



Science Behind the Story (SBS)
Being Afraid Can Help You – WHAT?!? (🌈 An Emotional Health Story)
(2nd Grade – 7-8 yrs)

This story describes how fear can actually help you to learn and stay alive.

🌈 Fear is a natural emotion and all animals have it.

Fear is one of the 8 basic emotions (Plutchik, 1994; Plutchik, 1965) and it is one of the emotions that humans share with animals (Boissy, 1995; Hebb, 1946). Now while there is some disagreement on whether animals have the “feelings” or the conscious awareness that they are afraid (Adolphs, 2013). However, there can be no disagreement that stimuli that are dangerous or potentially dangerous to an animal activates the same systems within the brains of animals that are activated in humans (Miller, 1969; Campbell, 1997).

🌈 When you are afraid of something, your body tells your brain. Your brain then helps you to get ready to deal with the situation. It is good to learn what scares you, so you can figure out how to deal with it.

When your sensory system sends information to your brain that there are potentially dangerous stimuli, there is an automatic response of your sympathetic nervous system (Kreibig, 2010). The sympathetic nervous system is part of the autonomic nervous system which turns on the “flight or fight” response (Kernich, 2009). This is a response that helps to keep the body (and the brain) safe from potentially damaging stimuli (Kreibig, 2010). The activation of the sympathetic nervous system is also what we attribute to a “stress response” (Nesse, 2016).

Because the stress response is activated immediately, it is important to know when you need to “listen to your body” and either “fight” or “flight (run)” and when you need to “listen to your brain” and calm down. Seeing a big snake in the woods may activate your sympathetic nervous system if you did not expect it and that would activate your sympathetic nervous system response – and you would be afraid. But, if you then remembered that the snake you see looks like a snake that is not dangerous, then you could calm yourself down and not be scared.

🌈 Different things scare different people. Too much fear can hurt both your body and your brain.

Because different things will produce fear (and activation of the sympathetic nervous system) for different people (Cottle, 2004), it is important for children to understand what scares them and why. The reason for this is that too much stress can be detrimental to both the body and the brain (McEwen, 2008). Stressful, or scary, situations occur when someone feels that they have no control over the situation (Kim, 2002). Children need to learn what causes them to feel afraid or stressed so that they can protect their brain, just like their brain protects them.

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.
 - **Systems & System Models:** A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.
 - Systems in the natural and designed world have parts that work together.

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:A1.5 Identify and express feelings

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.
 - 1.2.1: Identify that healthy behaviors impact personal health. **(CDC)**
 - 1.2.2: Recognize that there are multiple dimensions of health. **(CDC)**
- **Standard 4:** Students will demonstrate the ability to use interpersonal communication skills to enhance health and avoid or reduce health risks.
 - 4.2.1: Demonstrate healthy ways to express needs, wants, and feelings. **(CDC)**

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