



Thank you for joining us!

**Session 5:** The Neuroscience of Stress, Part 2  
**Trainer:** Michelle Kelsey Mitchell

### Getting Started:

1. If you have any questions, please type them into the Q&A box.
2. Place a pen/pencil/paper nearby to jot down your thoughts.
3. At the end of this session, when you leave the meeting, there will be a link that will pop-up asking you to complete the Session Quiz / Feedback Form.
4. You will receive a follow-up email within 24 hours of this session. That email will serve as your confirmation of attendance record for this session.

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# Culture of Care Series: Session 5

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## The Neuroscience of Stress: Part 2



# Introductions

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Michelle Kelsey Mitchell  
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*Director of Partnerships &  
National Trainer*

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# Who We Are

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**Pure Edge, Inc. (PEI)** is a private operating foundation that provides direct service to organizations through professional development & strategy thought partnership.

PEI also provides grants to national organizations that advance the work of whole child development & SEL.

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# Welcoming Activity: Think – Ink



Reflection

Notice what is on your  
mind and write that down.

*or*

Write about how you are  
feeling right now.

# Culture of Care Objectives

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- ❖ Practice and implement Breathe, Move, and Rest strategies for Self-Awareness and Self-Management.
- ❖ Identify CASEL competencies.
- ❖ Acquire skills to train colleagues in SEL, evidence-based curricula.
- ❖ Illustrate the interconnectedness of SEL and self-care.

# Session 5 – Learning Objectives

- ❖ Identify the Vagus nerve and its affect on the nervous system.
- ❖ Explore the connection between the Vagus nerve and emotional regulation



# Pure Power Curriculum

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## Grades K-5

- ❖ Unit 1 – The Power to Be Calm
- ❖ Unit 2 – Power to Tame Your Temper
- ❖ Unit 3 – Power to Laser Focus
- ❖ Unit 4 – Power to Grow and Stretch
- ❖ Unit 5 – Power to Lead with Kindness

## Grades 6-12

- ❖ Unit 1 – Power to Shine
- ❖ Unit 2 – Power of Mindfulness
- ❖ **Unit 3 – Power of Brain-Body Connection**
- ❖ Unit 4 – Power of a Balanced Life
- ❖ Unit 5 – Tool Kit for a Balanced Life



# Pure Power

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*Grades  
6-12*

*Unit 3*

Power of the Brain  
Body Connection





## Engaging Activity: Anchor Breathing



1. Sit down and get comfortable.
2. Rest your hand on your chosen breathing space: tummy, chest or your nose.
3. Do your breathing and keep your attention on your breathing space.
4. When your attention wanders, gently bring it back to your breathing space.
5. Can you be mindful of your breathing for 5 breaths? For 1 minute?

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# Review

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# Why Focus on School Stress?

In highly stressed school environments, teachers and learners pay the costs.



When teachers are highly stressed, students show lower levels of both social adjustment and academic performance.

Sources (clockwise from 40-50%): Ingersoll, Merrill & Stuckey (2014); Greenberg, Brown, Abenavoli (2016); School Leaders Network (2014); Rentner, Kober, Frizzell, (2016); Alliance for Excellent Education (2014).



# TIRED STRESSED BORED

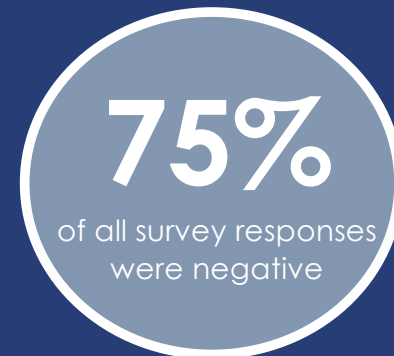
In 2015 the Yale Center of Emotional Intelligence & Born This Way Foundation surveyed 22,000 high school students.

