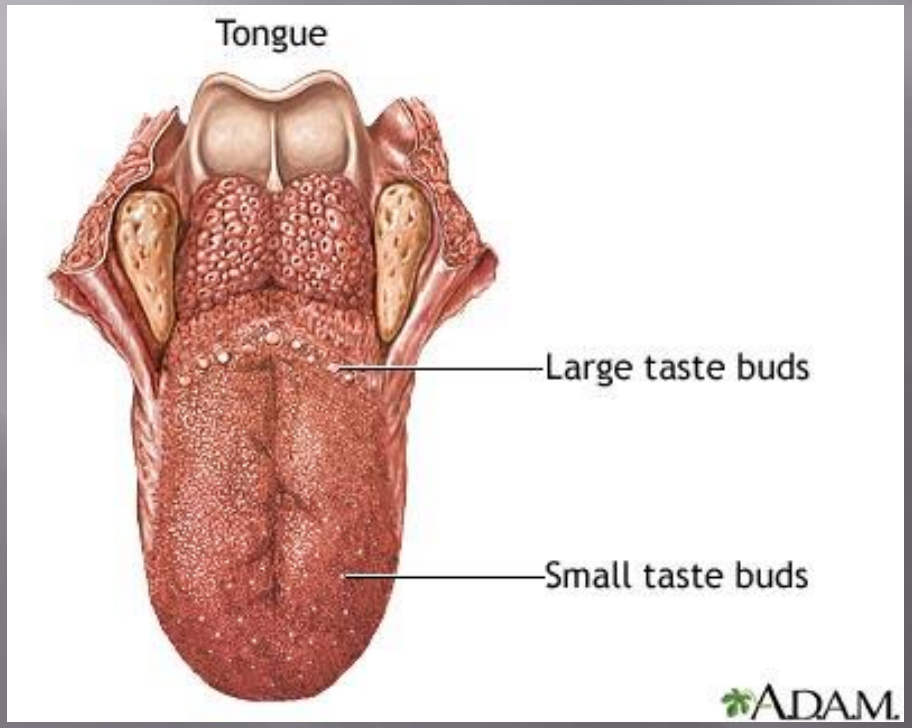
- Outer Ear
  - Funnel-shaped to collect sound
- Middle Ear
  - Eardrum – Membrane that vibrates it when sound hits it
  - Hammer, Anvil & Stirrup- receive vibrations to pass them on into inner ear
- Inner Ear
  - Cochlea - transfers impulses to brain through the auditory nerve.
  - Semicircular canals – responsible for sense of balance.
  - Ear Infection slide show

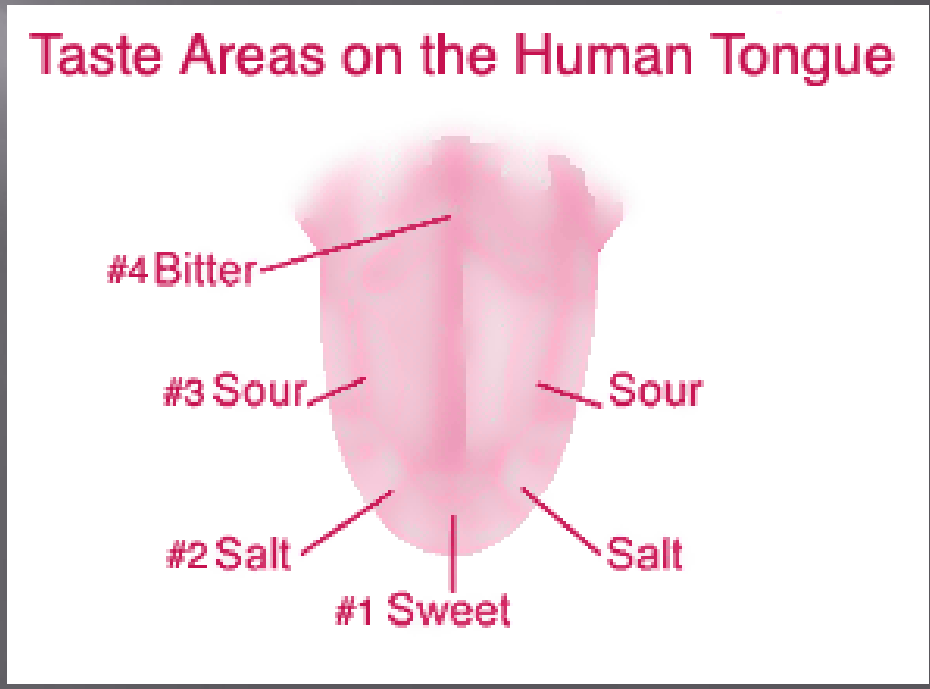
Can you label the Outer and Inner Ear?



