

Linking to Brain Research

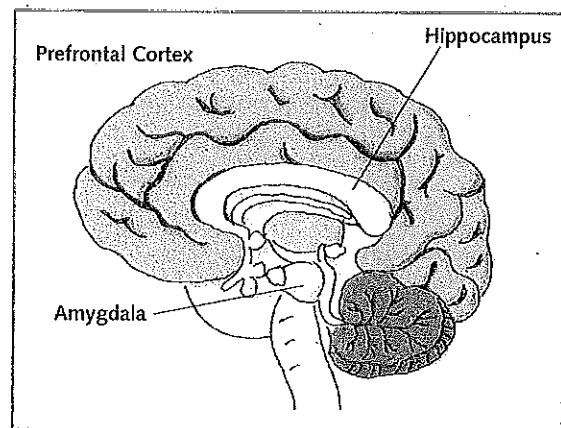
Meet Some Key Players in the Brain

The limbic system controls emotions and motivations from deep inside the brain. A key player of the limbic system is the amygdala. The amygdala is a pair of almond-shaped structures that reacts to fear, danger, and threat. The amygdala regulates our emotional state by acting as the brain's "security guard," protecting us from threats. When a student is in a positive emotional state, the amygdala sends incoming information on to the conscious, thinking, reasoning brain. When a student is in a negative emotional state (stressed or fearful, for example) the amygdala prevents the input from passing along, effectively blocking higher-level thinking and reasoned judgment. The incoming stimuli and signals are left for the amygdala itself to process as an automatic reflexive response of "fight, flight, or freeze."

The hippocampus is another limbic system structure. These twin crescent-shaped bodies reside in the central brain area, one behind each ear, in the temporal lobes. The hippocampus assists in managing our response to fear and threats, and is a storage vault of memory and learning.

Information from the limbic system is fed to the prefrontal cortex—the learning, reasoning, and thinking center of the brain. This highly evolved area of the brain controls our decision making, focuses our attention, and allows us to learn to read, write, compute, analyze, predict, comprehend, and interpret.

Learning about these key players helps students understand how their brains respond to stress and prepares them for creating a calm mind-set for thoughtful decision making, led by the prefrontal cortex.

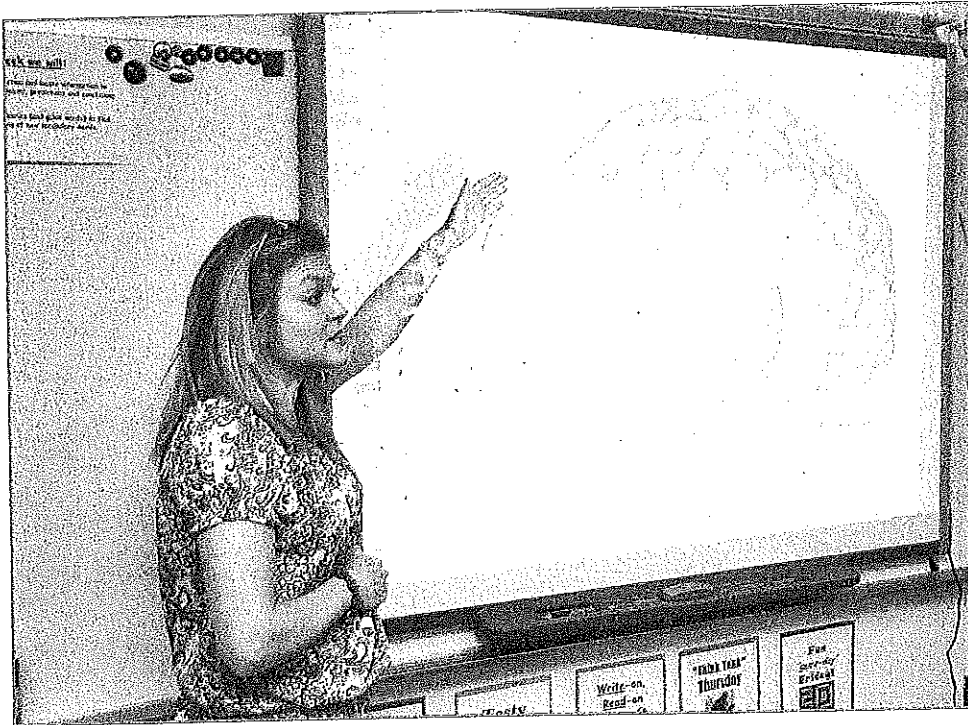


Clarify for the Class

Make a model to show how the brain processes information under stress. Fill a clear plastic bottle with water, an inch of sand, some glitter, and metallic mini-confetti. To demonstrate the way the amygdala on alert scatters information, shake the bottle and mix up the solution. The settling solution represents the calming mind. Explain to students that, eventually, the bits of information that at first seem so chaotic flow in a clear direction, some of them to the PFC for thoughtful decision making.

