ABC’s of Brain-Based Learning

“Nature’s biological imperative is simple: No intelligence or ability will unfold until, or unless, it is given the appropriate model environment.” – Eric Jensen (2000)
Atmosphere

The atmosphere you create for your students has a great influence on their learning. To get the most potential from our brains, we must set up an atmosphere that is conducive to maintaining a positive, successful environment.

Classroom Strategies:

✓ The color of a room has a significant impact on how the brain first reacts.
  o **Primary Students** – use high-contrast colors such as reds, oranges, and yellows.
  o **Secondary Students** – use less distracting and stress reducing colors such as blues and greens.

✓ Keep the room as close to 70 degrees as possible. The ideal temperature range is between 68 and 72 degrees. If you have no control over this, be sure to keep blankets and/or sweatshirts in the room for those who are consistently cold.

✓ Allow fresh air into the room when the outside temperature is desirable.

✓ Keep your room neat and uncluttered. Be a role model for the organization you would like the students to have.

Books/Articles References:
Brain Fitness

Brain Fitness refers to simple activities and movements that will create opportunities for whole brain learning. The most commonly known of these exercises is called Brain Gym®, which can be incorporated into daily classroom routines to enhance learning. Learning through movement can increase blood flow to the brain, which helps improve memory, concentration, physical coordination, and organization.

Classroom Strategies:

✓ Do activities that cross the left side of the body to the right side, which helps to coordinate the left and right brain.
  o Pretend like you are an astronaut walking on the moon, cross your right hand and put on your left knee and your left hand on your right knee.

✓ Participate in calming activities that help to reduce stress.
  o Brain Gym® suggests doing “hook-ups”. Extend your arms and cross the left wrist over the right; interlace your fingers and draw your hand up toward your chest---relax and breathe.

✓ Doodling is okay!
  o Have students doodle by making the number eight sideways (∞). This helps cross the midline between the two sides of your brain and helps to remember words.

Books/Articles References:


Website Reference:
Brain Gym at: www.braingym.org
Choice

Offering students choices can affect their overall involvement and understanding of the material. Placing choice into the curriculum will allow the student to feel a sense of freedom and empowerment. No longer is the student viewing the classroom environment as a set of rules to follow; instead, by having choices offered to him/her, the student will see it as a part of themselves.

Classroom Strategies:

✓ Offer multiple forms of assessments.
  o Collage, Essay, Debate, Painting, Song, Outline, Game, Portfolio, etc.

✓ Allow students to choose their own seats.
  o Provide various places to sit in the room (by windows, by lamps, etc.) and different types of furniture (rug, cushion, beanbag, rocking chair, etc.)

✓ Allow students to choose partners.
  o Post a list it in front of the class of students’ learning styles and have them choose groups accordingly.

Books/Articles References:

Differences

Boys and girls seem to have different preferred learning styles in the classroom. Generally, boys would rather learn kinesthetically, while girls are more auditory. For example, when it comes to reading, girls prefer fiction, where boys prefer non-fiction.

Classroom Strategies:

✓ Examine the roles played by males and females in your teaching. Make sure that your lessons benefit the learning styles of boys and girls.

✓ Keep as much movement in the classroom as possible. This will help keep the active boys more interested.

✓ Try using manipulatives and other concrete objects during your lessons to benefit the hands on learners in your classroom.

Books/Articles References:


Emotions

Emotions and our brain power are intertwined; therefore, making emotions a significant source of learning. There are two components within our brain that impact our emotions; the hippocampus organizes information and sends it into long term memory, the amygdala stores positive and negative emotions, which helps us to make meaning out of our experiences. Emotions motivate everything we do and impacts student behavior, memory, attention, and meaning.

Classroom strategies:

✓ Establish positive rituals.
  o Have an arrival song that plays every morning or class period. Make a special handshake or class motto that students can use daily.

✓ It is okay to make mistakes!
  o Establish confidence by letting students know that mistakes are a part of the learning process.

✓ Express ALL emotions.
  o Make sure students have a way of expressing emotions both positive and negative. Give students time to reflect in a journal or whole group sharing.

Books/Articles References:
**Fun**

Fun is the major puzzle piece in brain-based learning that links the other concepts together. Fun can give motivation and ownership to a student’s learning. It makes for smiles and laughter, which lower stress levels. Engaging students in activities that are creative and fun provides a positive learning experience.

**Classroom Strategies:**

- **Incorporate fun into learning.**
  - Have an energizer in the morning that is full of movement.

