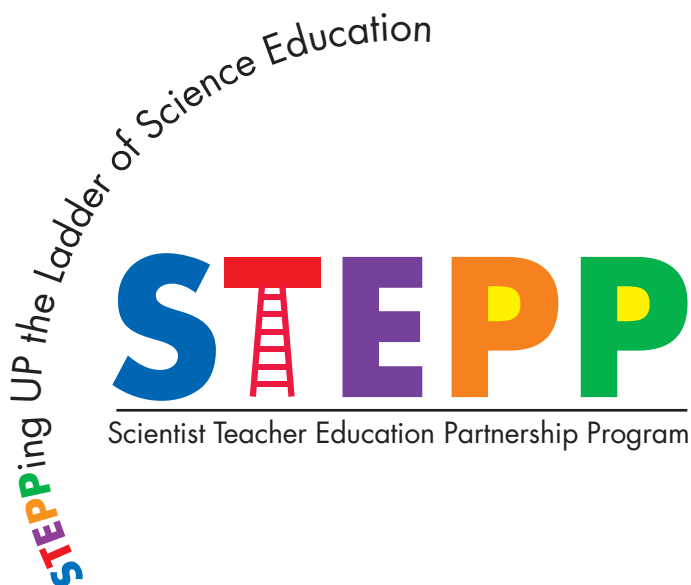


Function Beginner



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Sense Receptors: Sending Signals to the Brain

Lesson Two

In a Nutshell

This lesson explains that each of our senses are made up of many parts. These parts are called receptors. Each receptor plays a different role in receiving information from the environment. Once the environment triggers a sense receptor, our brain receives and interprets the information and our senses respond in a particular way.

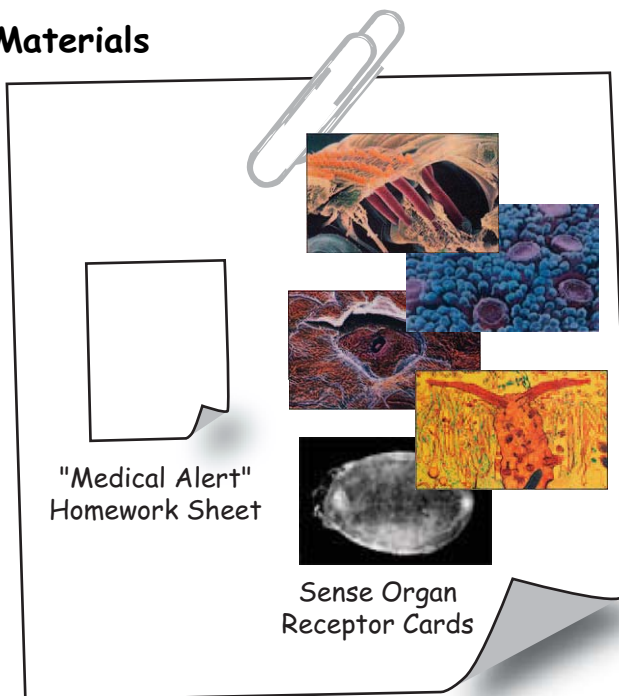
Objectives

Students will understand that it is our environment that triggers our senses to become active. Students will understand, by visual examples, that each of our senses is made up of many parts called receptors. Each receptor plays a different role in receiving information from the environment.

Students will understand that when the environment triggers our senses, the particular receptors must communicate with the brain to respond and react.

Students will understand that if a sense organ, sense receptor or the brain is not working correctly, the ability for the senses and brain to communicate is not possible and our senses will not be able to respond.

Materials



Review Vocabulary

Sense Organ - The nose, eyes, ears, tongue, and skin are sense organs.

Vocabulary

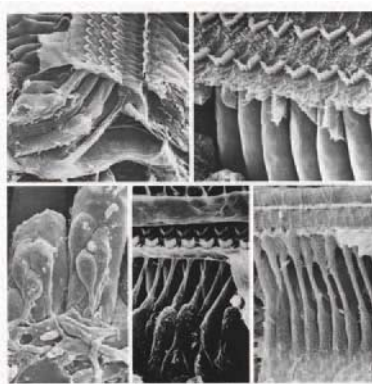
Sense Receptors - Parts of our nose, eyes, ears, tongue and skin are made up of tiny sense receptors. These sense receptors receive information from the environment, translate this information into messages that the brain can understand, and then pass these messages to the brain.

Lesson One Follow-up

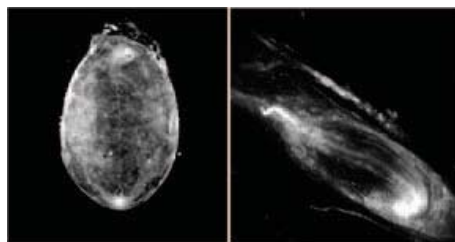
- A. Have students take out their lesson one homework: "Using Our Senses Together: Apple or Potato" and allow time for students to share their findings.