Students were asked, “How do you currently feel in school?”  
The most common responses included:

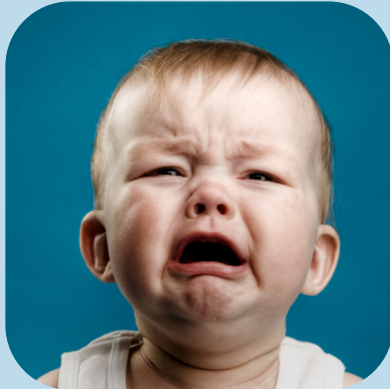
- **Tired (39%)**
- **Stressed (29%)**
- **Bored (26%)**

Among positive responses were:

- **Happy (22%)**
- **Excited (4.7%)**



# Stress Response



“Gas Pedal”

Sympathetic Nervous System:  
Fight or Flight



“Brake”

Parasympathetic Nervous System:  
Rest and Digest



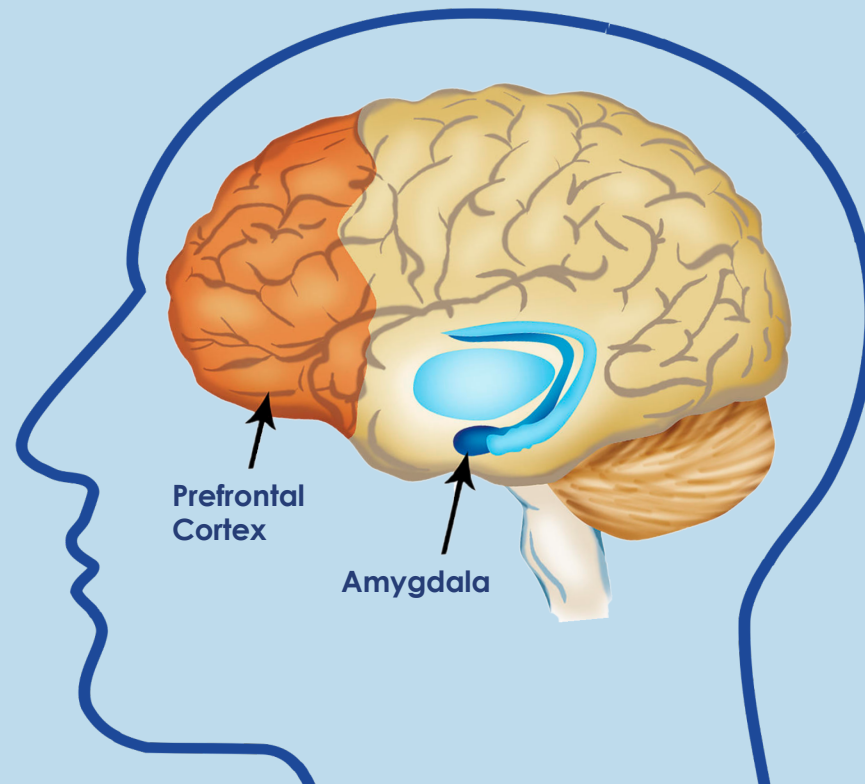
<https://www.health.harvard.edu/staying-healthy/understanding-the-stress-response>  
Image Sources: <https://www.shutterstock.com/video/clip-22377115-tired>, <https://ggia.berkeley.edu/practice>



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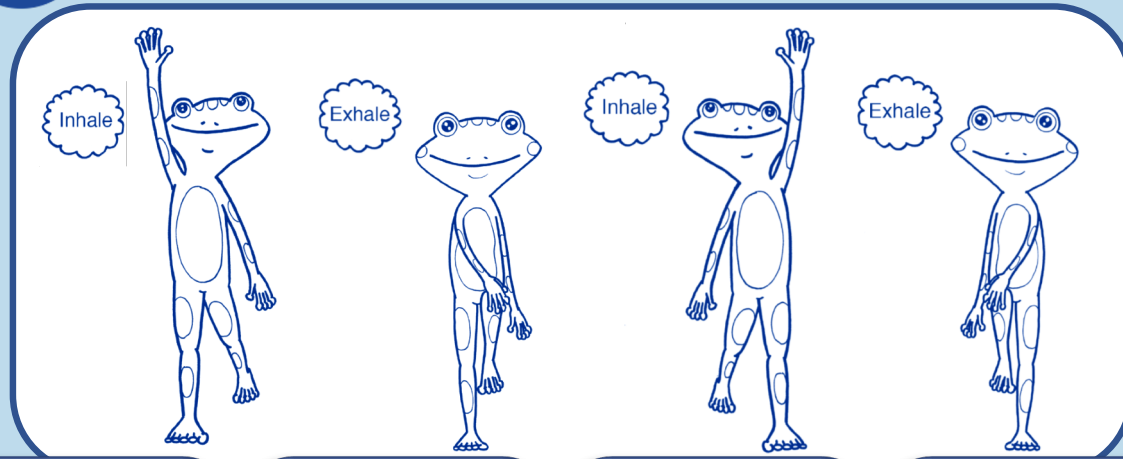
# Neuroscience

