

Project FOCUS  
Best Lessons  
MIDDLE SCHOOL- Seventh Grade

**Title of Lesson: Introduction to the Nervous System**

**Unit Title:** Body systems

**Performance Standard(s) Covered (enter code):**

**S7L2. Students will describe the structure and function of cells, tissues, organs, and organ systems.**

**Enduring Standards (objectives of activity):**

**Habits of Mind**

**X Asks questions**

**X Works in a group**

**X Looks at how parts of things are needed**

**X Describes and compares using physical attributes**

**X Observes using senses**

**X Draws and describes observations**

**Content (key terms and topics covered):**

- Understand stimulus and response
- Understand nerve impulse
- Understand difference of Central Nervous System and Peripheral Nervous system

**Learning Activity (description in steps)**

Click here to enter text.

Copy into Bell Ringer:

- The nervous system consists of two main parts. The Central nervous system is the brain and spinal cord. The peripheral nervous system is all the other nerves in your body.
- The functional unit of the nervous system is the nerve cell. Nerve cells are made up of a cell body, dendrites, and an axon.
- A stimulus is something that elicits a response from your nervous system.

<http://www.youtube.com/watch?v=6BgfKqc3qhs>

Activity:

1. Stimulus & response

a. Smell:

- i. You're in bed and you smell bacon, you jump out of bed. Name the stimulus and the response.

ii. S: \_\_\_\_\_ R: \_\_\_\_\_

b. Hearing: (whistle)

i. Name the stimulus and the response.

ii. S: \_\_\_\_\_ R: \_\_\_\_\_

c. Touch

i. You place your hand on a hot stove. Name the stimulus and the response.

ii. S: \_\_\_\_\_ R: \_\_\_\_\_

d. Give another example of a stimulus response pair

i. .

ii. S: \_\_\_\_\_ R: \_\_\_\_\_

2. Nerve structure

a. Draw and label a nerve cell

3. Nerve impulses

a. Signals are sent from one nerve to the next. The signal starts at the location of the stimulus and goes to the CNS. The CNS determines the appropriate response and sends a signal back to the PNS with the corresponding response.

b. Nerves communicate with each other using neurotransmitters. These are chemicals that are released by the dendrites of one nerve cell and received by the cell body of the next nerve cell.

i. Stand in a circle. Starting at one position, squeeze the persons' hand next to you when you feel your hand squeezed.

1. How is this like a nerve signal?

2. What part of this models neurotransmitter release and uptake?

- ii. One person does not squeeze when their hand is squeezed.
  1. What consequence would this have in our bodies?
  2. What about if anyone can squeeze whenever they want, why would this be a problem for communication of nerves.

In conclusion:

- Our body gathers information from our surrounding and acts accordingly via our nervous system.
- Nerves communicate via chemicals called neurotransmitters
- What else did you learn? Name two things

**Materials Needed (type and quantity):** White board

Nervous system worksheet- attached [Click here to enter text.](#)

Room to stand in a circle

**Notes and Tips (general changes, alternative methods, cautions):**

Students ought to have had basic vocabulary for the nervous system prior to the lesson

It is easy to get off topic when doing stimulus and response prompts

Some students did not want to hold hands- suggest having hand sanitizer on hand and throwing in a blurb about being sanitary

**Sources/References:**

**Prentice hall Science Explorer- Human Biology and Health**