Procedure

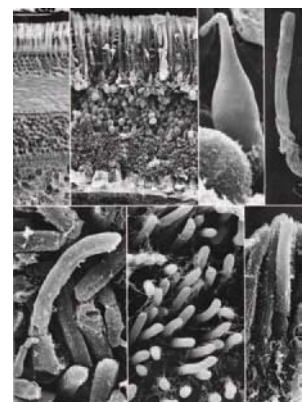
1. Explain to students that all of our sense organs are made up of many parts. Some of these "parts" are called RECEPTORS.
2. Explain that in order for our senses to respond, sense receptors must first receive a message from the environment and then rush that message to the brain.
3. Tell the class that once the brain receives the message (sent from the receptor) it decides how our body (sense organs) should respond or react.
4. Ask the class what they think sense receptors might look like. Are they small or large? Do they look like the sense organ they are part of? Allow students to discuss their guesses.
5. Explain to students that sense receptors look different in each sense organ and that there are many different types of receptors within each sense organ. Each of the different receptors has a different job in helping our sense organs to respond. All sense receptors are tiny and most cannot be seen unless using a microscope.
6. Tell the students that you will be showing them photographs of magnified sense receptors . These sense receptors are magnified hundreds of times. (These photographs are of a part of each sense organ; remember that each sense organ has many receptors and each receptor has a different job).
7. Show the black and white receptor cards and allow them to guess which organ contains the photographed part. You may wish to ask the students, "Can you guess which sense organ contains these receptors?" (You will notice that on the back of each card there is a short description of what each is and what it does.)
8. After each set of guesses, read only the BOLD information, located on the TOP-BACK of each card to the class.
9. Continue until all photographs are shown.



Ear Receptor
(Hair Cell)

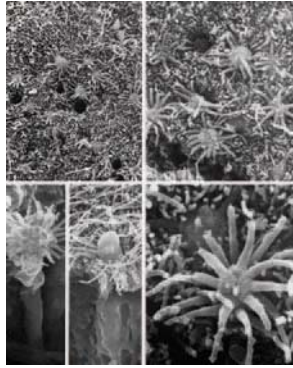


Touch Receptor

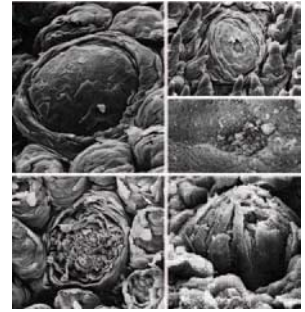


Eye Receptors

Nose Receptor
(Olfactory Receptor)



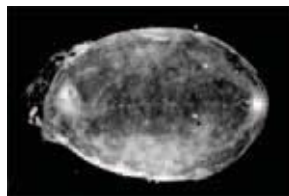
Taste Receptor
(Opening of Taste Bud)



10. Explain to the class that the sense organ, the sense receptors and the brain must all be functioning correctly for the sense organ to respond or react. Further explain that researchers are now looking for ways to help the senses and the brain when and if a receptor is not working correctly.
11. Return to the set of sense receptor pictures and go through each picture. Ask the class what they think the effect would be if the sense receptor shown was not working. Allow time for student guesses and then read the BOTTOM of each card to the class to give an example of how researcher are creating artificial sense organs and receptors.
12. Now that the students are familiar with the structures of some sense receptors, "challenge" them to use their new- found knowledge to guess the second set of sense receptors (colored set). You will notice that the same information is provided on the back of these cards as lesson reinforcement.



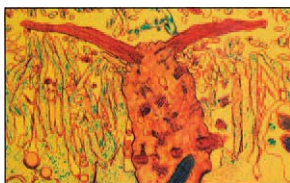
Ear Receptor
(Hair Cell)



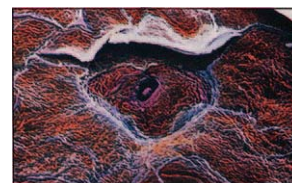
Touch Receptor



Eye Receptor
(Rods & Cones)



Nose Receptor
(Olfactory Receptor)



Taste Receptor
(Opening of Taste Bud)

Homework: Pass out "Medical Alert" homework sheet (pg.13). Review directions with students. Have students complete for homework.

Name: _____

Directions: Choose one of the five sense organs for this assignment. Pretend that the sense organ that you chose is not working (responding). Decide whether the problem is with the sense organ, the sense receptor(s), or the brain. You are a research scientist and have just discovered a way to fix this problem. **Remember our class activity.**

Sense Organ _____

What is not working? (circle answer)

ORGAN

RECEPTOR

BRAIN

Draw your choice under the correct title

MEDICAL ALERT!

Great news for people with _____
(your sense organ here)

problems! Research scientist, _____,
(your name here)

made medical history by _____