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# Engaging Activity: Brain Balance Sequence



1. Inhale, take the right arm overhead and the left foot slightly behind, placing only your toes on the floor.
2. Exhale, lift the left leg, knee bent, and touch the right hand to the inside of the left knee.
3. Inhale, return the right arm overhead and the left foot slightly behind placing only your toes on the floor.
4. Exhale and again lift the left leg, knee bent, and touch the right hand to the inside of the left knee.
5. Repeat on the other side.



# Neuroscience: Vagus Nerve

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The vagus nerve, the tenth cranial nerve, is the superhighway of the nervous system that **connects** the body and brain.



Image: <https://naturalwestmichigan.com/toning-the-vagus-nerve/>



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# Vagus Nerve

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Latin for “wanderer,” which is appropriate for the longest cranial nerve in the body.

**It is intricately connected to:**

- Mood
- Immune response
- Digestion and
- Heart Rate<sup>1</sup>



Image: Gersema, Emily, “Gut Instinct may have been the GPS of human ancestors.” USC News:  
<https://news.usc.edu/144479/vagus-nerve-research-gut-instinct-may-have-been-gps-of-early-humans/>

<sup>1</sup>:Breit, Sigrid, et al. “Vagus Nerve as Modulator of the Brain-Gut Axis in Psychiatric and Inflammatory Disorders”, *Frontiers in Psychiatry*, 13 March 2018



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# Vagus Nerve

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It is also associated with the sensing and expression of emotions.



It innervates (supplies) the **vocal cords** and modulates (varying strength/tone/pitch) how we change **our voices to express emotion; our faces**, where we convey emotion; and courses **along our hearts**, where we often feel emotions.<sup>1</sup>

1: David DiSalvo, "Forget survival of the Fittest: It is Kindness That Counts," *Scientific American*, 2009.





## Engaging Activity: Chair Eagle



1. Sit in Seated Mountain.
2. Cross your right thigh on top of your left.
3. Inhale and bring your arms up with elbows bent and palms facing forward (cactus arms).
4. Exhale and cross your left elbow on top of your right. Touch the back of your hands together. If it feels comfortable, bring palms together.
5. Inhale and lift elbows up until you feel a comfortable stretch.
6. Look at your thumbs and take 3 relaxed breaths.
7. Release on an exhale.
8. Repeat second side (left thigh on top, right arm on top).

*\*If practicing on the floor, you can substitute Standing Eagle, or sit with crossed legs and simply do the Eagle arm positions.*





# Vagus Nerve: Autonomic Nervous System

The body's unconscious control system

Regulating, internal organs to optimizing health, growth and restoration also known as **homeostasis**.<sup>1</sup>

