

The Rochester Brain Awareness Campaign reaches out to future scientists in 2017

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Who are we? What do we do?

The University of Rochester Brain Awareness Campaign is led by a group of PhD students in Neuroscience and Brain and Cognitive Sciences. Our goal is to educate the public about the brain in fun and engaging ways and to advocate for the importance of brain research. We engage in outreach by visiting schools and creating programs for different groups. We are always looking for new opportunities to share our love for the brain!



Members of the 2016-2017 Brain Awareness Campaign committee
Front row (L to R): Jessie Hogestyn, Alyssa Kersey, Nicole Peltier, Carol Jew
Back row (L to R): Josh Hinkle, Matt Overlan, Heather Natola

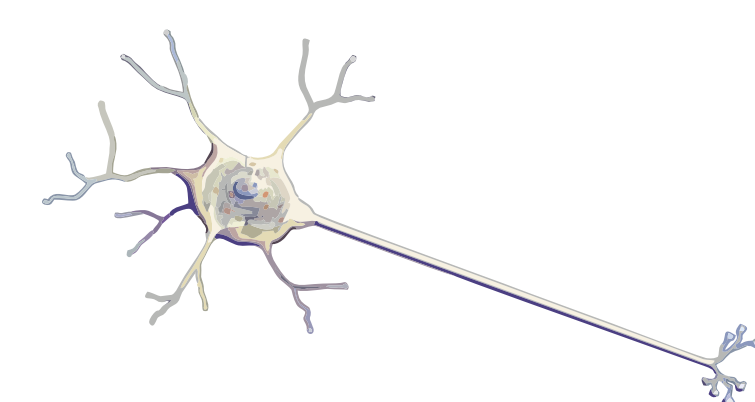
Elementary school visits

The Rochester City School District (RCSD) has a childhood poverty rate of 43%, but it is bordered by more affluent districts with far lower rates of childhood poverty: Penfield (5%), Brighton Central (6%), and Irondequoit Central (9%). Schools in the RCSD are less likely to bring special programming to their students, so this year we aimed to visit primarily schools in the city district.



Our activities this year spanned several levels of analysis, from cellular neuroscience to cognitive psychology.

How does the brain communicate with the body?



We learned about the parts of the neuron and how each part is important for sending messages to other neurons. Students pretended to be neurons and passed pom-pom messages along a chain of neurons to make leg and arm muscles move.

How does the brain learn to overcome obstacles?

Students wore “goofy” goggles with prisms that shifted their vision, and they found that it was very difficult to throw bean bags into buckets. With practice, though, their brains adapted to the prisms and they threw more accurately. Following a discussion of the lobes of the cerebral cortex, students realized that all lobes were important for success on the task.



How can we trick the brain?

Students experimented with the Stroop effect by trying to name the colors of printed words as quickly as they could. They found that they were slower and more likely to make mistakes when color words were printed in a different color text (e.g., **red**). Because reading happens automatically, it is difficult to ignore the text of a word if it disagrees with the color you are trying to name

BLUE	BLACK	YELLOW
GREEN	YELLOW	BLUE
RED	ORANGE	BLACK
ORANGE	RED	GREEN

Girl Scouts become neuroscientists for a day!

This spring, we organized a program with the local Girl Scout council to teach Girl Scouts in middle school about brain research. We started the day by discussing the scientific method and different methods that neuroscientists use to study the brain. We then split into two groups to conduct different experiments.

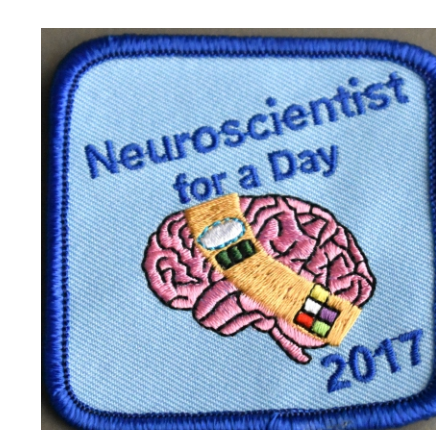


EMG experiment: Girls learned about how the brain communicates with muscles using electricity. We measured the electricity in our arm muscles using electromyography (EMG). We tested several hypotheses as to which movements result in electrical activity, and we found that electrical activity increases with the intensity of the muscle movement.

Prism goggle experiment: We modified our popular prism goggle demonstration to test the hypothesis that bean bag throwing accuracy increases as prism goggles are worn for a longer time. The girls measured throwing accuracy over time and plotted their data on a graph.



