

Making Neuroscience Fun

A Brain Awareness Program for All Ages



Brain Health: It's SPECTacular

Science Behind the Story (SBS) (Lots of Ways to Learn (🌈 A Cognitive Health Story) (2nd Grade – 7-8 yrs)

This story describes how the way that we learn changes as the world changes. Our ability to keep learning throughout our lifetime is what helps to keep our brain healthy.

- 🌈 Back in the caveman days and early in our lives, we learned about things that help us to survive. All animals learn these survival skills from other animals that take care of them.

Learning is a ubiquitous behavior – all animals must learn or they do not survive (Squire, 1986). In the early days of mankind, humans learned the same way that animals did – by communicating with members of their own species within their own generation. As language developed, especially in written format, less time had to be spent learning and teaching others (Corballis, 2009). This gave humans extra time and they were able to come up with better ways to do the behaviors they needed to do to survive.

As the world changes around us, so do we, including our way of learning. While survival was our main motivator for learning early on, with time we were able to mass large amounts of knowledge through experience and exploration (McLeod, 2017). Presently, we use educational institutions to teach younger generations what they should know as they become adults. As technology develops and advances, so do the opportunities of engagement and methods of learning (McLeod, 2017).

- 🌈 Usually, what animals learn is passed down from one generation to the next. Humans have the ability to pass along knowledge from generations due to our ability to read and write.

Language development is essential to human learning. Language **allows what we have learned to be cumulative** – the ability to read and write allows the knowledge (information) gained by one generation to be passed onto the next generation (Heyes, 2012). Language also gives us the ability to convey what is in our mind – to share our thoughts, ideas and emotions – the mental representations that go on within our heads (Corballis, 2009).

- 🌈 Reading and writing make learning easier and it gives humans more time to develop things like technology, which further helps our ability to learn.

Technological advances have also helped our ability to learn. We now have massive amounts of information available to us. In some cases, this may be overwhelming. One of the things that students must learn early is that everyone has the ability to learn, however different people may learn differently than other people (Reid, 1987; Casey, 2005; Casey, 2005). Plus, for the same person they may learn different topics differently (Reid, 1987). For example, a person may be a “visual learner” when it comes to science, but the same person may be a “kinesthetic learner” when it comes to sports. The other thing to consider is that learning styles may change within the same individual as their brain grows and matures (Reid, 1987; Casey, 2005; Casey, 2005).

In a world where there are so many different ways to learn, it is important that students are encouraged to find the ways that they can learn different topics. It is also important to teach students that if they are having trouble learning a topic, asking for help is key. As motivation plays a role in the ability of a person to learn (Huitt, 2011), coming up with ways that students can learn information that is necessary, but may not be that interesting to them, will also facilitate learning. With all the technological advances we have now, and all those we will no doubt have in the future, there are ways for anyone to learn almost anything. Asking for help can help to identify different ways to learn.

National Standards:

Next Generation Science Standards

- Crosscutting Concepts:
 - **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.
 - Events have causes that generate observable patterns.
 - **Patterns:** Observed patterns in nature guide organization and classification and prompt questions about relationships and causes underlying them.
 - Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
 - **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.
 - Things may change slowly or rapidly.
 - Somethings stay the same while other things change.

ASCA (American School Counselors Association):

Academic Development

- **Standard A:** Students will acquire the attitudes, knowledge and skills that contribute to effective learning in school and across the life span.
 - A:A1 Improve Academic Self-concept
 - A:A1.5 Identify attitudes and behaviors that lead to successful learning
 - A:A2 Acquire Skills for Improving Learning
 - A:A2.3 Use communications skills to know when and how to ask for help when needed
 - A:A2.4 Apply knowledge and learning styles to positively influence school performance

References:

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