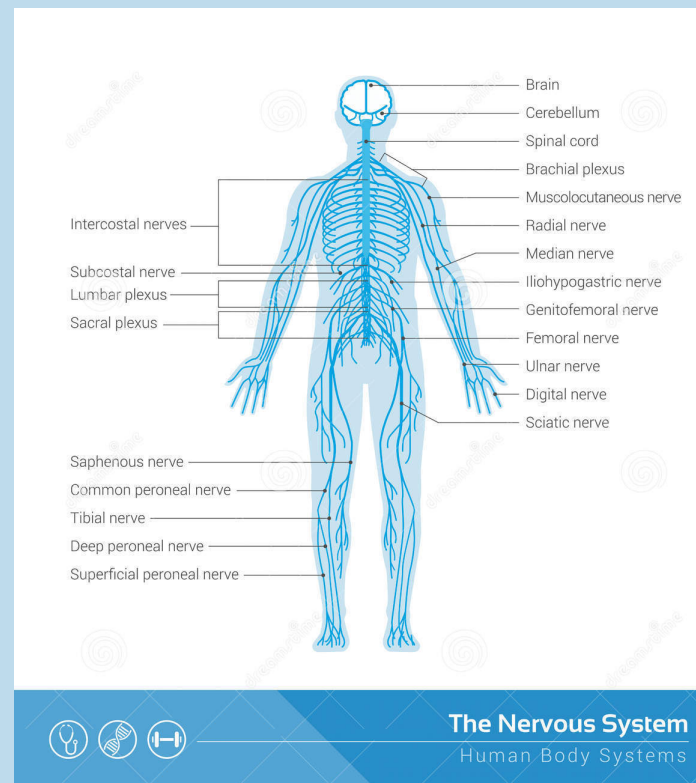


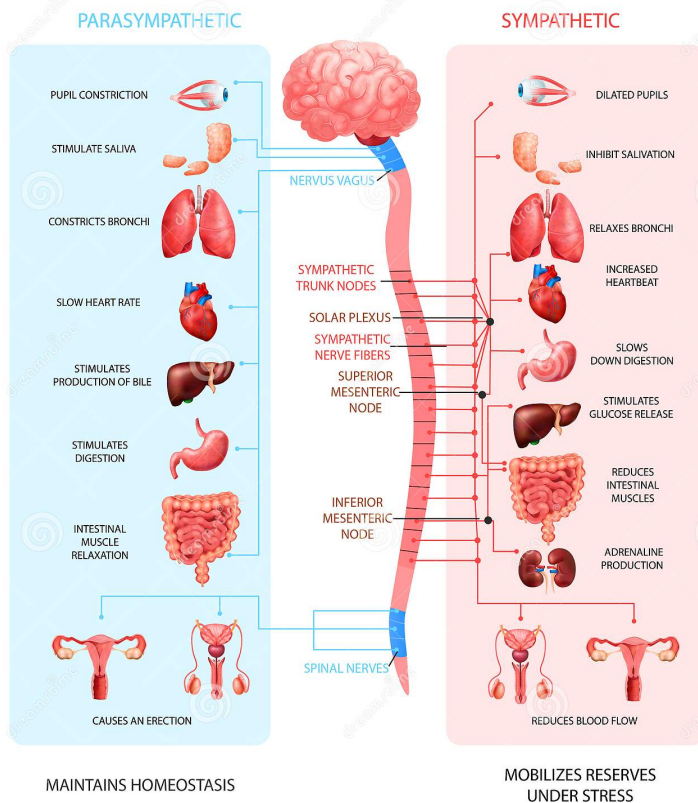
Image Source: <https://bodytomy.com/human-nervous-system-diagram>

1: Porges, Stephen, "The Pocket Guide to the Polyvagal Theory," (New York: W.W. Norton & Company, Inc., 2017), 15

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## PERIPHERAL AUTONOMIC NERVOUS SYSTEM



dreamstime.com

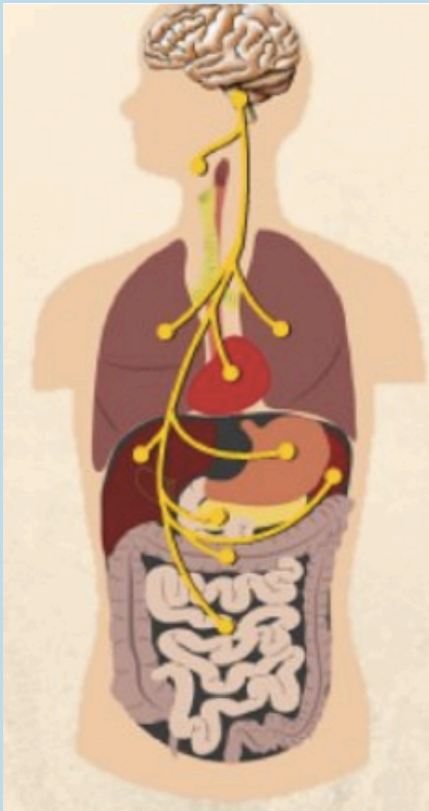
ID 179551587 © Macrovector

## Vagus Nerve

The Vagus nerve resides in the parasympathetic nervous system.

- **Sympathetic:** mobilizes you for action, aka the “on” switch.
- **Parasympathetic:** the “off” switch.

# Neuroscience: Self-Care & Vagal Tone



## THE VAGUS NERVE

### How to Hack Your Nervous System

We can tone the **vagus nerve** through deep breathing exercises.

