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The Synapse Project

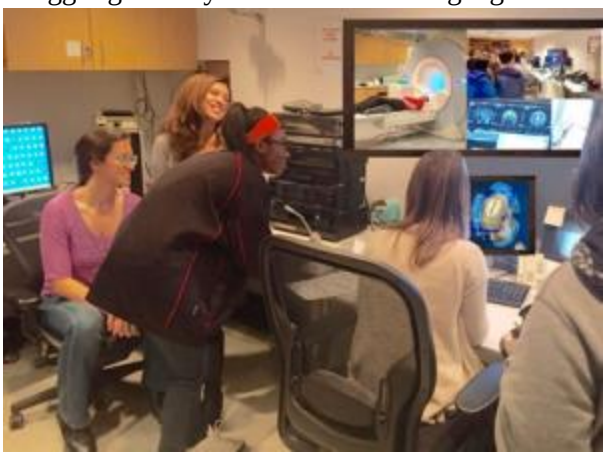
Forming Synapses, Teaching Neuroscience to High School Students

Silver Spring, Maryland, *April 18th, 2016- Georgetown University researchers bring neuroscience to The Siena School.*

By Gabrielle-Ann Torre

At the Center for the Study of Learning (CSL) at Georgetown University, Dr. Guinevere Eden and her research team investigate the neural bases of typical and atypical reading development using magnetic resonance imaging (MRI). The research of the lab focuses dyslexia, a common learning disability that impedes children's ability to learn to read.

A few miles north of DC in Silver Spring, MD, The Siena School is an instructional haven for students struggling with dyslexia and other language-based learning differences. Dr. John Lucas is teaching



science to the curious minds of the Siena students, using research-based learning techniques. How can scientists and educators work together to understand the reading brain? The graduate students in Dr. Eden's center and Dr. Lucas' 10th graders got together, with the neuroscience students leading a four-day brain-awareness teaching initiative focused

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on teaching brain imaging methods and its application to the neural bases of reading.

First, Siena students were introduced to the nervous system through hands-on brain anatomy lessons and learned basic concepts of experimental design. Using this knowledge, students were encouraged to ask questions and form hypotheses about which parts of the brain are involved in reading. Next, the Siena students visited Georgetown University's Center for Functional and Molecular Imaging and observed a functional MRI scan of science teacher Dr. Lucas' brain. In the scanner, he read words and the MRI signal changes that were induced by this task provided the students with data to discuss their hypotheses. The final lessons led students through data interpretation and how to form scientific conclusions when looking at images of the brain.

The success of the project was evidenced by the students' engagement in the scientific process and newfound appreciation for neuroanatomy and brain function. At each step of the course, students offered thoughtful observations and questions about neuroscience—some even said they felt inspired to pursue research in the future.

Dr. Eden and the CSL hope that the collaboration with The Siena School will motivate similar opportunities in the future.

—For those interested in learning more about this project or the work of Dr. Eden's lab, please email Gabrielle-Ann Torre at gat35@georgetown.edu.

About The Siena School

The Siena School in Silver Spring, Maryland serves bright, college-bound students with language-based learning differences, such as dyslexia. Siena's staff and board of advisors include distinguished national, state and local education leaders and professionals. The school was established in 2006 and serves students in grades 4 – 12. Siena's program is designed for students with mild to moderate learning needs who are experiencing a discrepancy between their academic achievement and intellectual abilities in one or more areas such as reading, writing, oral expression or math. Siena delivers an individualized educational program featuring small class sizes, research-based instructional methodologies, a highly trained staff and an educational environment specifically designed to meet the unique needs of our students, with a specific emphasis on the arts. For further information, The Siena School can be contacted at (301) 244-3600 or on the web at www.thesienaschool.org.

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