BREAKTHROUGH RESEARCH & DEVELOPMENT

BRINGING AUTHENTIC SCIENCE AND SCIENTIFIC PRACTICES TO HIGH SCHOOL CLASSROOMS

Internationally, U.S. high school science scores fall in the middle of the pack. Project NEURON is helping to make that landscape brighter.

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PROJECT NEURON: MAKING SCIENCE RELEVANT AND MEANINGFUL

Only 16 percent of members of the American Association for the Advancement of Science believe the U.S. K-12 STEM education is above average; 46 percent call it below average. Standardized test results on international comparisons put the U.S. basically in the middle for science scores.

Project NEURON—Novel Education for Understanding Research on Neuroscience—is doing something to raise those scores and to pump life, energy, and an understanding of the relevance of science into high school curricula.

Project NEURON, funded by a $1.44 million grant from the National Institutes of Health, brings together scientists, science educators, teachers, and students to develop and disseminate curriculum material that connects frontier science with national and state science standards. All or portions of the curriculum, which consists of nine standalone units that have 7-9 lessons each, has been implemented in a wide number of schools, reaching more than 8,000 students, says principal investigator Barbara Hug, clinical associate professor in Curriculum & Instruction in the College of Education. That number, she adds, is likely a very low estimate because it doesn't include the teachers who accessed the materials from the project's website.

RETHINKING HOW TO TEACH SCIENCE

Project NEURON fills a critical need by connecting students' learning with recent scientific research findings—with many of those findings taking place on the University of Illinois campus. All but one of the curricular units is based on University of Illinois research, and the units link cutting-edge neuroscience research with education research examining how students best learn, retain, and apply material.

> **Project NEURON helps students see the relevance of science.** — Barbara Hug

"NEURON materials help facilitate the presentation of science as an interactive and meaningful endeavor," Hug says. "Through use of the NEURON materials, students grapple with core ideas and questions in science, and come up with experiments or do investigations that get at the ideas they're being asked to learn."

The project provides professional development for teachers and graduate students in both the science and curriculum and instruction realms. Best of all, it helps students engage and learn key science concepts through inquiry-based approaches.

Project NEURON "helps students see the relevance of science," Hug says, "and it has caused teachers to rethink how they teach science to their students. Teachers are engaging their students in scientific practices, and students are analyzing data that get at the core ideas, and they're using some of the same tools that scientists use to analyze sequences."

LEARN MORE

To learn more about Project NEURON, please visit neuron.illinois.edu or contact Hug at **bhug@illinois.edu**.

EDUCATION AT ILLINOIS

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