- **Laugh! Use humor in your room.**
  - Start the class period with a joke or allow students to share what makes them laugh.

- **Engage, Engage, Engage**
  - Hands-on activities are great ways to get students to engage in learning. Promote teamwork. Let students be in charge of their learning with the teacher serving as the facilitator.

**Books/Articles References:**

**Website Reference:**
Energizers at: [http://www.ncpe4me.com/energizers.html](http://www.ncpe4me.com/energizers.html)
Goals

You are responsible for instructing the students on how to establish goals, work towards their goals and achieve their goals. They should be challenging enough to make the student work, but not so difficult that they can not be obtained. Provide feedback; the more feedback a student receives the better chance he/she has in staying on the right path to achieving the goal.

Classroom Strategies:

✓ Post a Goal Chart in your classroom. This allows students to develop their own goals and see them daily.

✓ Make the goals specific, measurable, attainable, realistic and timely (SMART).
  o Make a time capsule that includes goals by students.

✓ Let students see how goals are implemented in the real world.
  o Have local community members come in to discuss their jobs and the goals they set to achieve success.

Books/Articles References:


High Expectations

Expectations can make or break a student’s willingness to learn. In order to have a positive affect on all students, you must have high expectations for everyone in your class. You must present yourself in an energetic light and have the faith that the students can complete what needs to be accomplished. When your expectations and attitude are high, the students will feel safe and will live up to those expectations.

Classroom Strategies:

✓ Replace “Yes, but…” with “Here’s how…” This way you are searching for a way to make something happen, not put it down.

✓ Alter one’s mood and outlook of the class. Students will often rise to the occasion.

✓ Play the role of being energetic and upbeat. By having a happy and lively mood, students are more likely to mirror the attitude and become full of life as well.

Books/Articles References:
Interests

Finding a common interest among boys and girls can be very difficult. Previous research has shown that boys prefer math and science, while girls are more willing to read and write. Over the past few years these gaps are closing and there are several ways to help this pattern continue.

Classroom Strategies:

✓ Allow boys to write about their interests. If the topic is something that they are excited about, then their writing will have much more meaning to them.

✓ At lunch, have students pair up according to common interests rather than normal gender setting. This will help the students understand that they share a much more common ground with each other.

✓ Read aloud as often as possible. Students who do not enjoy reading, may lack the necessary reading skills to be a successful reader. Students often do their best learning by hearing.

Books/Articles References:


Students should feel as comfortable in your classroom as they do at home. Creating a zone where students feel like they can relax, be successful, and be safe will keep them coming back for more learning.

Classroom Strategies:

- Plants not only create the appearance of a content environment, but also increase the amount of oxygen in the room, therefore increasing brain activity.

- Allow for comfortable seating options. This gives students the choice to work where they feel relaxed.

- Hang pictures or student work, but beware of clutter; too much can be just as bad as too little.

- Bring lamps into the classroom to make it feel more like home.

Books/Articles References:

Kinesthetic learning is a learning style where students learn best by experiencing or touching the world around them. The strong element of physical response is a powerful way to learn because it creates involvement in the educational process and teaches students how to make connections.

Classroom Strategies:

- Be tactile. Provide creative use of hands-on manipulatives.
  - Have students run their fingers around in shaving cream or pudding to practice spelling words.
- Make learning come alive.
  - Do investigations where students can creatively compose or build a project of their choosing. Make drama stations that are set up for students to act out different characters of a book and truly be part of them.
- Move. Incorporate movement into daily lessons.

Books/Articles References:


Website Reference:
Brain-Based Energizers at:
Lighting

The traditional fluorescent lights are on the way out. Multiple studies have shown they emit uneven light and can even be stressful to the eye. It has also been shown that letting in natural light increases attention and promotes a positive attitude, especially in winter months.

Classroom Strategies:

✓ Allow as much natural light as possible into the room through windows or skylights.

✓ Bring in lamps with full-spectrum light bulbs.

✓ If possible, replace fluorescent bulbs with UV or full-spectrum bulbs.

Books/Articles References:

Music

Recent research has shown that some students may actually need sound to concentrate. Music in the classroom can awaken the brain and affect pulse, blood pressure, muscle tension, and brain waves.

Classroom Strategies:

✓ For a more upbeat lesson with lively activities, listen to music with quick tempo and a steady beat.

✓ For quiet work time, play a calming music, such as classical or instrumental.

✓ Having a variety of music selections in the classroom will keep you ready whenever the music is needed.

