Making Neuroscience Fun

A Brain Awareness Program for All Ages

Brain Health: It's SPECtacular

Science Behind the Story (SBS)
The Brain Changes All the Time (A Brain Facts Story)
(5th Grade – 10-11 yrs)

This story describes how because the world you live in is always changing, your behaviors have to change and so does your brain.

- Being able to adapt to changes in your world helps you to survive.

  The main role of your brain is to help you to do behaviors that help you to survive in a world that is constantly changing. The brain has the ability to adapt, or change, behaviors when the world around you changes (Chiel, 1997). As children grow the world around them also grows and changes, so their behaviors must also change (Nelson, 2017). The changing world includes the physical environment, the people they encounter and technological innovations (Small, 2020)

- Everything that you do changes your brain. Your brain has the ability to adapt – known as neuroplasticity.

  Your brain and behaviors have a reciprocal relationship. Your brain has the ability to change your behaviors and all behaviors that you do change your brain (Kolb, 2012). The mechanisms by which your brain is able to change is known as neuroplasticity (Mateos-Aparicio, 2019). Some of the changes that occur in your brain result in behaviors that make you feel good about yourself (Sonne, 2018) and of the changes result in behaviors that add more stress to your world (McEwen, 2012).

- Everything about your brain is changing. This includes the number of neurons and glial cells that make up your brain, the connections between those cells, and the blood vessels that carry things in and out of your brain – everything is always changing.

  There are many structural and functional changes in the brain that underlie neuroplasticity (Tovar-Moll, 2016). All of these changes revolve around the brains ability to receive, process and store information and produce physiological changes. As our technology of visualizing the brain advances, so do our ability to access physiological changes that occur with neuroplasticity (Tardiff, 2016).

National Standards:

Next Generation Science Standards

- Crosscutting Concepts
  - **Structure & Function:** The way an object is shaped or structured determines many of its properties and functions.
    - Substructures have shapes and parts that serve functions.
  - **Stability & Change:** For both designed and natural systems, conditions that affect stability and factors that control rates of change are critical elements to consider and understand.
    - Change is measured in terms of differences over time and may occur at different rates.
    - Some systems appear stable, but over long periods of time will eventually change.

- **Cause & Effect:** Events have causes, sometimes simple, sometimes multifaceted. Deciphering causal relationships, and the mechanisms by which they are mediated, is a major activity of science and engineering.
    - Cause and effect relationships are routinely identified, tested, and used to explain change.
    - Events that occur together with regularity might or might not be a cause and effect relationship.

ASCA (American School Counselors Association):
Personal/Social Development

- **Standard A:** Students will acquire the knowledge, attitudes and interpersonal skills to help them understand and respect self and others.
    - PS:A1 Acquire Self-knowledge
        - PS:A1.4 Understand change is a part of growth
        - PS:A1.11 Identify and discuss changing personal and social roles
        - PS:A1.12 Identify and recognize changing family roles

National Health Education Standards (Shape America) & CDC (Centers for Disease Control and Prevention)

- **Standard 1:** Students will comprehend concepts related to health promotion and disease prevention to enhance health.
    - 1.5.1: Describe the relationship between healthy behaviors and personal health. **(CDC)**
- **Standard 2:** Students will analyze the influence of family, peers, culture, media, technology, and other factors on health behaviors.
    - 2.5.6: Describe ways that technology can influence personal health. **(CDC)**

References:

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