When the vagus nerve is relaxed, strong emotions are quelled and stress is reduced.



Image: <https://elemental.medium.com/science-confirms-that-the-vagus-nerve-is-key-to-well-being-c23fab90e211>

## Parasympathetic

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Parasympathetic activation moves the body toward **homeostasis**.

- Our inhalations/exhalations become **smooth & quiet**.
- The nervous system becomes **calm**.

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*Respond*

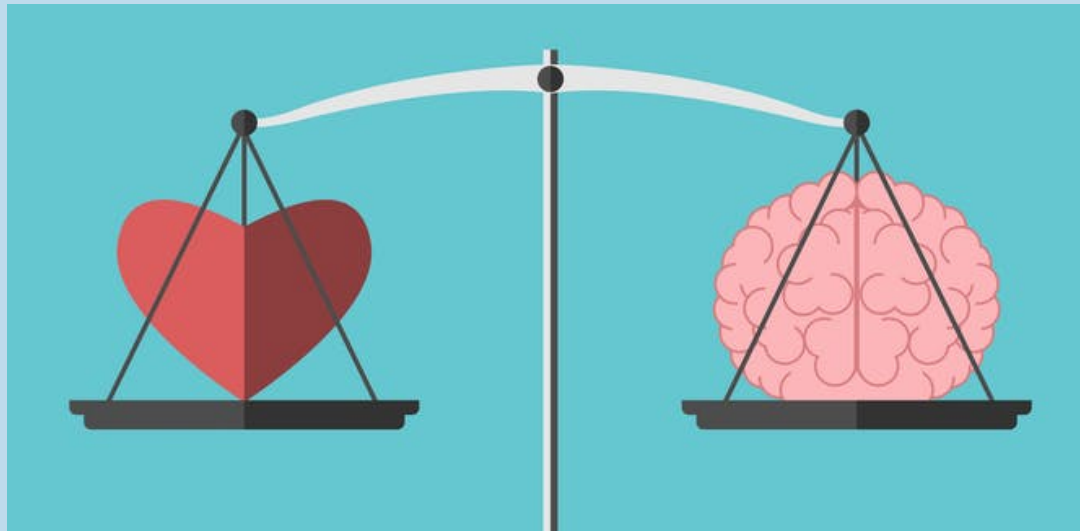
vs.

**React**

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# Emotional Regulation

**Balanced emotional regulation entails:**



Feelings, thoughts, physiological signals (heart rate and breath pattern), and nonverbal communication – such as body language & facial expression.<sup>1</sup>

1: Saudino and Wang, "Emotional Regulation and Stress," Journal of Adult Development, 2011. <http://link.springer.com/article/10.1007%2Fs10804-010-9114-7#page-2>  
Image: March 2, 2020, **Understanding emotions is nearly as important as IQ for students' academic success**; Carolyn MacCann, University of Sydney; Amirali Minbashian, UNSW, and Kit Double, University of Oxford <https://theconversation.com/us/topics/emotional-regulation-49396>





## Engaging Activity: Alternate Nostril Breathing



- ❖ The hand movements will take some practice to feel comfortable.
- ❖ If thumb and pinky are too hard for learners to coordinate, you could use right thumb to close right nostril and left thumb to close left nostril.
- ❖ Once your learners have mastered the hand movements, helpful verbal cues are: inhale right, close, exhale left. Inhale left, close, exhale right.
- ❖ This exercise can take 1 to 3 minutes.

1. Let's start with a few deep breaths through the nose.
2. Inhale, close the right nostril by pressing the side of the nose with the right thumb.
3. Exhale out the left nostril.
4. Inhale through the left nostril.
5. Close the left nostril by pressing the side of the nose with your right pinky and fourth finger. At the same time, take your thumb off of your right nostril.
6. Exhale out the right nostril.
7. Inhale through the right nostril.
8. Close the right nostril with your thumb again and exhale through the left (removing the pinky and fourth finger).
9. This is one round. Complete 2 or 3 rounds by repeating steps 2-8. End on a left exhalation.
10. Take a few regular breaths.
11. Notice how you feel.