After completing the experiments, the girls made posters to communicate their results with the other group. We concluded the program with a discussion of careers in neuroscience as well as some famous women in neuroscience. Girls went home with a brainy patch for their vests!



First annual Rochester Brain Bee

In February, eight students from five local high schools competed in the first Rochester Brain Bee. Competitors answered three rounds of challenging questions about anatomy, perceptual systems, learning and memory, and neurological disorders. The competitors all impressed us with their work ethic and their knowledge of the brain!

Thanks to the Neuroscience department and our local chapter of the Society for Neuroscience, we were able to send the winner, Neli Kotlyar from Pittsford Mendon High School, to compete in the National Brain Bee in Baltimore.

We look forward to making this an annual event!



What degenerative disease is characterized by slowness of movement, muscular rigidity, and walking and balance impairment?

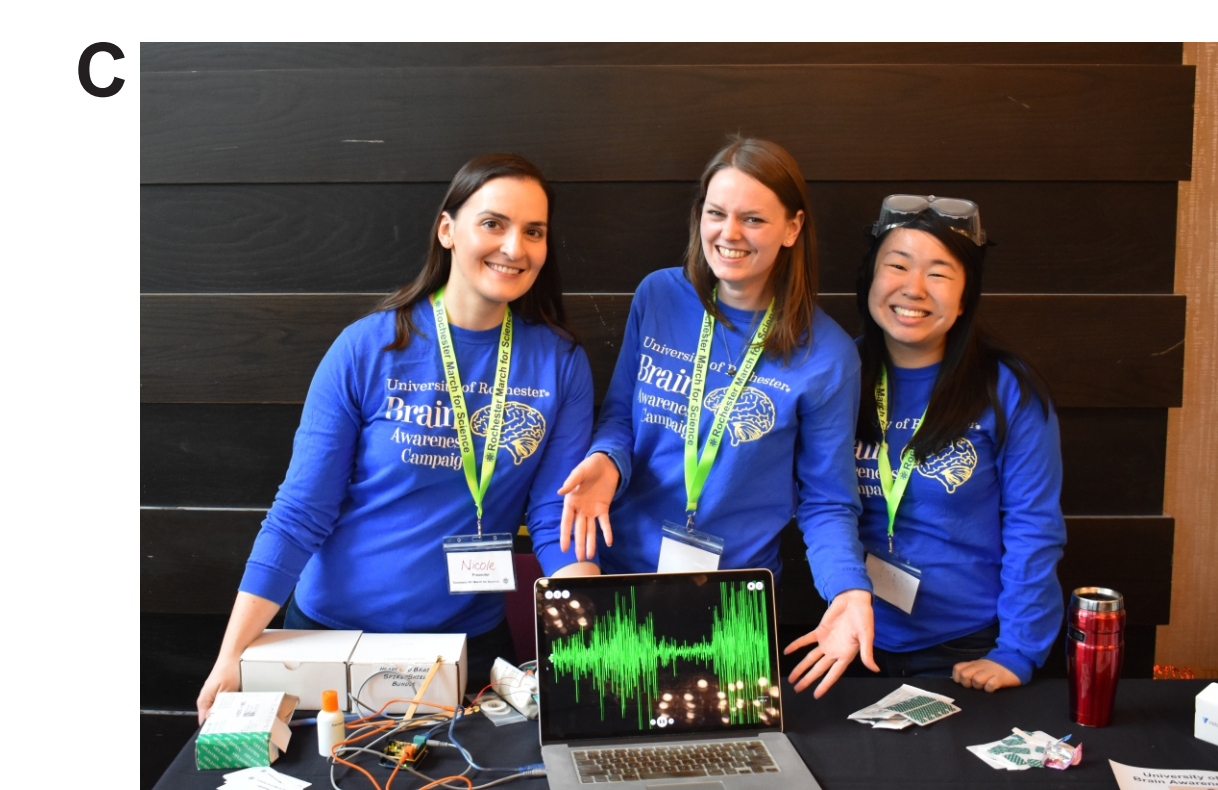
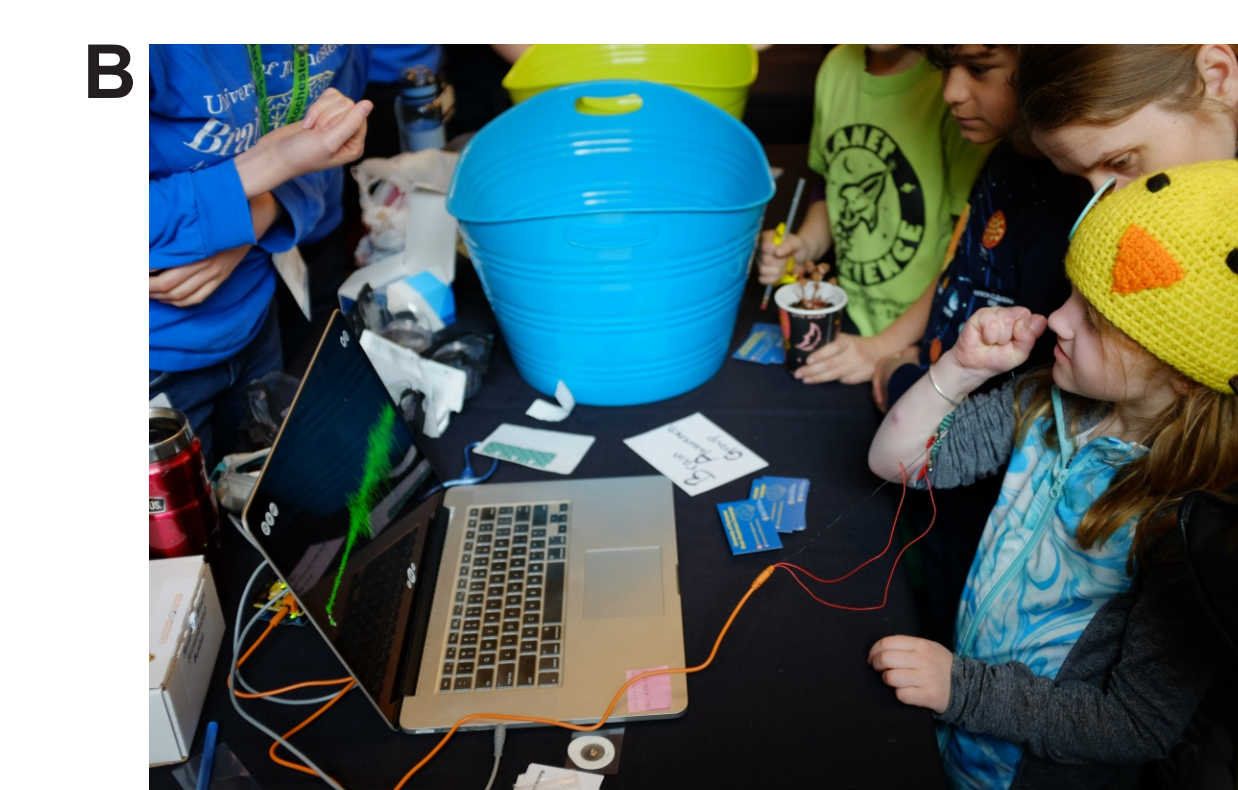
What hindbrain structure is involved with balance and the coordination of skilled movement?

