

MindUP Lesson 1

How Our Brains Work

Grades 3-5

Lesson 1: How Our Brains Work is the first video in a virtual series of MindUP programming for the 2020-2021 academic year. Based in neuroscience, MindUP teaches the skills and knowledge children need to manage stress, regulate emotions and face challenges with optimism, resilience and compassion.

Length of Lesson: Approx. 10 minutes including worksheet

Objective: Students will practice intentional breathing and be able to identify the amygdala, hippocampus and the prefrontal cortex on a diagram of the brain. Students will learn how these three parts of the brain help them think and respond to stress.

Materials:

- Brain Power Worksheet
- Pen or Pencil
- 3 Markers or Colored Pencils

Preparation: Have child in a space with a flat surface that is calm and quiet.

Key Words:

- The **amygdala** [*uh-mig-duh-luh*] is the part of the limbic system that is the brain’s “security guard” and protects us from threats. It detects things that are scary or dangerous in our environment.
- The **hippocampus** [*hip-uh-kam-puh s*] is also part of the limbic system and lives right behind your ears (point behind your ears) and is the storage vault of memory and learning.
- The **prefrontal cortex** [*pree-fruhn-tl kawr-teks*] is our brain’s wise leader and the learning, thinking and reasoning center of the brain. It regulates the stress response by making things seem less scary.
- **Focused breathing** helps calm the body by slowing heart rate, lowering blood pressure and sharpening focus. Supports strong functioning of the higher brain, lessens anxiety by overriding the “fight, flight or freeze” response from the amygdala, and helps students become more self-managed and mindful.

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MindUP at Home:

Activity #1

As a parent/caregiver, understanding the links between the brain and behavior can be enlightening. We can see our children's behavior more objectively when we are able to put it into a biological context. An understanding of your child's developing brain can help to lower your parental frustration and increase the effectiveness of your responses. Below are some analogies to help children understand how their brain works.

Brain Part	Animal Analogy	School Analogy	Football Analogy
Amygdala	Guard Dog	Fire Alarm	Offensive Lineman
Prefrontal cortex (PFC)	Wise Old Owl	Teacher	Quarterback
Hippocampus	Hippo	Library	Offensive Coach

Scenarios	Keeping the Brain in Mind	MindUP Parent Response
A four-year-old is on the floor at the grocery store screaming.	This child may be hijacked by his emotional brain (amygdala) and not able to reason in the moment (using his PFC).	Say something like "I can hear and see that you're really upset right now, your guard dog is on alert. Let's take a break. Let's go outside and find a quiet place so we can calm the guard dog down."
An eight-year-old child is so anxious she often can't remember seemingly simple details.	These two things could be related. When the emotional brain (amygdala) is in overdrive, we don't store information well (hippocampus).	Say something like "I've noticed that sometimes when you feel really worried your hippocampus isn't working as well, and you forget some things. I think we need to try to calm your guard dog down so your hippocampus can do its job and help you to remember to bring your lunch to school."
A teenager can't sleep the night before a speech she has to give in English class.	The teen may be hijacked by her emotional brain (amygdala) and may need help calming down fears and insecurities to better be able to access her reasoning mind (PFC) and positive memories.	Listen to and empathize with her fears and feelings. Help to remind her that her guard dog is on alert and see what she wants to do to calm it down. Perhaps you can practice mindfully breathing together in bed. What would the wise owl say?

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Activity 2

Below is another activity to help your child identify how different parts of the brain work separately and together to affect feelings and behaviors.

- Using different colored paper, print out the name, a photo that locates the part of the brain and what its main function is.
- Let your child know that you are going to do something that may surprise him/her; however, not to worry, and that he/she is safe.
- Using a whistle (or another noisemaker), blow a quick loud whistle that may cause him/her to be startled.
- Now ask your child to check in with the different parts of the brain to see what he/she was thinking when he/she heard the sound.
- Your child can use the “part of the brain” cards to act out different reactions to the noise:
 - Help Amygdala act out the reactive/danger response.
 - Help Hippocampus remember that you said that they were safe. Ask Hippocampus if they remember hearing the sound before? What did the sound mean? What were they supposed to do? For example, your child may recall hearing a whistle on the school yard and that it meant to freeze, listen, etc.
 - Help Prefrontal Cortex choose how to react by evaluating all the information.

REFERENCES

- The Hawn Foundation. (2011). *In The MindUP Curriculum: Brain-Focused Strategies for Learning and Living* (pp. 24 – 49). New York, NY: Scholastic.
- The Hawn Foundation. (2011). *Parent Workshop for Parents and Caregivers* (p. 6). New York, NY: Scholastic.