## Engaging Activity: Chair Boat



1. Slide your chair back from your desk so that your knees are not under your desk.
2. Start in Seated Mountain.
3. Hold on to the seat of the chair or the back of the chair with both hands.
4. Inhale, lift both feet off the ground. Keep your knees touching and stay balanced. Take 3-5 relaxed breaths. If this is difficult, you can lift one foot at a time.
5. See if you can lift your knees a little higher and stay balanced.
6. If you feel steady, see if you can stretch both arms out straight in front of you, shoulder height, parallel to the floor.
7. Exhale, put your feet back on the ground and return to Seated Mountain.

*\*If practicing on the floor, simply substitute boat pose.*

*\*To modify, try lifting one foot at a time.*

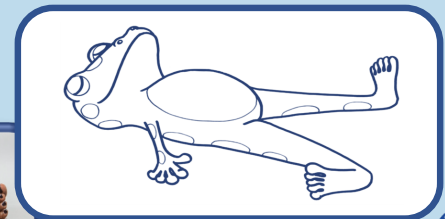






# Engaging Activity: Guided Rest / Body Scan

1. Lie down on the floor on your back. Spread your feet apart. Turn your palms up to face the ceiling and close your eyes.
2. Put your attention on your forehead. Feel your forehead relax.
3. Put your attention on your eyes. Feel your eyes relax.
4. Put your attention on your cheeks and jaw. Feel your cheeks and jaw relax.
5. Put your attention on your neck. Feel your neck relax.
6. Put your attention on your shoulders. Feel your shoulders relax. (Repeat for arms, wrists, hands, fingers.)
7. Put your attention on your chest. Feel your chest relax.
8. Put your attention on your back. Feel where your back touches the floor (or the chair).
9. Put your attention on your belly. Notice how the breath moves the belly softly up and down.
10. Put your attention on your hips. Feel your hips relax. (Repeat for legs, knees, ankles, feet, toes.)
11. Bring your awareness to your breathing and notice where you feel the breath in your body. Maybe you notice it in your nostrils. Maybe you feel it in your chest. Maybe you feel it in your belly.
12. See if you can get really quiet. Maybe you will even feel your heart beating inside your body.
13. Let learners rest in silence for a few moments.
14. Ring chime.
15. Slowly start to wiggle your fingers and toes. Take a deep breath in and stretch your arms overhead. As you exhale, relax.
16. Open your eyes and slowly return to a seated position.
17. Notice how you are feeling.



# Optimistic Closure: Think – Ink



Reflection

Notice what is on your  
mind and write that down.

*or*

Write about how you are  
feeling right now.

# Brain Breaks Review



## Breathe

- ❖ Anchor Breathing
- ❖ Alternate Nostril Breathing



## Move

- ❖ Brain Balance Sequence
- ❖ Chair Eagle
- ❖ Chair Boat



## Rest

- ❖ Guided Rest/Body Scan

# Takeaways

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- ❖ Vagus Nerve: Body-Brain Connection and Emotions.
- ❖ Vagus Nerve: Parasympathetic-Sympathetic Nervous System.
- ❖ Vagal Tone
- ❖ Emotional Regulation
- ❖ Breathe, Move and Rest Brain Break practices
- ❖ The 3 signature practices to integrate SEL into a lesson are:  
Welcoming Activity, Engaging Activity, and Optimistic Closure.



# Homework

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## **Self:**

Briefly note/journal your experience each day when you:

1. Notice the feeling/sensation of rushed, energetic, hyper, or worried – sympathetic.
2. Notice the feeling/sensation of relaxed, ease, or mellow – parasympathetic.

## **Online Class:**

Briefly note/journal your experience when 15-minutes into an online class session, you and your students practice a Brain Break by interjecting Chair Eagle for 3 breaths.

## **Together in Class:**

After signing up for a curriculum account at [www.pureedgeinc.org](http://www.pureedgeinc.org):

1. Go to the online curriculum
2. Go to the BRAIN BREAK videos
3. Watch the video for Anchor Breathing,  
so you can eventually do it in class with your students.



# pureedgeinc.org

Evidence-Based Approach  
Thoughtful Partnerships  
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•  
breathe

•  
move

•  
rest



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Thank you for joining us!

**Culture of Care Session 5: The Neuroscience of Stress, Part 2**  
**Trainer: Michelle Kelsey Mitchell, Director of Partnerships**

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