Discuss: Name a time when you felt stressed out and your mind was functioning more or less like the shaken bottle. What helped you think clearly and focus?

Getting Ready



Big Brain

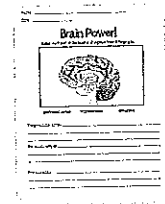
This lesson's introduction can serve as a jumping off point for students to do further research about the brain for science or health class.

GOALS

- Students will identify three parts of the brain: the amygdala, the hippocampus, and the prefrontal cortex (PFC) on a diagram of the brain.
- Students will arrive at a simple definition of each of these three parts.

MATERIALS

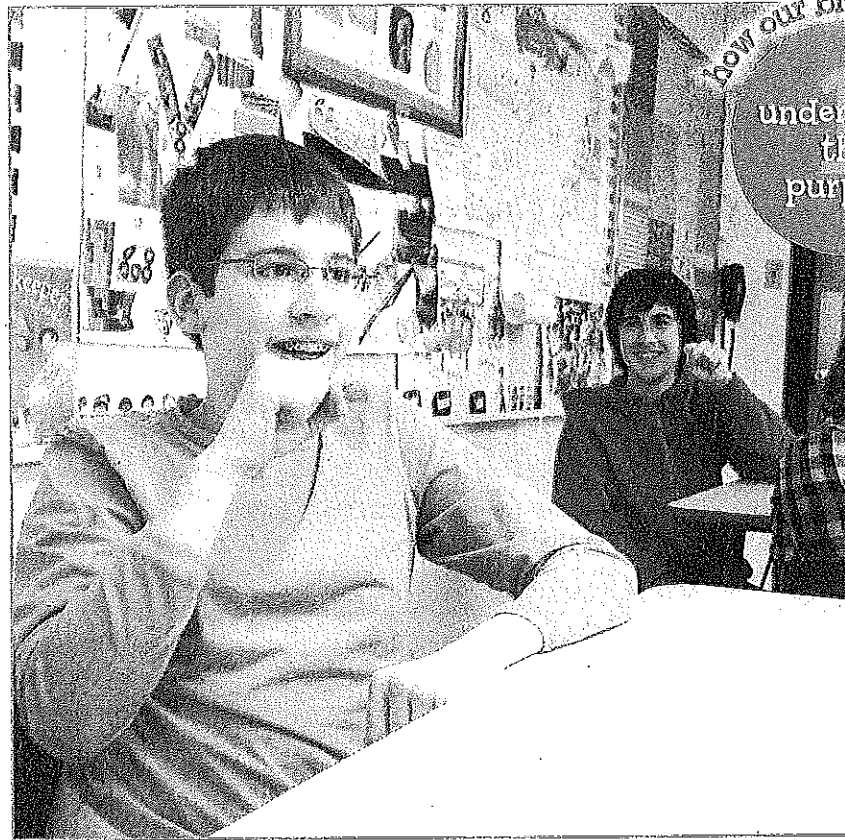
- chart paper
- MindUP poster "Getting to Know and Love Your Brain"
- Brain Power! activity sheet (p. 152)



CREATING THE OPTIMISTIC CLASSROOM

Classroom Management As students observe how stress interferes with thinking, create classroom habits that foster calm reflection.

- Remind students not to talk over you or each other and to give everyone a chance to be heard.
- Pause for a moment before calling on students to answer questions.
- Give students the option of answering with, "I need to think about that some more," and then scheduling a time to return to the discussion.
- Encourage students to take a moment to write notes before group discussions.
- Allow students to formulate follow-up questions after they have had time to digest learning.



Brain Habits

Students enjoy a "brain mini-challenge:" mirroring familiar tasks, such as brushing their teeth, with their nondominant hand.

MINDUP Warm-Up

Mind Skills Discussion

Ask students to think about how people acquire different skills. Get the discussion started by offering an example or two—a basketball player practicing free throws, a pianist warming up with scales, and so on.

Give students a few moments to think. Then ask students to put both hands in the air when they're ready with an example. Toss a crumpled piece of paper, or other soft object, toward one pair of raised hands. The student who catches the object gives his or her example. Have that student make the next toss. Continue until all volunteers have shared. Be sure to model attentive listening during this exercise.

Discuss the role of mind skills in various activities. In sports, you can't let yourself get psyched out during the game. If you're performing, you can't afford to freeze up with stage fright. Discuss further examples offered by students.

Explain that MindUP lessons will help students develop mind skills—ways to rev up their minds for new ideas and to calm them down and focus in order to concentrate! Lead students to discover that mind skills are especially important in school.

Discuss: What kind of skill drills could you invent that would help you be creative or help you concentrate?