Taste

- Taste buds located in mouth on tongue
- The four types: Sweet, salty, sour, bitter
- Fifth basic type: Umami “brothy and meaty flavors”

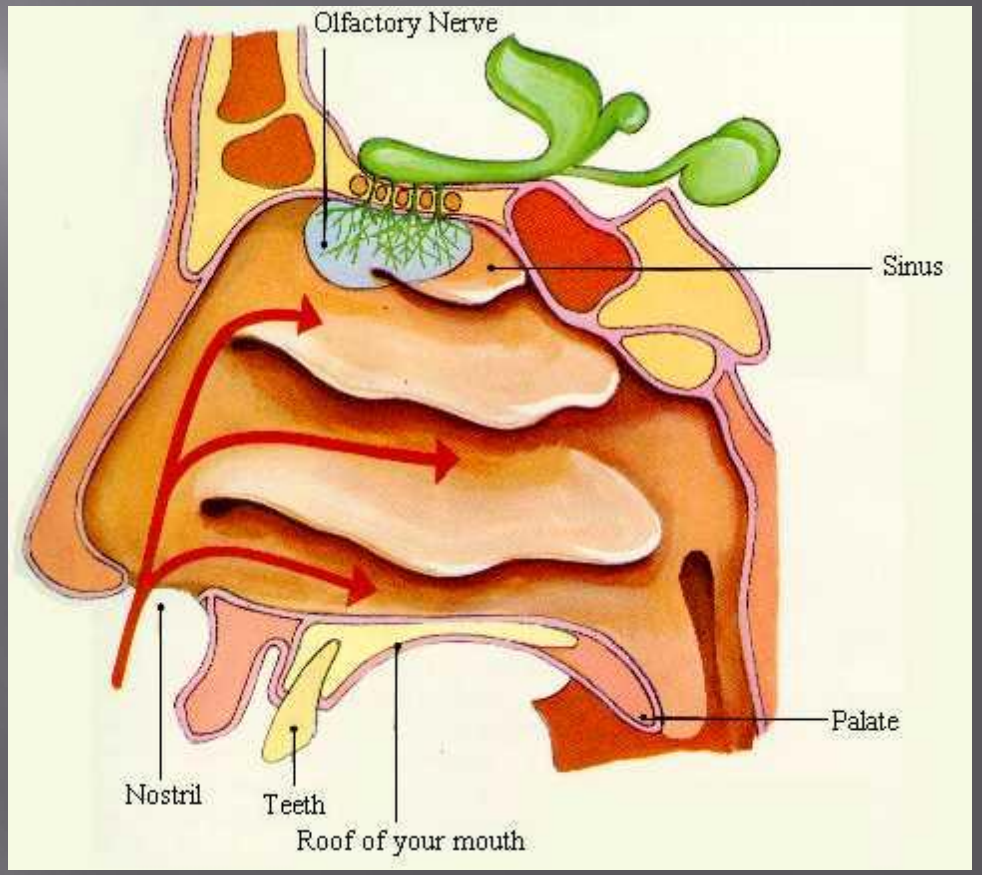




Smell

Info. sent to the brain via the olfactory nerve.

