Sensory Physiology

**Stereognosis**
- Place the eye patch over your eyes
- Put out your right hand
- Can you identify the object?

Q: What characteristics of the object set it apart from others to help you distinguish it?

Q: Do you need to have previous knowledge of the object in order to identify?

**Temperature**
- Place one index finger in warm water
- Place other index finger in cool water
- Then, simultaneously place in room-temperature water

Q: What does the normal-temperature water feel in both fingers?

Q: What accounts for the difference?

**Point Discrimination**
- Place the eye patch over your eyes
- Put out your right hand
- Guess if one or two distinct pins are touching you

Q: Why is it different in your palm compared to your back?

**Pressure**
- Place the eye patch over your eyes
- Can you differentiate between soft and sharp touch?

Q: What enables you to distinguish this?

Q: Do you need to have previous knowledge of the object in order to identify?

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Touch is part of sensory system along with taste, smell, vision, and hearing.
When an object touches the skin, different receptors on cells are activated.
- Receptors (See picture on left)
  - Chemoreceptors - sense chemicals
  - Nociceptor - sense pain
  - Thermoreceptors - sense temperature (hot/cold)
  - Mechanoreceptor - sense pressure & movement
These receptors then send an electrical signal to the brain.
The brain understands the signal by relating it to similar past experiences.
If you wanted to take an action, the brain then sends out another electrical signal to the muscles to execute an action.

What is a Homunculus?
- Homunculus is a map of our body that is represented in the brain.
- This is a guide that helps the brain understand where the signal is coming from.
- For example:
  - If you touch an ice cube with your lips. The thermoreceptors on the lips send a cold signal to the brain.
  - That signal goes exactly to the “Lip” section of the sensory map in the brain.
  - Therefore, the brain knows that the ice touched your lips instead of another part of your body.
- Note: There are two homunculi: motor and sensory. The motor controls which part of your body you can move.