Science Objectives

- Students will identify different types of stimuli and classify the receptors that receive the stimuli.

Vocabulary

- nervous system
- stimulus
- sensory receptor
- mechanoreceptor
- thermoreceptor
- electromagnetic receptor
- chemoreceptor
- behavior
- memory
- auditory
- olfactory

About the Lesson

- In this lesson, students will:
  - Explore and identify ten different stimuli.
  - Relate different stimuli to the sensory receptors that detect them.

TI-Nspire™ Navigator™

- Send out the *Make_SENSE_of_This_.tns* file.
- Monitor student progress using Class Capture.
- Use Live Presenter to spotlight student answers.

Activity Materials

- Compatible TI Technologies: TI- Nspire™ CX Handhelds, TI-Nspire™ Apps for iPad®, TI-Nspire™ Software

Tech Tips:

- This activity includes screen captures taken from the TI-Nspire CX handheld. It is also appropriate for use with the TI-Nspire family of products including TI-Nspire software and TI-Nspire App. Slight variations to these directions may be required if using other technologies besides the handheld.
- Watch for additional Tech Tips throughout the activity for the specific technology you are using.
- Access free tutorials at http://education.ti.com/calculators/pd/US/Online-Learning/Tutorials

Lesson Files:

Student Activity

- Make_SENSE_of_This_Student.doc
- Make_SENSE_of_This_Student.pdf

TI-Nspire document

- Make_SENSE_of_This.tns

Discussion Points and Possible Answers

Have students read the background information on the student activity sheet or on pages 1.2 - 1.4.

Move to page 1.5.

1. Students will select and drag the magnifying glass over the hot spots on the screen. They should select the hot spot to view the type of stimulus at that location. Have students record the stimulus in the data table on their Student Activity sheet.
2. Students should repeat this process until they have located ten different stimuli.

Tech Tip: To access the Directions again, select > **Make SENSE of This > Directions.**

Tech Tip: To access the Directions again, select menu or **Document Tools ( ) > Make SENSE of This > Directions.**

Have students answer question 1 - 2 on the activity sheet.

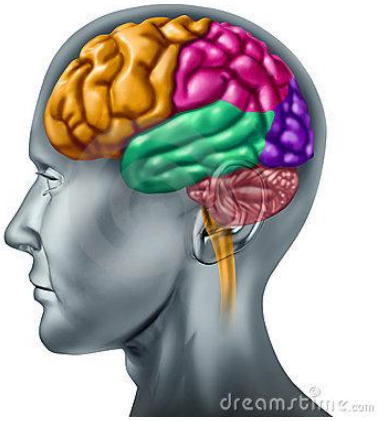
Q1. Record your data in the table below.

NUMBER	STIMULUS
1	Odor of leaves
2	Heat of the warm bench
3	Sound of the rustling leaves
4	Light from the bright day
5	Light from the colorful balloons
6	Cold of the ice cream
7	Sound of footsteps
8	Odor of the grass
9	Flavor of the ice cream
10	Pull of the floating balloon

Q2. Classify each stimulus from question one according to the type of receptor that receives it.

ELECTROMAGNETIC RECEPTOR (sight) 4. Light from a bright day (light) 5. Light from the colorful balloons (light)	MECHANORECEPTOR (touch and hearing) 10. Pull of the floating balloon (touch) 3. Sound of the rustling leaves (hearing) 7. Sound of footsteps (hearing)
THERMORECEPTOR (temperature) 2. Heat of the warm bench (temperature) 6. Cold of the ice cream (temperature)	CHEMORECEPTOR (taste, smell) 9. Flavor of the ice cream (taste) 1. Odor of leaves (smell) 8. Odor of the grass (smell)

Q3. The brain is divided into specific sensory regions. Label the auditory and olfactory regions.



Answers: A – olfactory B - auditory

TI-Nspire Navigator Opportunities

Make a student a Live Presenter to show how to use the magnifying glass to observe a hot spot. Throughout the activity, monitor student progress. At the end of the activity, collect the .tns file and save to Portfolio.

Wrap Up

- Discuss the importance of the specific organization of the nervous system's sense receptors.
- Discuss how different receptors are located in different regions of the body and are specific for which sense they detect.

Assessment

- Engage your kinesthetic learners by having the students act out the different stimulus-response behaviors.