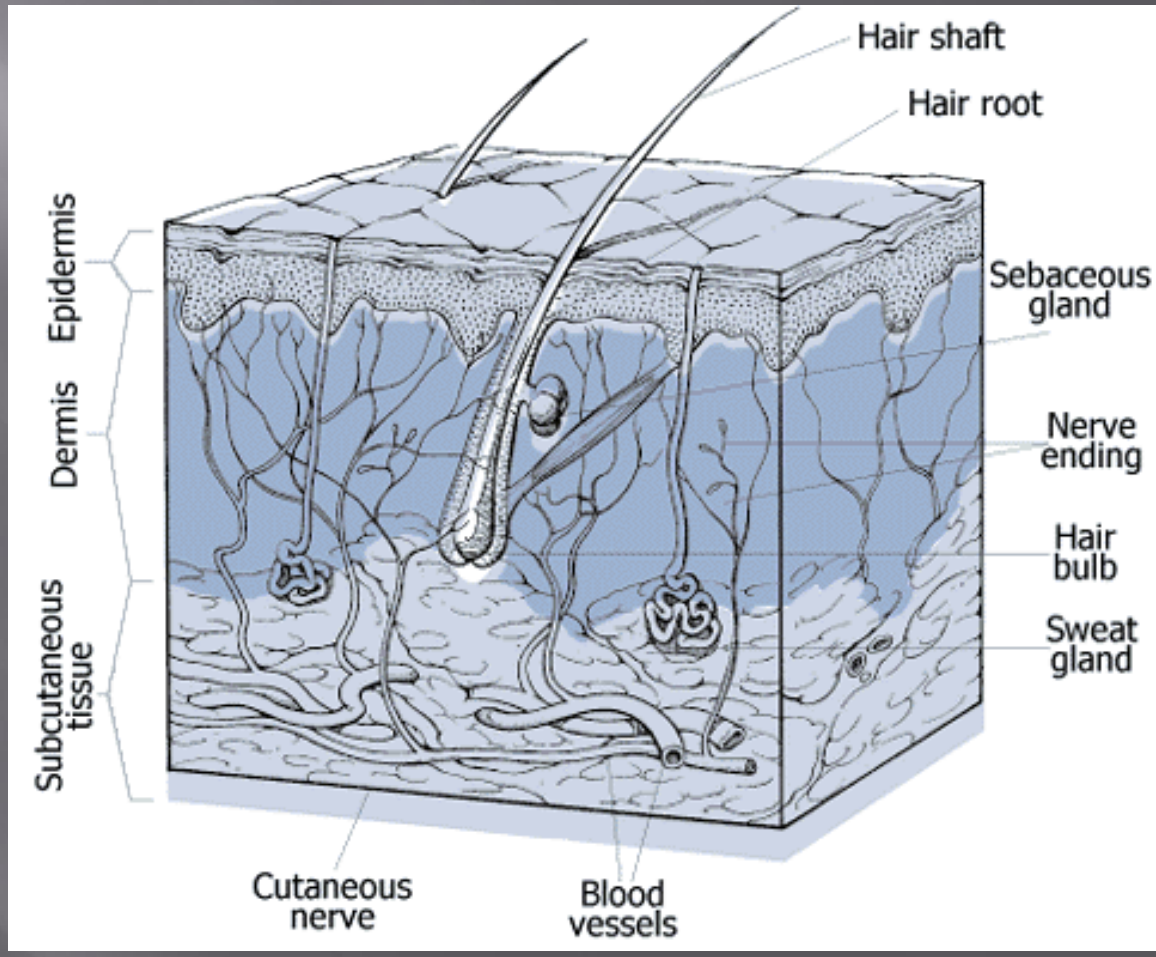
Smells and taste are connected!



Touch

Dermis

contain receptors for texture, pressure, heat, cold, pain



Example of Senses Neural Pathway

- Pathway is unidirectional
- Receptor cells → sensory neuron → interneuron (for interpretation)→ Motor neuron→ effector (muscle or gland)