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| **Achievement Scale** |
| **Content Area:** Anatomy and Physiology | **Grade Level:** 11-12 |
| **Unit:** Central Nervous System; The Brain |
| **Learning Goals:** *The student will be able to:** Explain the function of the major brain structures and regions in the human brain.
* Explain the the central processing areas for muscle movement and language.
* Understand how the brain processes information from senses.
* Explain the difference in function between sensory areas and association areas.
* Understand how injury or disease can impact brain function.
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| **Score 4:** Student demonstrates in-depth inferences and applications of the learning goal(s) and can reconstruct and apply their knowledge from limited information:* Understand how all areas of the brain work together to develop a conscious awareness of the world/environment around a person.
* Explain how the impact of disease/injury in the brain affects the perception of the world/environment of a person.
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| **Score 3:** Student demonstrates no major errors or omissions regarding the learning goal(s) that were explicitly taught:* Explain the function of the major structures of the brain.
* Explain the difference in function and processing between a primary cortex for a particular sense and association areas.
* Understand the loss in function of the brain given the injury or damaged area of the brain.
* Explain the difference in function between the primary motor cortex, pre-motor cortex, and Broca’s area.
* Understand the difference between white and grey matter and the relationship between the function and location of the different types of matter. (corpus callosum/tracts of brain stem/cerebral cortex etc.)
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| **Score 2:** The student demonstrates no major errors or omissions regarding the simpler details and processes that support the learning goal(s).* Identify the major structures of the brain and match their function given a description.
* Identify the major functional areas of the cerebrum and match their function given a description.
* Locate areas of white and grey matter in the brain and explain the structural difference between them.
* Describe the function of the primary cortex, pre-motor cortex, and Broca’s area.
* Identify the correct lobe or area in the cerebrum responsible for each of the senses.
* Describe the impact of a particular disease and its impact on the brain.
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| **Score 1:** With help (being given word banks, manipulated equations, retakes), the student demonstrates a partial understanding of the simpler details and processes that support the learning goal(s). |
| **Score 0:** Even with help, no success |
| **Score 4 Example Assessment Items:**A person survived a traumatic brain injury, essentially a pipe stuck through the front part of her/his skull and brain. Predict and explain possible changes that could occur to the person due to this injury. | **Academic Vocabulary:****Cerebrum Cerebellum Brain Stem****Medulla Oblongata Pons Midbrain****Diencephalon Thalamus Hypothalamus****White matter grey matter Corpus Callosum****Amygdala Frontal lobe parietal lobe** **occipital lobe Insula Pituitary Gland****Pineal Gland****Temporal lobe longitudinal cerebral fissure****Gyrus sulcus central sulcus pre/post central gyrus****Primary motor cortex pre-motor cortex****Primary somatosensory cortex Broca’s area****Primary visual cortex auditory cortex** **Anterior association area Posterior association area****Limbic system/area Nuclei Meninges****Dura Mater Arachnoid Mater Pia Mater** **Cerebrospinal Fluid** |
| **Score 3 Example Assessment Items:**The loss of the ability to touch and determine what an object is would suggest problems with which areas.A. somatosensory area Broca’s area olfactory areaB. somatosensory area somatosensory association gustastory areaC. primary motor cortex somatosensory area somatosensory associationD. somatosensory association visceral area primary motor cortex |
| **Score 2 Example Assessment Items** Made of midbrain, pons, medulla. Responsible for breathing heart beat, blood pressure and other autonomic functions.A. cerebrum B. cerebellum C. brain stem D. diencephalonControls many autonomic functions: Endocrine functions Homeostasis Motor functions Regulates food and water intake Regulates sleep wake cycle found in diencephalonA. medulla oblongata B. cerebrum C. cerebellum D. hypothalamus |
| **District Mission:**Every student. Every day. | **District Vision:** A promise of learning, dignity, and respect for all. |