Sensory System
Sensory System

- **Sensory system**
  - vision
  - hearing
  - smell
  - taste
  - touch

- Receives stimuli and sends impulses to the brain to be interpreted.

- Recognizes changes in the environment
Vision and the Eye

Eye carries information to the brain where it is translated into vision, or sight.

Vision is considered to be the most important sense.
Layers of the Eye

- **Sclera**: outer eye
- **Choroid coat**: middle eye
- **Retina**: inner eye
Other Parts of the Eye

- Iris
- Pupil
- Lens
- Aqueous humor
- Vitreous humor
Pathway of light
Pathway of Light through the Eye

In order:

- Cornea
- Aqueous humor
- Pupil
- Lens
- Vitreous humor
Protection of the Eye

Partly enclosed in a bony socket in the skull.

Lacrimal glands

Eyelids and eyelashes help keep out foreign materials.

Conjunctiva
Hearing and the Ear

Controls hearing and sense of balance

Ear carries sound waves to the brain

Three main sections:
- Outer ear
- Middle ear
- Inner ear
Outer Ear

Pinna
Auditory canal
Tympanic membrane

Outer Ear
Pinna
Auditory canal
Tympanic membrane

Pinna
Auditory canal
Tympanic membrane
Middle Ear

- Small chamber in the temporal bone
- Ossicles
- Eustachian tube
Inner Ear

- Cochlea
- Semicircular canals
Cochlear implants

- For people who are profoundly deaf
- A microphone is worn on the outside of the head that attaches to an implanted transmitter.
- The device bypasses the middle ear and sends nerve impulses directly to the brain
Sense of Smell

- The nose is the organ that controls smell.
- **Olfactory receptors**
- **Cilia**
- The sense of smell is closely related to the sense of taste.
The receptors in the taste buds send a signal to the brain to detect the flavor of the food.

The four basic tastes:
- Sweet
- Salty
- Sour
- Bitter
The Taste of Irony

When you take that first sip of your hot cocoa you scorch your taste buds (don’t worry, they will grow back) but the tast buds on the tip of your tongue taste sweet..... So your cocoa would have tasted better....if you blew on it first.
General Senses

- **General senses:**
  - Touch
  - Temperature
  - Pressure
  - Pain

- General sense receptors are located throughout the body in the skin and connective tissue.

- Each receptor perceives only one type of feeling.
Sensory Areas of the Brain
Diseases and Disorders of the Sensory System

- Conjunctivitis
- Cataract
- Hearing Loss
- Otitis Media
Conjunctivitis

- **Conjunctivitis** is also called “pink eye.” It is an inflammation of the eyelid caused by a bacteria or virus, and it is extremely infectious.
- Symptoms include reddening of the eyelids and sclera. In addition, pus may form and lead to the closing of the eye.
- Treatment involves antibiotics. Warm compresses
**Cataract**

- **Cataract** is a condition where the lens of the eye gradually becomes cloudy, which causes blurred or partial vision.
- The cause is not known.
- If left untreated, cataracts may lead to blindness. Treatment involves surgical replacement of the lens.
Hearing Loss

- **Conductive hearing loss**
  - occurs when sound waves are not carried to the inner ear. It is caused by a ruptured tympanic membrane or blockage in the ear, such as from wax, a foreign body, or an infection. Treatment involves removing the cause.

- **Sensory hearing loss**
  - occurs when the inner ear or auditory nerve is damaged. Usually this type of hearing loss cannot be corrected.

- **Normal tympanic membrane**
Otitis Media

• **Otitis media** is an infection of the middle ear caused by a bacteria or virus. It is common in young children and often follows a sore throat.

• Symptoms include pressure or pain in the ear and fever.

• If left untreated, otitis media may lead to hearing loss. Treatment involves antibiotics and possibly inserting tubes to relieve the pressure and fluid in the ear.