Science Expo at the March for Science

On April 22, 2017, hundreds of thousands of scientists and science lovers around the world marched to celebrate Earth Day and to advocate for science research and conservation efforts. In Rochester, over 1500 people marched to support several causes, such as promoting science literacy, improving science communication, and strengthening the role of science in policy making.



After the march, the Rochester March for Science hosted a science expo, where about 30 organizations shared their love for science with interactive demonstrations. We had a great time teaching Rochesterians about the brain as well as networking to find opportunities for outreach in the future!



- A:** Heather hands bean bags to an enthusiastic science lover to test his throwing abilities while wearing prism goggles.
- B:** A young scientist records the electricity in her arm muscles using electromyography (EMG).
- C:** Nicole, Alyssa, and Carol are excited to teach local science lovers about the brain!

Future outreach

- **Year-round school visits:** In order to accommodate more schools and reach more students, we plan to expand our visits beyond the official Brain Awareness Week.
- **Designing a Girl Scout neuroscience badge:** We are working to design a badge for Girl Scouts that will teach the fundamentals of the scientific method and basics about the brain.
- **Brain Bee prep sessions:** We plan to hold prep sessions for the Rochester Brain Bee so that students can get a more hands-on approach to learning relevant material.
- **Community events:** We hope to engage with children and their families on a more regular basis at the local science museum and farmers markets.

Thank you to our supporters!

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Dana Foundation
Society for Neuroscience Rochester Chapter
Department of Neuroscience, University of Rochester
Our volunteers



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