Books/Articles References:
Nutrition

It is about time that we take our learners nutrition more seriously. Healthy functioning of the neurons in the brain is essential to each student’s mental performance and alertness. Teach students the importance of making healthy food choices at school and at home.

Classroom Strategies:

✓ Encourage your students to eat "close to the earth," which would include fresh fruits and vegetables.

✓ Students should always have high protein breakfast choices such as eggs, yogurt, and bran cereals.

✓ Break the cycle of doughnuts, cupcakes, and candy by allowing only healthy food choices in the classroom.

✓ Too much time in between snacks can cause a lack of focus and concentration. Always have opportunities to eat nutritious snacks throughout the day.
  o Have nuts, apples, and granola bars handy for students.

Books/Articles References:


Website Reference:
Steps to a Healthier You at: [http://www.mypyramid.gov/](http://www.mypyramid.gov/)
On-line Learning

Trying to reach learners with varied interests, backgrounds, and abilities continues to be a challenge. You must work to find tools that can reach a variety of students and provide flexibility in the classroom. The World Wide Web provides a number of opportunities to reach students in a unique manner.

Classroom Strategies:

✓ Provide multiple options for expression by allowing students to blog rather than keep a journal.

✓ Allow students to access class materials, such as worksheets, on the web.
  ○ Incorporate software such as YahooGroups.

✓ Use new technologies, such as Wikipedia, to allow students to share what they have learned on a subject.

Books/Articles References:


Patterns

The brain has a need to group, make categories, and create structure to learn. Cells in the brain are always firing new information by sending and receiving messages. When the new information has a pattern or link, the information has more meaning and understanding. The whole process of teaching should be given in small parts, so the learner can connect them into a bigger picture.

Classroom Strategies:

✓ Discuss the relevance of a topic by correlating the pros and cons.

✓ When reading a book to kids, ask them higher level thinking questions to make them see problems and resolutions, cause and effect, as well as patterns.

✓ Provide hands-on activities where students are using building blocks, sewing, and or playing cards to create patterns.

✓ Group ideas, names, factual information, key ideas, and different subject material together.

Books/Articles References:


Website Reference:
Enriching the Learning Environment at: [http://members.shaw.ca/priscillatheroux/brain.html](http://members.shaw.ca/priscillatheroux/brain.html)
Questioning

Questioning techniques can highlight the differences between boys and girls. While boys tend to shout out answers, girls can be more timid in their responses. Developing a variety of brain-based questioning strategies can enable you to reach both genders.

Classroom Strategies:

✓ Boys benefit from being allowed to discuss responses before committing themselves to an answer. This is why they do not participate as much in classroom debates.

✓ Use more story problems. Girls do much better in math when they are using story problems. This allows them to use one of their strengths, language skills.

✓ Allow at least a 3 second wait time after asking the question.

✓ Be aware of unintentional gender bias when calling for answers.

Books/Articles References:


Rewards

In the world of education there are two types of rewards: extrinsic and intrinsic. Extrinsic rewards are those incentives that are external (candy bars, money and grades) and are often used for short-term motivation. Intrinsic rewards are internal and generally come in the presence of a good feeling after accomplishing something.

Classroom Strategies:

✓ Develop tasks and assessments that students enjoy doing. This will promote intrinsic motivation.
  o Role Playing, Skits, Projects and Creative Writing

✓ Make it real. Tap the information into activities and emotions that are linked to the real world.

✓ Allow for discussions and debates to take place. Give the students the freedom to speak their minds in an appropriate and respectful manner.

Books/Articles References:


Seating

Sitting in the typical uncomfortable classroom seat and desk combination all day can hinder learning by more than what we think. To reduce distractions to the brain, students should have options of the type of seating they prefer.

Classroom Strategies:

✓ Provide a variety of seating options.
   o Desks and chairs, rugs, bean bags, video game chairs and pillows.

✓ Get chairs and desks that are easily adjusted and movable so each student can find their comfort zone and they can be moved throughout the period.

✓ Change seating frequently in the room to raise the attention and interest of your students.

✓ Be aware of the students sitting on the outside and the back of the room as they usually receive the least amount of attention.

Books/Articles References:

Technology

Technology does not replace you as the facilitator, but it can serve as an effective tool to differentiate instruction for a wide variety of learners. When used correctly, technology can help students become more actively involved in the learning process.

Classroom Strategies:

- During independent work, encourage students to access technology, such as computers, to go beyond the assignment.

- Use technology, such as video clips, to create sensory experiences for the student. This allows the learner to connect new content to existing brain pathways.

