Nerves

EXPLORATION

Teacher Guide

Overview

Students will understand that the brain coordinates our responses to sensory information through the nervous system. They will perform an activity based on visual and sound stimuli to record their reaction time.

Student Learning Objectives

- Explain how the nervous system is responsible for responding to stimuli.
- Specify examples of response to stimuli in day to day activities.

Student Worksheet

The student worksheet includes questions to focus the student and to check understanding, instructions for how to use the Exploration independently, and a section for recording data. Students will review questions before participating in the activity and can respond to the questions either during or after completion of the activity. The section for recording data includes a table in which to record their observations.

Exploration Procedure

Explain that the purpose of this Exploration is to learn how the nervous system allows the brain to receive information from outside. Follow either of the procedures below.

Student Performs Exploration

1. Tell students how much time they will have to complete the Exploration and the student worksheet.
2. Explain how students should proceed:
   - Read the questions before starting the Exploration.
   - Follow the instructions on the worksheet to perform the Exploration.
   - Record their observations.
   - Respond to the questions in writing.
3. Explain that you will be available to help any students who need assistance.
4. Address any questions that the students might have.
5. Tell students to begin the Exploration.
6. When time is up, ask students to share their results.
7. Talk about the Discussion Questions.

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Teacher Performs Exploration

1. Display the questions from the student worksheet and ask students to tell you what they think they will learn from the Exploration based on its questions. Highlight key words.
2. Read the Introduction and click the **Continue** button.
3. Watch the animation to understand how the test works.
4. Read the instruction text and ask the students to follow instructions.
5. Select the type of stimulus.
6. Click the **Go** button to start the test and wait for the sound or image to arrive.
7. Click on the **Record** button to record the time of reaction to the sound or image.
8. Read the outcome explanations as they appear and discuss. Record the observations in the data table.
9. Click the **Reset** button to restart the exploration.
10. Discuss each of the questions with the class. Replay parts of the Exploration as necessary to illustrate the answers.
11. Talk about the Discussion Questions.

Optional: Use this Exploration as a small-group activity at a computer station. Assign it to students who need specific reinforcement of the concept.

Questions

1. How do nerves function when you see something?
   Answer: When you see something, nerves carry the impulses from the eyes to the brain.
2. What things might affect our reaction time to the sights and sounds presented in this Exploration?
   Answer: The volume of the sound can affect our reaction time. Our ability to work a computer mouse can affect our reaction time. Our level of attention to the images and sounds can affect our reaction time.

Discussion Questions

Give examples of response to stimuli in day to day activities.

Possible answers: When you touch something hot, you move your hand away from the hot object. When you hear a horn while crossing the street, you stop immediately. When you hear a loud sound, you cover your ears with hands.

What daily activities require a fast reaction time?

Possible answer: Sports, riding a bicycle, and crossing the street.

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