

## Build-A-Brain

### Student Guide

#### Leading Question!

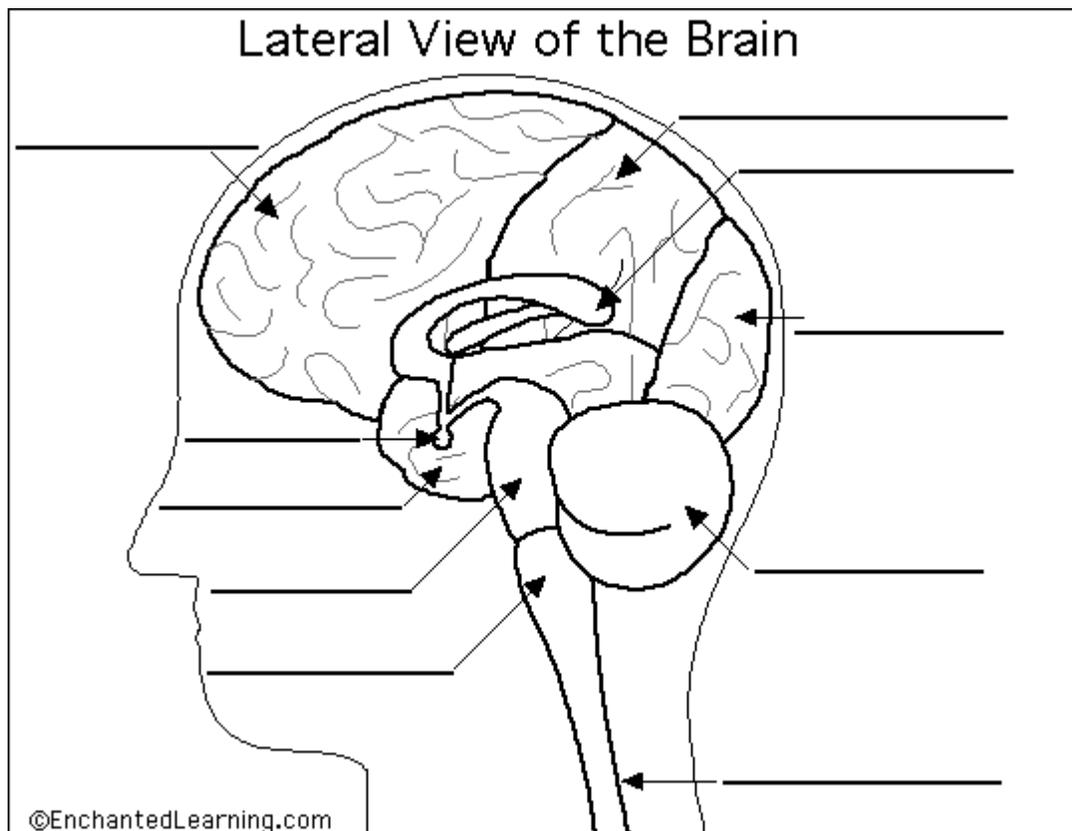
##### What is your brain doing right now?

On a separate sheet of notepaper, list at least three things your brain is doing right now. When called upon, share your ideas with the class.

#### Steps to Complete in Class:

1. List at least three things brain is doing. Discuss. Put these items into general categories of nervous system functions that are listed by the instructor or classmates.
2. Follow along with the anatomy slides, and label lobes of cerebral cortex (four of them) and subcortical regions (at least four of these) on your human brain diagram.
3. Take notes on the functions provided by each major brain region.
4. Predict the features you might see in the dog brain vs. cat brain, based on skills you think each animal has. (Which one is more coordinated? Which one learns tricks better? Which one relies more on sense of smell?)
5. Predict the features you might see in the porpoise brain vs. sea lion brain vs. manatee brain, based on skills you think each animal has. (Which one communicates most? Which one uses smell to find her offspring? Which one is least coordinated?)
6. Write at least three reasons that animals are different from each other. When called upon, share your ideas with the class.
7. Get ready to model the brain of an imaginary creature. In pairs or groups, think of a creature that intrigues you. On a separate sheet of paper, write down you creature's name and make a list of terms that describes that environment your creature lives in. Use the environmental characteristics to generate a list of behaviors and brain structures your creature must have. For example, if the creature lives in dark caves, it might not see very well and might not need much brain tissue devoted to vision; it might have a lot of brain devoted to hearing instead. As another example, if your creature fights monsters and breathes fire, its medulla oblongata might be really big; that's the brain region that regulates breathing. As a final example, if your creature is extremely "crafty" (with very complex behaviors such as planning and communicating with other creatures in its social group), then the frontal lobes of the cerebral cortex might have a lot of convolutions to increase brain tissue devoted to these activities. Write down the behaviors and brain regions you included in your brain model.
8. Choose a representative (or two) to stand up, hold up your brain model, name the creature, and describe its main behaviors and brain features to the rest of the class. Be sure to use the names of at least five brain regions (structures), describe what they do for the creature (functions), and use appropriate directional terms to describe their location.

**Closing Question:** If you were not human, what kind of creature would you be? Why? Would that be better or worse than being human?



1. Follow along with slides in class (or read along in a book chapter) and label at least the following brain regions on this lateral view of the human brain.

2. Take notes on what each brain part does for humans and other animals.

- frontal lobe of the cerebral cortex
- parietal lobe of the cerebral cortex
- occipital lobe of the cerebral cortex
- temporal lobe of the cerebral cortex (just see a tiny bit of it on this lateral view)
- corpus callosum
- pituitary gland
- pons
- medulla oblongata
- cerebellum