



The amygdala in the emotional center sees and hears everything that occurs to us instantaneously and is the trigger point for the fight or flight response.

—Daniel Goleman



EMPOWERING EDUCATION

Mindfulness-Based Social & Emotional Learning

LIZARD-WIZARD BRAIN

Level: Lower Elementary (K-2)

Timeframe: 20-30 minutes

Concepts:

- Brain Science
- Coping Skills
- Thoughts, Emotions, & Behaviors



Big Ideas For This Lesson

Along with the mindfulness movement, a large push in contemporary education has been to teach students the basic form and function of their brain. People who understand the basic biological drives behind behavior, thoughts, and emotions experience greater self-control, self-awareness, and emotion regulation. They are also less likely to associate natural responses like anger, stress, and fear with feelings of guilt and shame.¹

This week's lesson will introduce two basic parts of the brain: the **Lizard-brain** –aka **limbic system** and the **Wizard-brain** –aka **prefrontal cortex**. The Lizard-brain, very simply put, is responsible for processing threats and is activated in strong emotional situations; this is often referred to as the **fight-or-flight response**. The wizard-brain, on the other hand, is responsible for complex thought, planning, decision-making, impulse control, and self-awareness. When students understand that they have two brain systems working at different times, they are better able to cope in difficult situations by working towards “getting their wizard-brain back in charge.”

Once students grasp the concept, you can start prompting them with questions like, “*What brain are you using right now - wizard or lizard?*” or “*Take care of your lizard so your wizard can be in charge.*” This might also help you as a teacher by simply identifying when a student is in lizard mode and waiting for them to calm down.

It is critical that we do not reduce students' understanding to, “lizard-brain is bad; wizard-brain is good.” The lizard-brain is just as important as the wizard. They are integrated, complementary systems. We need both; balance is the key. We are happiest and most productive in life when our wizard-brain and lizard-brain are working in union. We stand a better chance at achieving balance when we are aware of how these regions function and how to take proactive steps to ensure our basic biological needs are met. Still confused? This [short animation](#)² may help.



Essential Vocabulary

Amygdala
Fight-or-Flight Response
Limbic System
Lizard-brain
Metaphor
Prefrontal Cortex
Wizard-brain

Materials

- Basic anatomical model of brain (physical or image).
- Two deflated balloons.
- Lizard-Wizard: SEL Journal Page
- Lizard-Wizard Themed Read-Aloud (Optional): [*When Sophie Gets Angry--Really, Really Angry...*](#) by Molly Bang



Preparation

Draw a side profile of a head with brain to show two regions. See example below.



Teaching Script

BUILDING BACKGROUND KNOWLEDGE & CONCEPT MODELING (I DO)

Teaching Note: Remember that “*I don’t know*” is a perfectly acceptable answer when teaching brain science. Neuroscience is arguably one of the most complex and mysterious areas of study. The Lizard-Wizard model presented here is a metaphor and a vast oversimplification of one of the most complex systems known to man. Invite students’ curiosity in exploring the great, unknown frontier of the human brain!

Begin with a question. Prepare to be surprised about what students already know!

| *What do you know about the human brain?*

After hearing student responses, introduce the topic.

| *Today we will learn more about our brains. Did you know that there are different parts of your brain? We are going to learn about two parts of the brain today and we’re going to give them kind of funny names.*

Draw or refer to a profile view of a head and brain, as shown on the right. As you introduce the two areas, lizard and wizard, shade them with different colors.

| *One part of our brain is always trying to keep us safe. It’s called the lizard-brain. WHAT!? Lizard!? Why would we call it that? Well, what does a lizard do all day?*

| *That’s right. A lizard mostly sits in the sun, eats food, runs away from danger, and drinks water. His only job is to stay alive. Do you think a lizard reads books? Or thinks about math problems? No! He is just trying to stay alive and get away from danger. That’s what the lizard part of our brain does for us! It tells us when we’re hungry or thirsty, when it’s dangerous or scary. It helps keep us safe.*

Highlight/shade the lizard-brain in the drawing (the lower portion of the brain that includes the **limbic system** with special attention on the **amygdala**).

Have students point to this part of their head (the back of the head where the skull meets the neck).



If you have ever felt so angry or scared that your heart starts beating fast, your breath speeds up, you get shaky, pale, and sweaty, or you even forget what is happening, then you know exactly what it feels like to have your lizard-brain in charge. This is your lizard brain trying to keep you safe, telling you there is danger and that you might need to run!

While the lizard-brain is definitely important, it sometimes makes us make bad decisions. Have you ever done or said something mean when you were angry? Your lizard-brain was probably in charge.

The good news is that there is another part of our brain that is in charge of thinking and helps us to make wise decisions –the wizard-brain.

Highlight/shade the wizard-brain in the drawing (the front portion of the brain near the forehead) and have students point to this part of their head.

Our wizard-brain is what makes us different from lizards and other animals. It helps us think, learn, use words and language, and to care about our friends! Unlike the lizard-brain, the wizard-brain is good at staying calm in difficult situations by reminding us to use mindfulness skills and think about the consequences of our actions.



GUIDED PRACTICE (WE DO)

Let's think about things that happen during our day and whether we would want our lizard-brain or wizard-brain in charge. Because only one of them can be in charge at a time! They can't both be in charge.

Teaching Note: You can facilitate this as a call and response or individual responses depending on your classroom management style. The main point to convey is that the lizard and wizard are not “bad” or “good”; rather, they are simply best suited for different situations. You can encourage playfulness and engagement by prompting students to point to the wizard-brain and lizard-brain as part of their response or stand up for wizard-brain and stay seated for lizard-brain.

