

Lesson 2	Fight, Flight, Freeze, and the Limbic System
Time	45-60 minutes
<u>Materials</u>	<ul style="list-style-type: none">• Pen or pencil• SEL Journal• Lesson 2 Slides• Lesson 2 Worksheet (Lesson 2 Answer Key)• Green Our Planet Studios video link• SEL + Science Adventures Manual (Green Our Planet Studios)• Internet access• Resources to play videos for students
<u>Vocabulary</u>	<ul style="list-style-type: none">• <i>amygdala</i>: a part of the brain that triggers fight, flight, or freeze response, helps with memory, and is located in the temporal lobe• <i>hypothalamus</i>: a part in the brain that produces hormones that control heart rate, body temperature, and hunger• <i>prefrontal cortex</i>: a part of the brain that turns thoughts into actions and is located in the frontal lobe• <i>adrenal gland</i>: a structure in the body responsible for releasing specific hormones

	<ul style="list-style-type: none"> • <i>adrenaline</i>: a chemical released by your body that increases the rate of blood circulation and breathing • <i>cortisol</i>: a chemical released by your adrenal gland that regulates the body's stress response
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<u>Overview</u>	<u>Lesson Description:</u> Students will explore the limbic system and its parts and functions. Students will gain understanding as to how parts of the limbic system like the amygdala create feelings and emotions and explore ways to manage them.
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<u>Agenda</u>	<ul style="list-style-type: none"> • Introduction • Green Our Planet Studios Video • Activity: Worksheets, Quizzes, or Cutouts • Reflection & Sharing • Closure
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<u>Learning Objectives</u>	<ul style="list-style-type: none"> • Describe the role of the limbic system in responding to a stressful situation. • Practice the "Five Sense Exercise" in order to ground yourself when feeling stressed.
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<u>Dimensions of Learning</u>	<ul style="list-style-type: none"> • Mindsets & Behaviors • SEL Competencies • Science Standards • Math Standards
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	<p>Mindsets & Behaviors:</p> <p>For the full list of ASCA (American School Counselor Association) Student Standards, please see the “ASCA Student Standards” section of the manual.</p>
	<p><u>SEL Competencies:</u></p> <p>For the full list of CASEL (Collaborative for Academic, Social, Emotional Learning) Competencies, please see the “SEL Competencies” section of the manual.</p> <p>Self-awareness Self-management</p>
	<p><u>Next Generation Science Standards:</u></p> <p>DCI: In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions (MS-LS1-3).</p> <p>SEP: Developing and Using Models CCC: Structure and Function</p>
	<p><u>Health Standards: (Optional/Additional Lesson plans)</u></p> <p>For the full list of National Health Education Standards, please see the "Health Standards" section of the manual.</p>

<p><u>Procedures</u></p>	<ul style="list-style-type: none"> ● Engage ● Explore ● Explain ● Elaborate
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- Evaluate

ENGAGE: Opening Activity – Access Prior Learning / Stimulate Interest / Generate Questions: (10-15 minutes)

1. Say to students: *Hello students! Today, we're going to learn a little bit more about what helps the brain do what it does! Our body is full of systems that have extremely important jobs. The skeletal system gives our body shape and allows us to stand upright. The immune system fights off pathogens to keep us healthy. The muscular system allows us to move, and the limbic system regulates emotions, learning, and memory. Today, we will learn about the parts and functions of the limbic system.*
2. Say to students: *Let's explore how the limbic system functions by sharing how we would react in specific situations. First, imagine you are on an outdoor adventure trip in Yellowstone National Park. You're hiking with your friends and you spot a grizzly bear coming towards you! What would you think? How would you feel?*
3. Prompt students to share out loud. Identify the trends in their responses.
4. Say to students: *Let's explore a situation you're probably more likely to encounter. Imagine you're walking into class late and everyone is quiet and has their desk clear waiting for a test that you didn't know was happening. What would you think? How would you feel?*

5. Prompt students to share out loud. Identify the trends in their responses.

EXPLORE: Lesson Description – Materials Needed / Probing or Clarifying Questions: (15–20 minutes)

1. Say to students: *Last week, we discussed where our thoughts and feelings come from. We talked about how different lobes have different responsibilities that all help our body function. But how do the feelings happen like when you saw the grizzly bear? Or when you didn't prepare for the test? What happens in your body to create that feeling or emotion? (Take a few hands)*
2. Say to students: *Great responses! We're going to explore this idea a little deeper with a video now, so get comfortable and get ready to listen and learn!*
3. Show Green Our Planet Studios video
4. Say to students: *As I told you before, today is all about the limbic system. This is the system responsible for thoughts and emotions. Think of it like software in a computer. the lobes are the hardware. Both are needed to make a computer work! The hardware is composed of the physical parts that use metal and electricity, but the software is composed of the programs and applications that create images and functionality. The limbic system is the brain's software. It helps the brain lobes, which are the brain's hardware, create images and utilize*

functions. Let's learn some of the parts and chemicals involved in the limbic system.

EXPLAIN: Concepts Explained: (10-15 minutes)

1. Review [slides 6-9](#).
 - **Slide 6:** Review vocabulary
 - **Slides 7-8:** Say to students: *Ok students, we're now going to talk a little bit more about the amygdala. The amygdala is engaged when you come across something considered dangerous by the brain. Remember in the video, when Freddy was afraid to take the test and started to panic? In this situation Freddy ran out of the classroom. This was the amygdala at work. When experiencing fear, the amygdala works with the other parts of the limbic system to create chemicals and feelings encouraging us to fight, take flight, or freeze.*
 - **Slide 9:** *As we saw in the video these feelings can be very overwhelming and prevent us from carrying on daily tasks. Therefore it helps to have strategies for reducing stress and controlling our response. One way is through grounding ourselves in the present. There are many ways to do this and today we're going to learn one strategy that you can take away with you for any future stressful situations.*

ELABORATE: Applications and Extensions: (5-10 minutes)

	<ol style="list-style-type: none"> 1. Review slide 10 and practice the 5 sense exercise together as a group. 2. Complete Think-Pair-Share. <ul style="list-style-type: none"> ○ Have students respond to one of the following questions: <ol style="list-style-type: none"> i. <i>What was difficult about the 5 senses exercise?</i> ii. <i>When might this exercise have been useful for you? Why?</i> ○ Have students share with their partner. ○ Choose volunteers to share out loud to the class what they said or what their partner shared.
	<p>EVALUATE: Formative Monitoring (Questioning & Discussion): (10-15 minutes)</p> <ol style="list-style-type: none"> 1. Give students about 7 minutes to individually complete the worksheet. 2. Have students share responses in pairs. 3. Review answers as a class.

<p><u>Pre-teaching</u> <u>Review for</u> <u>Educator</u></p>	<p>Digital Resource: Article: The limbic system</p> <p>Digital Resource: Article: Limbic System - What to Know</p> <p>Digital Resource: Article: Understanding the chemicals controlling your mood</p>
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Inspirational
quote

"One of the greatest discoveries a man makes, one of his great surprises, is to find he can do what he was afraid he couldn't do." - Henry Ford