- Create methods to assess students that integrate technology.
  - Desktop Publishing, PowerPoint and Excel

Books/Articles References:


Use It or Lose It

Memory works in a unique form when it comes to the working brain. Some students can remember every detail, while others have a difficult time remembering what was learned at the start of the day. The use of creative repetition will help the students with memory and recall.

Classroom Strategies:

✓ Find a different and creative way to practice everyday. Try creating a rap, computer drills, songs, cooperative learning, and or games, games, games!

✓ 60/40 Rule – Teach 60% of ritual based activities and teach 40% novelty.

✓ Chunking – Teaching the material in chunks in order to make the information more organized in the brain and more meaningful to the student.

✓ Mix-It Up – Present the information in a variety forms in order to accommodate the multiple learning styles of the students.

Books/Articles References:


Video Games

Students have changed enormously from just a few years ago. Today’s learners have spent their entire lives surrounded by digital technology, including video games. As teachers, we often think of video games as a waste of time, however, if we can harness the power of video games for educational purposes, we will have created a tremendously effective motivational learning tool that addresses the different cognitive skills of today’s students.

Classroom Strategies:

✓ Replace traditional activities and methods with video games that tie content to a digital environment.
  o Use a flight simulator for a Physics lesson.

✓ Use simulations video games as a way to examine alternative outcomes to historical situations.
  o The video games “Call of Duty” and “Civilization”

✓ Use video games to present students with ethical dilemmas and choices.
  o The video game “Sims”

Books/Articles References:

Water

Water makes up 80% of the brain’s content material. To maintain life, it’s important to replenish the body’s fluid supply every day. When water is restricted the stress hormone increases, allowing for overreactions and anger. A good rule of thumb for water consumption is ½ oz of water for every pound that you weigh, but depending on the need for water, if you are thirsty... you may already be dehydrated!

Classroom Strategies:

✓ Allow students to carry water bottles in the classroom and make sure that water is always accessible.

✓ A lot of students are drinking soft drinks, coffee, and or tea that are all diuretics, they bind to sugar therefore the benefit of these liquids is lost.

✓ As a role model to your students, let them see you drink water throughout the day.

Books/Articles References:

XX and XY

Did you know that the female's brain is smaller than the male's, but they have more connections between their two hemispheres? We obviously notice that there are many physical differences between men and women. However, there may be more genetic and emotional differences than we think.

Classroom Strategies:

✓ Girls hear anywhere from 2 to 4 times better than boys. This could explain why boys sitting in the back of the room struggle to pay attention.
  o Walk around while you are teaching or seat boys closer to the front of the class.

✓ Boys' spatial reasoning develops at a much earlier stage than girls. Teachers should use this strength among boys to help them develop better language skills by using different graphic organizers in their everyday writing.

✓ Girls are able to discuss their emotions much better than boys. Try not to assign boys an essay about “How do you feel...”

Books/Articles References:


You Can Do It

Creating a brain-based classroom takes time to implement, test and modify before you can really see the results. However, it is completely up to you to begin the change, not only in the classroom, but in the school as well. Once fellow colleagues witness the benefits of brain-based learning, they too will begin modifying their lessons to better suit their students’ needs and wants.

Classroom Strategies:

✓ You are the most important aspect in this entire transformation.
  o Start with a simple addition of an assessment or by adding a new light.

✓ Get the student involved with the community.
  o Ask members of the community to come in and share their lives with students.

✓ Discuss brain-based learning with your staff and colleagues.

Books/Articles References:
**ZZZ’s**

Small children need 8 to 10 hours of sleep every night. Without adequate sleep one can become irritable or have trouble concentrating in class. The most important sleep period is in the REM (Rapid Eye Movement) sleep. This is the time period we are consolidating information, strengthening the learning, and processing a lot of information. A student lacking sleep may not be engaged in school and a lack of concentration.

**Classroom Strategies:**

- **Students all have different peaks as to when they will learn most effectively.** Try to teach new information in the morning, and simulations and projects in the afternoon.
  - Short-term memory is better in the morning, while long-term memory is better in the afternoon.

- **Promote a routine sleeping schedule.**
  - Encourage students to go to sleep at a reasonable time every night.

- **If your students are falling asleep in class it may be due to the lack of movement and/or excitement in the classroom.**

**Books/Articles References:**


**Website Reference:**

Sleep is important! [http://www.sleepforkids.org/](http://www.sleepforkids.org/)
Additional Resources:


Brain connection at: www.brainconnection.com