Would you rather have your lizard-brain or wizard-brain in charge when...

- a. *You are in a fight with your friend. (wizard)*
Why? (If your lizard brain is in charge, you might hurt your friend or say mean things.)
- b. *You need to run out of a burning building. (lizard)*
Why? (You need to get to safety fast!)
- c. *Your math problem is really hard. (wizard)*
Why? (You need to do some good thinking!)
- d. *You have to jump out of the way of a speeding car. (lizard)*
Why? (You need to get to safety fast!)
- e. *Create your own scenarios or prompt students to share scenarios.*

The key point here is that the lizard-brain is most useful in life-threatening situations and the wizard-brain is useful in most other situations that require coping skills, thinking, empathy, decision-making, and self-awareness.

Now sometimes what happens is that the lizard-brain decides to be in charge when it shouldn't and it causes you to make bad choices. Sometimes, we need to calm down our bodies and if we don't use our wizard-brains to do that, then our lizard-brains start filling up.

Grab one balloon and have an object in mind that will pop it when the time comes. A pencil or pen usually works.

This balloon represents your lizard-brain. Whenever we get really mad or sad or frustrated and do not use our wizard-brain and mindfulness skills to release it, we fill up our lizard-brain; like this.

Blow a small breath into the balloon and pinch it to hold it in.

This may not seem like a big deal at first, but throughout our day there may be many stressful situations that fill up our lizard-brain. For example, 'I do not like what my mom made for breakfast so I get angry and skipped breakfast.'

Blow another breath into the balloon and hold it.

Ask students to identify situations that cause stress throughout the day and “fill up their lizard-brain.” Each time a student shares an example, add another breath to the balloon so that the balloon continues to fill with lizard-brain reactions: tantrums, pouting, arguments, worry, fear, drama, freak-outs, etc.

Look at our lizard-brain; it is ready to pop! Let's think about what this means. All day we have been filling our lizard-brain full of stress and keeping it all in. What do you suppose will happen if we go home with a full balloon and our parents ask us to do a chore we do not like? Or if we come to school with a full balloon and our teacher gives us homework we do not understand? Or if our brother or sister teases us about something little, not knowing our balloon is full?

That's right! We'll pop!

Pop balloon for dramatic effect.

Teaching Note: If you know you have students in your class with a particularly high trauma sensitivity you may want to warn the class before popping the balloon. On the other hand, if students are startled by the pop it can provide a great teachable moment –that feeling of being startled is actually your lizard-brain in action!

These 'pops' might look different for all of us, but usually these are our 'temper tantrum' moments. Think about a time when you popped on someone because your lizard-brain was full. Was it fair to pop on them? Have you ever lost control because you were so angry? What could you have done differently to prevent popping?

Grab the other balloon.

This balloon represents our wizard-brain. Just like the lizard-brain, the wizard-brain will encounter stressful situations each day that fill it up.

Blow a breath into the balloon.

Unlike the lizard-brain, however, the wizard-brain knows ways to calm down or 'release the air.' For example, in one of the same situations that caused my lizard-brain to fill up –like my little brother being annoying in the morning –my wizard-brain can help me remember things like, 'Take a deep breath. Remind yourself that he is just a little brother and he is too young to know he is being annoying.'

Demonstrate taking a deep breath and then letting air out of the balloon.

Ask for more examples of stressful situations and “wizard tools” to let out some air in each situation. Each time a student shares, add air to the balloon with the frustration and then release it when they share a calming strategy.

This is what it means to be mindful during your day. We use our wizard-brain to make sure the lizard doesn't take charge when he shouldn't. Remember, the lizard is not bad! The wizard and the lizard are your friends and they both need to be heard. But sometimes the lizard gets confused and overreacts. That is when the wizard can kindly remind the lizard to be calm.

What happened this time with the balloon? Is it going to blow up on someone later? Why not? Yes, we used our wizard-brain tools to calm the lizard. Mindfulness helped us do this. Then the wizard helped by reminding the lizard, 'You just need some water,' 'take a deep breath, this isn't life threatening,' or 'ask the teacher for a brain break so that the lizard-brain has a chance to calm down!'



REINFORCING LESSON CONCEPTS (YOU DO)

Reflect together as a class. Have students respond to the following questions:

- *So when we use mindfulness, which brain are we using?*
- *What are some wizard tools that can help your lizard-brain calm down?*
- *What signs does your body give you that your lizard-brain is filling up?*

Allow for questions and ask students to share any helpful strategies and wizard tools for calming down.



EVIDENCE OF CONCEPT ATTAINMENT

Reflect on it

- *What are some examples of when your lizard-brain helped keep you safe?*
- *When has your wizard-brain helped you to avoid blowing up? How?*
- *What are your favorite things that help you relax and de-stress?*

Journal it

Have students complete the Lizard-Wizard: SEL Journal Page for this lesson.



EXTENSIONS

Classroom

- Use wizard-brain and lizard-brain terms often to help students identify what's happening internally.
- Create a poster with lizard-brain and wizard-brain labeled. Include reminders of how each function.
- Video song: [Your Amygdala and the Ha Ha Ha Feelings Song](#).³

School-wide

- Use questions, *"Is your wizard or lizard in charge?"* and *"Are you taking good care of your lizard?"* as de-escalation prompts.
- Link lizard-wizard to art projects, either in art class or homerooms.
- Link healthy eating and frequent hydration with taking care of lizard-brain.



REFERENCES

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3. Littman, K. (2015, September 04). Your Amygdala and the Ha Ha Ha Feelings Song. Retrieved from <https://www.youtube.com/watch?v=EG26SPoaG2I&nohtml5=False>