

# 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

## 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?

## 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?



## Pressure

- Place the eye patch over your eyes
- Can you feel the pressure placed on your fingers?

Q: Why is it important to feel pressure?

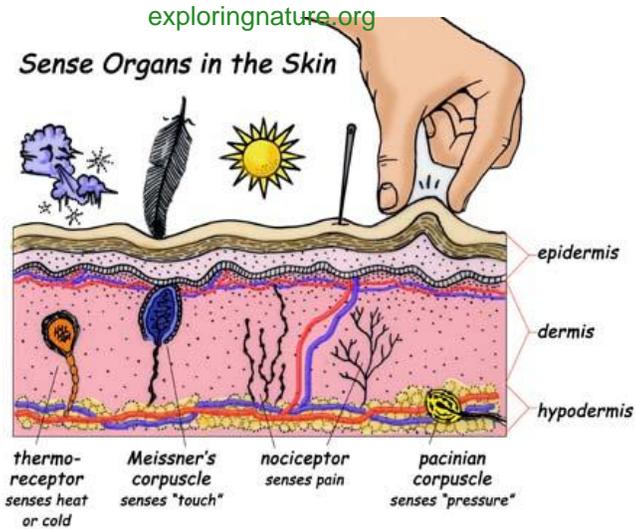
## Crude Touch

- 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

# Sensory Physiology



- ❖ 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.

