

BRAIN AWARENESS WEEK

Participate in the world-wide k-12 outreach event sponsored by the Dana Foundation.



Colorado State University

COLLEGE OF VETERINARY MEDICINE
AND BIOMEDICAL SCIENCES

Department of Biomedical Sciences

The Brain Awareness Week program was first conceived by the Dana Foundation, a private philanthropic organization committed to promoting the field of neuroscience and awareness about brain disease through grants and educational programs. According to the Dana Foundation website, "Brain Awareness Week (BAW) is the global campaign to increase the public awareness of the progress and benefits of brain research."



HANDS-ON DISCOVERY...

The brain is one of those amazing mysteries. It does so much more than we give it credit for. For example, you may notice that upon making coffee with your new coffee maker for the first time, it takes a bit longer than you would like it to. But as you continue making coffee every morning, you get to the point where it's a piece of cake. It's pretty mindboggling to think that the reason you improved is because repeating that action every morning caused your brain to learn and teach itself how to do a better job. The act of making coffee became a memory to recall when necessary. And it doesn't stop with coffee.

Your brain makes memories all day long with most of the things you do. Even when your students are writing an essay or practicing geometry, they're learning new information without even thinking about it. This ability for your brain to learn and teach itself is a very interesting aspect of our daily lives. **So, wouldn't it be great to have the opportunity for you and your students to learn about the interesting and intricate nature of this three-pound organ?**

Brain Awareness Week (BAW) allows you and your students to do just that.

BAW is a community education event sponsored by the Department of Biomedical Sciences at Colorado State University. The goal of the event is to engage students in learning all about neuroscience and the brain in a fun and interactive way, bringing a captivating educational experience to your school.

We aim to engage, teach, and inspire...

Our goals are to:

- Engage students from secondary and post-secondary levels of education in learning and teaching about neuroscience.
- Teach students about neuroscience in an interactive and memorable way.
- Inspire students to think about neuroscience in their daily lives.
- Foster curiosity and educate about the promises of brain research.
- Strengthen connections between Colorado State University, the Poudre School District, and the Fort Collins community as a whole.
- Have fun!

Brain Awareness Week in the Fort Collins community had its inception over ten years ago, in 2002, with a small presentation given at Preston Junior High School by Dr. Cynthia Smeraski. Over the years, interest in the program has grown, and with the generous help of national and community sponsors such as the Society for Neuroscience, the Front Range Neuroscience Group, and the Department of Biomedical Sciences at Colorado State University. The program has blossomed into an exceptional opportunity for experiential STEM education in the Fort Collins community.



“The beauty of partnering with CSU is it offers us resources we can't typically get our hands on. How many people can say they've held a human brain?”

- PSD Science Teacher

Our Format: Students Engaging Students...

Brain Awareness Week usually takes two school days at a local middle school or high school to bring captivating neuroscience topics to students. In years past, the program was brought to Blevins and Preston middle schools, and to Fossil Ridge and Rocky Mountain high schools. However, Dr. Leslie Stone-Roy, the program director, is hoping to expand the program to include more schools in the Poudre School District. She states, **“the high school students learn so much from the program that it would be wonderful to provide every high school with the opportunity to participate.”**

The event presents neuroscience topics to students in fun and engaging ways, so that students can learn all about this interesting science field. These topics include neuroanatomy and sensory perception, as well as topics related to diseases affecting the nervous system, such as Alzheimer's disease, epilepsy, and diabetes. Topics are added to the program every year in order to present the newest and most relevant facets of neuroscience to students.

Topics are presented to students using stations. Stations are usually set up at the host school a day before the start of the event. Stations include posters with interesting information about a topic as well as fun hands-on activities students can use to explore the ideas presented at those stations. The posters are written for students to easily understand the topics, and CSU trains volunteers to be knowledgeable on the areas they are presenting.

CSU student and staff volunteers are the heart of the educational experience with BAW. They man the stations and present their topic to students. Volunteers enthusiastically teach neuroscience and put much effort into making the event the best possible experience for students. Students are usually organized into groups of 3-4, and these groups rotate from station to station. Because of the small group size, students can ask questions, and volunteers can better focus on each student. This focus allows for better learning and greater engagement in the activities of Brain Awareness Week. A small group size also facilitates having more time to participate in the activities at each station.

Interactive & Informative

The interactive elements at each station strive to entertain and inform students. Whether it's tasting jellybeans and ice cream at the chemical senses station, figuring out optical illusions at the vision/visual perception station, or examining the human brain at the human brain station, students always find something that interests them. At one station, students even use their body heat to paralyze fruit flies! *But no worries! The fruit flies recover safely within minutes.* These interesting and enjoyable activities help students to actually experience neuroscience in a fun and tangible way and help relate neuroscience topics to students' daily lives. "Because of the interactive nature of the stations," Dr. Stone-Roy explains, "the high school students remain engaged and learn more about each topic."

After all, who doesn't like to learn about crazy optical illusions and eat tasty jellybeans?

