

LESSON 4 What Are The Jobs Of Your Brain? =====

Objectives

When students have completed this lesson, they will be able to:

- explain the function of each major part of the brain;
- interpret a “map” of the brain’s centers of control;
- compare the brains of a fish, a sheep, and a human.

Exploring Science / Historical Steps

Dr. Penfield’s discoveries about the localization of the brain function were mainly in the area of pinpointing sensory and motor regions, such as the centers of control for moving the fingers and for feeling sensations in the skin of the fingers. A few of his patients reported reliving past experiences, as described in the story, but the complete understanding of memory has certainly not been achieved.

The discussion around the inference question should lead students to a positive answer, based upon the connection between brain cells and memories that the story reveals.

Your Brain

Use the illustration of the brain map to have students locate the brain’s centers for each of the sense organs that they studied in Lesson 2, “How Does Your Body Receive Messages.” Have them recall that it is really the brain’s center for each sense that “hears,” “sees,” etc. and not the sense organs. Next, have students locate the brain’s center for moving. Explain that “orders” to move voluntary muscles come from the brain. Have them relate this to the role of the brain and spinal cord in moving muscles that was highlighted in Lesson 3, page 150. Finally, have students locate the centers for involuntary actions, such as breathing (which is partially voluntary, but usually involuntary) and heart contraction. You can also use the map to have students compare it to the illustration of the sheep’s brain on the previous page. Explain that the larger the cerebrum, the more intelligent the animal.

To Do Yourself

The brain for this activity can be any animal brain available. Sheep brains, about the size of your fist, are most commonly sold by biological supply companies. Encourage students to compare the brain to that of the fish, illustrated in the “To Do Yourself” section of the previous lesson (page 151).

Questions

1. Both brains have three main parts - the cerebrum, the cerebellum, and the medulla. In the human, the cerebrum is much larger than it is in the sheep.
2. The medulla connects the rest of the brain to the spinal cord.
3. Although both brains have the same three main parts, the sizes and shapes of these parts are different. In particular, the cerebrum is much bigger in the sheep than in the fish.

Review

Please note: I have not made the answers available online, on the small chance that a student might discover them. Of course, the answers to these questions will be included in the version of the Teacher’s Guide provided to teachers who purchase the text.

Reinforce / Enrich

The first 8:33 of the following video would serve as a very good introduction - or a review - of the key parts of lesson 3 and this lesson . Nearly all terminology matches well with this textbook, though (like nearly all videos on the nervous system) interneurons are mentioned (in addition to sensory and motor neurons) in the final few seconds. The narrator’s steady pace coincides well with attention-holding graphics and videos.

- [Vital Codes / The nervous system explained simply - brain, neurons and signals](#) [16:05]

The video below provides a concise reminder of brain research pertinent to teachers of adolescents.

- [TED / The mysterious workings of the adolescent brain](#); 9/17/2012 [14:26]

This very brief video describes the pace of maturation of the brain and how this impacts addiction.

- [BrainFacts.org /The workings of the adolescent brain](#) [3:14].tG