

lesson

Linking to Brain Research

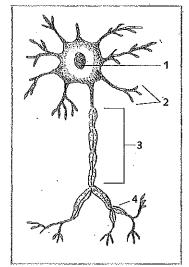
Controlling Our Breathing

Focusing on breathing helps calm the body by slowing heart rate, lowering blood pressure, and sharpening focus. Paying attention to breathing also supports strong functioning in the higher brain. Controlled breathing lessens anxiety by overriding the "fight, flight, or freeze" response set off by the amygdala and gives control to conscious thought, which takes place in the prefrontal cortex. When breathing is deliberately regulated, the brain is primed to think first and then plan a response, enabling mindful behavior.

Teaching children to focus on and control their breathing can help them become less reactive and more reflective when feeling anxious or stressed. The short daily activity of listening and breathing (Core Practice) introduced in this lesson capitalizes on neuroplasticity, the brain process that creates and strengthens nerve cell (neuron)

connections through practice or repeated experience. One example of this growth occurs on the receiving end of the neurons involved in repeated thoughts and actions: Branch-like receptors called dendrites increase in number and size, enabling a more efficient passage of information along frequently used neural pathways. This is one of many ways in which the structure of the brain is flexible and ready to grow.

As children practice controlled breathing, their brains develop and reinforce the "habit" of responding to anxiety by focusing on breathing. This leads to reflective rather than reactive responses. The more controlled breathing is practiced, the more self-managed and mindful children can become.



Nerve cells, or neurons, carry messages through electrochemical impulses or signals. The cell body (soma) [1] houses the neuron's control center (nucleus). Dendrites [2] receive information from other neurons. The axon [3] relays the signal from the dendrites to [4] the nerve endings, which transmit the information to other neurons.

Clarify for the Class

Have student use their hand and forearms to show the parts of a neuron: The palm is the nucleus, the fingers are dendrites, the forearm is the axon, and the several

sticky flags attached at the elbow are the nerve endings. Show how the information moves from the dendrites through the axon and gets sent along to another neuron's dendrites (students can link up fingers to elbows to create an information path).

Discuss: Think of something you practice a lot. Use your arm-hand model to show one of the neurons in the network before you began practicing and after several practice sessions.

Getting Ready



Taking the Core Practice to Lunch

Common meeting times, such as just after lunch and homeroom period, offer daily opportunities to do the Core Practice

GOALS

- Students learn an exercise that combines listening and breathing to calm and focus their minds.
- Students discover the importance of practicing focusing exercises regularly.

MATERIALS

- chart paper
- instrument that resonates with a clear, distinctive tone for 10–20 seconds (e.g., triangle, xylophone, chimes, piano, bell, violin)

CREATING THE OPTIMISTIC CLASSROOM

Classroom Management Set norms for mindful practices. Discuss what the Core Practice and other mindful exercises look and sound like when the class is doing them effectively. Elicit students' help in creating a simple T-chart (similar to the one that follows) of reminders on chart paper:

What Mindful Stillness Looks Like

Our faces look relaxed.

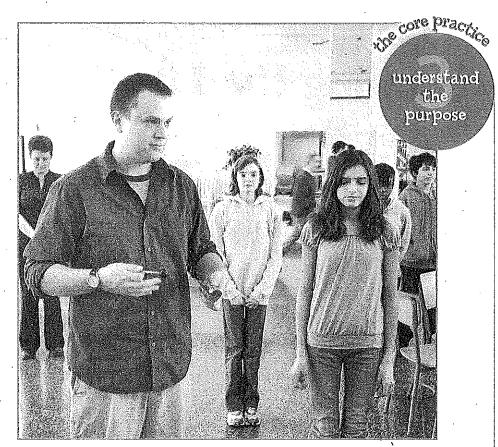
We look comfortable and at ease. Our bodies are as still as they can be. Our eyes are closed or focused downward.

What Mindful Stillness Sounds Like

Our voices are silent.

There are no loud noises in the room.

Our breathing is quiet, slow, and relaxed.



Familiar Sound

Using a special sound consistently to initiate the Core Practice helps keep students focused and makes the routine safe and familiar.

MINDUP Warm-Up

Inner and Outer Stillness

Explain to students that they can use their breathing in order to quiet their amygdala and focus their PFCs. Using the following script, guide them through a two-minute exercise. It will help to let them stretch and shake their muscles loose before you begin:

- Sit in a comfortable position and make sure your shoulders are relaxed.
- Relax your jaw. Let your eyelids get heavy. Close your eyes if you wish.
- Notice your breath coming in and going out. Don't try to change it.
- Feel your stomach rising and falling. Let your belly be soft and relaxed.
- Now see if you can breath a little more slowly and a little more deeply.
- If your mind gets distracted, go back to noticing your breath.
- Open your eyes slowly, take a deep breath, and smile.