TOPICS, PRESENTATIONS, & POSTERS

The following stations are samples of past events. This list is not permanent, and the types of stations offered at the event change and are updated based on the latest knowledge neuroscience has to offer. For example, a CSU honors student designed the aphasia station in 2014 to educate about the disorder and some possible treatments, including speech therapy. Additions such as this, allow students to get the most important and interesting information about neuroscience topics and exposes students to new and exciting aspects of the field.

Chemical Senses Have you ever wondered how your sense of taste works, or why you don't seem to taste as well when you are sick with a cold? This station will let students in on the secrets of taste and smell. The station shows the anatomy and function of these senses. Students get to learn about taste vs. flavor distinction with jellybeans, and other fun activities further teach about taste and smell. Plus the station offers ice cream...who doesn't like ice cream?

Vision & Visual Perception Ever wonder how your eyes play tricks on you? At this station, students learn about the visual system and the deceptions it can play on us. The activities include finding the blind spot of your eye and discerning optical illusions.

Stroke & Brain Trauma Students learn about the warning signs and symptoms of stroke. The hands-on activity has students simulate stroke symptoms such as loss of motor function.

Human & Other Vertebrate Brains Students often feel this station is their favorite! It's an amazing sight to behold a human brain. Students examine half and whole preserved human brains, and volunteers teach students about the different parts of the brain. Other than seeing a human brain, students also have the opportunity to examine a variety of brains from other vertebrate animals, including rodents, cat, fish, sheep, and even a shark. Students learn why some animal brains have a certain shape as "form fits function."

Neurodegeneration and Alzheimer's Disease Alzheimer's is a disease which educators and students alike may struggle with, as a loved one or close family friend battles the disorder. We want to engage students in learning about the disorder for this reason. Students learn about the causes, symptoms and treatments of the disease with the help of a revamped poster. Students also participate in hands-on activities designed to simulate different types of memory, and how Alzheimer's disease affects memory.

Epilepsy This important station has a poster describing basic information about epilepsy: what the disease is, different types of the disease, how to help a person having a seizure, diagnosis, and different treatment options. Presenters are trained to answer questions about epilepsy and play trivia with students to separate fact from fiction in order to dispel myths about the disease.

Neurobiology of Ecstasy We want students to be informed about ecstasy so they are more knowledgeable on the popular drug and can make better decisions about its use. Presenters use a PowerPoint slideshow with accompanying notes to inform students about how the drug works and the effects it has on the brain. Volunteers can answer question students have about the presentation and dispel any myths students may have about the drug.

Multiple Sclerosis & Parkinson's Disease These two diseases are common, and students will likely have heard of the disorders. This fun station presents information about both of these important diseases, and how they differ from one another. Students get to act like they're an electrical impulse in a nerve cell to see how multiple sclerosis affects nerves. Students like to engage in some friendly competition to see who can be the fastest electrical impulse.

Fruit Fly Mutants Did you know you can temporarily paralyze fruit flies just by using your body temperature? This interesting station teaches students how nerves and muscles interact using the *Drosophila* fruit fly. Students also get to learn why the fruit fly serves as a model organism for studying the brain. Then students can see how temperature affects mutant flies by using their body heat to momentarily paralyze the flies.

Diabetes and the Nervous System The rates of obesity and diabetes have been on the rise in children for the past decade, and students should understand the importance of this disorder so they can help fight the disease. This station teaches students about diabetes: the different types of diabetes, test for the disease, connections between diabetes and the nervous system, and other aspects of the disease. The interactive element shows students the progression of type II diabetes. Students first play the role of insulin or glucose under normal conditions. Then, students see how these chemicals change during diabetes.

Aphasia Aphasia is a condition where the comprehension and formation of language is disrupted. A CSU honor student created this station in 2014 to teach about the disorder, including the different types and possible treatments, such as speech therapy.

“The human brain was disgustingly interesting! I really enjoyed getting to see one!”

- 10th Grade Student





“ I have all good things to say about Brain Awareness Week. I had no idea what to expect, but once I came to check it out, I was pleasantly surprised. I enjoyed the breadth and depth of the presented topics. The interactive portion of the stations was a great way to get students involved, and the volunteers were knowledgeable and enthusiastic.”

- Zoology Teacher

WANT TO LEAN MORE?

Contact us...

Dr. Leslie Stone-Roy
Assistant Professor, Department of Biomedical Sciences
Colorado State University

leslie.stone-roy@colostate.edu
(970) 491-3801

A Special Thanks to the Dana Foundation

The Dana Foundation sponsors events across many platforms, from universities and school, to hospitals, professional organizations, and research laboratories. And although the Dana foundation states that BAW is “officially in March every year,” the foundation helps to organize all of these events across the globe on a year-round basis. Their goal for BAW is to “unite the efforts of partner organizations worldwide in a celebration of the brain for people of all ages.”

<https://www.dana.org/baw/>

*Booklet text developed by Derek George, BAW student volunteer
and graduate student in the Department of Biomedical Sciences*