Pre-Assessment Answer Key

Instructions: Answer the following questions.

1. What are the lobes of the brain?

The brain's hemispheres have four lobes, listed below with their functions.

- a. **Parietal lobe:** The parietal lobes help interpret feeling, known as sensory information. The lobes process taste, texture and temperature.
- b. **Occipital lobe:** The occipital lobes process images from your eyes and connect them to the images stored in your memory. This allows you to recognize images.
- c. **Frontal lobe:** The frontal lobes help control thinking, planning, organizing, problem-solving, short-term memory, and movement.
- d. **Temporal lobe:** The temporal lobes help process information from your senses of smell, taste, and sound. They also play a role in memory storage.
- e. **Cerebellum:** The cerebellum is a wrinkled ball of tissue below and behind the rest of the brain. It works to combine sensory information from the eyes, ears, and muscles to help coordinate movement. The cerebellum activates when you learn to play the piano, for example.
- f. **Spinal cord:** The spinal cord carries nerve signals from the brain to help us move and feel sensations.

Mayo Clinic. *How Your Brain Controls Everything from Your Heart Rate to Your Mood.* 2 July 2024, <u>www.mayoclinic.org/diseases-conditions/epilepsy/in-depth/brain/art-20546821</u>.

- 2. What are their functions? See answer to Question 1 above.
- 3. What is a neuron? A neuron is a nerve cell.

4. What is a synapse?

A synapse is also called the neuromuscular junction. It allows one neuron to pass along a signal or impulse to another neuron at the synaptic cleft.

5. How does information from the brain get relayed to various parts of the body? Give an example. The spinal cord does this; its purpose is to send motor signals from the brain to the peripheral nerves and relay signals from sensory organs to the brain.

For example, if someone touches a hot stove, signals are immediately relayed to the brain and the person removes the hand without further damage occurring. Or if a person finds themselves falling, their hand reaches out to support themselves, which is an example of the sensory signal being relayed to the brain and back to the peripheral nerves to make this happen.

Signals from the brain help while playing the piano or playing soccer, for example.





6. How would you set about drawing a map matching areas of the brain to specific muscle actions? First, make a list of specific muscle actions, and then use what you know of the functions of brain lobes to make connections between them and specific muscle actions.

For example, the occipital lobe helps process images from the eyes, so this is the area involved in an activity such as sight reading music.

7. What is a homunculus? Give one reason it is important. The homunculus represents either the motor cortex or the somatosensory cortex along the cerebral cortex of the brain.

It is important because it shows what portion of the brain is responsible for what function.



