

Brain and behavior



**ASSIGN
BUSTER**

BRAIN AND BEHAVIOR Functional Specialization - In terms of brain function, what is functional specialization? Functional specialization is the function of the nervous system. Each of the neurons located within the nervous system are grouped into clusters, these clusters have a specific purpose in the body's function. Such as movements of the limbs, emotions, memory and bodily functions. - Why is the principle of complex communication important to understand? The principle of complex communication is important because it allows us to better understand how the neural network effects and influences other regions within the brain. Everything is interconnected and understanding the complex communication clarifies just how the brain controls emotions, movements, thoughts, memory etc. Test Yourself on Lower Brain Structures - Match each brain part with its function:

- o **_C_** Pituitary gland A. Located above the midbrain at the top of the brainstem; routes incoming messages from all the senses (except smell) to the appropriate brain areas for processing
- o **_D_** Medulla B. Part of the limbic system; regulates hunger, thirst, and body temperature and contains the so-called pleasure centers of the brain
- o **_J_** Pons C. The master gland of the endocrine system
- o **_E_** Reticular formation D. Located in the brainstem; controls breathing and heartbeat
- o **_F_** Cerebellum E. A nerve network that runs up the center of the brainstem; plays an important role in controlling alertness and attention
- o **_I_** Midbrain F. Located at the back of the brainstem; assists in balance and the coordination of voluntary movement
- o **_A_** Thalamus G. Part of the limbic system; is involved in learning and in forming new memories
- o **_G_** Hippocampus H. Part of the limbic system; is involved in regulation of the emotions of fear and rage
- o **_H_** Amygdala I. Located near the top of the brainstem; integrates specific types of

information from the eyes and the ears, and sends this on to other parts of the brain

o B Hypothalamus J. Located in the brainstem; controls breathing and heartbeat; connects the medulla to the two sides of the cerebellum to help coordinate and integrate movement on each side of the body; involved in sleep and dreaming

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The Cerebral Cortex - Each hemisphere of the cerebral cortex is divided into four regions called "lobes." Name them. Match each lobe to its associated cortex:

o A Parietal Lobes A. Somatosensory cortex

o B Frontal Lobes B. Motor cortex

o C Occipital Lobes C. Visual cortex

o D Temporal Lobes D. Auditory cortex

The Cerebral Cortex - Name the three distinct areas of language cortex in the left hemisphere. Match them to their related dysfunction.

o A Angular Gyrus A. Ability to read aloud

o B Broca's Area B. Speaking

o C Wernicke's Area C. Language comprehension

Right Hemisphere Abilities - If the left hemisphere generally controls language, what special abilities does the right hemisphere have? The right hemisphere "excels in making inferences" (Beeman & Chiarello, 1998; Mason & Just, 2004). The right hemisphere helps people to make sentences more clear and understand them better by putting words together in the context in which it is meant to be relayed. Often, the right hemisphere can trigger the brain to do certain things such as walking, or picking up an item off the floor leaving the left hemisphere to explain the actions while the right hemisphere remains quiet. It can more easily find solutions to visual problems when given several options.