Discuss: How did this breathing exercise feel? Did your mind quiet down? How hard was it to focus your mind on your breathing?

Leading the Lesson

Practice the Core Practice

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What ito Do

The Core Practice combines a listening exercise like the one in Lesson 2 with the controlled breathing in this lesson's warm-up. Choose an instrument to use for the Core Practice. First, review mindful listening by sounding a note. Encourage students to notice and comment on its resonance and duration.

 We are going to use this sound every time we do our mindful quiet exercise. We will begin with listening to the sound for as long as it lasts.

Ask students to prepare themselves by

- sitting upright and comfortably at their desks, feet flat on the floor (or sitting in a circle on the floor, cross-legged)
- resting their hands comfortably in their laps
- · closing their eyes or looking down at their hands

Play a note and let it reverberate. When the sound finally fades, have students open their eyes. Invite their initial reactions. Ask students to be alert to any movements or tension in their body while they listen. Repeat once or twice.

Explore

Prepare students for combining mindful listening with mindful breathing to begin the Core Practice. Explain the exercise.

- We will begin our Core Practice by sitting comfortably and closing our eyes or looking down into our hands.
- When you hear the note, listen until it fades away into the quiet. When the sound is gone, begin to focus on every breath.
- When you hear the sound a second time, listen as long as you can, still breathing calmly.
- When you can't hear the sound any longer, slowly open your eyes, but remain still and quiet.

Check that students understand the directions. Then play a note from the instrument. Pause for at least 10 seconds after the sound has stopped, for mindful breathing. Play the note a second time, and observe as students open their eyes.

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The sound when repeated will begin to create an association with quiet focus in their brains. This resonant sound will become a signal for beginning and ending the Core Practice, so it is essential that you use the same resonant instrument consistently.

Have students imagine a string pulling up from the crown of the head, with chin pointing down slightly, and spine long. Good posture makes it easier to breathe fully, improves circulation, and supports an alert mind.

Students who are uncomfortable closing their eyes can simply look down at their hands—the point being to avoid visual distractions.

Homethericalida

Neuroimaging studies, have revealed that studients' comfort level has a critical impact on information transmission and storage in the brain. (Ashby, 1999)

Reflect

Invite students to share their experiences. How many times did they catch their minds wandering? Relate the Core Practice to the key parts of the brain.

• Can you describe the effect that this exercise has on your brain?

Help students understand that although their mind chatter might be hard to control at first, it doesn't matter, as long as they continue to refocus. Their brains will get better at it.

You model aloud how you deal with your own mind chatter during Core Practice. You could do a thinkaloud for students so they realize that their efforts are normal: OK, I'm sitting here listening. The sound is buzzing a little. So is my foot. Uh oh. I think my foot is asleep. I can't shake it now. I'm supposed to sit still. Oh no, how long have I been chattering away in my mind? OK. I'm focusing back on the sound now.

Announce to the class the scheduled times during the day at which students will be encouraged to practice their new skill. Invite them to practice controlled breathing on their own also, especially if they feel the need to calm their amygdala or focus their PFC.

With practice, students will be able to quiet their minds more quickly and for longer durations. Students who have trouble holding their attention may need to make sure that they are not physically uncomfortable, which can be very distracting.

It is critical to keep a consistent schedule for leading the Core Practice and make sure that students are fully seated and silent before you begin.



MINDUP In the Real World

Career Connection

Listen, aim, focus, breathe, shoot. We can see that the Core Practice helps us every day, no matter what we're doing. One profession that really depends on mindful breathing and listening is that of the wildlife photographer. We owe our most spectacular wildlife photography to the mindful steps the photographer follows before each shot. Sometimes enduring months in remote, challenging. environments stalking an elusive animal like the snow leopard, the photographer must listen intently to know when the animal is near and breathe mindfully to ensure a steady hand and an in-focus photograph snapped at exactly the right moment.

Discuss: What other careers require mindful listening and breathing to get centered before a person takes an action? Think about performers and athletes who may need to get focused before they take the stage, court, or field.

Once a Day

Do one minute of mindful breathing or listen to a piece of calming music just prior to a task or part of your day that demands your full concentration and focus.