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Science experiment shows class

UT graduate students add cool to curriculum for middle schoolers

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NEWS SENTINEL

University of Tennessee graduate student Daniel Lewis uses a model to teach the science of earthquakes to members of Jay Bachmann's eighth-grade class Nov. 9 at Holston Middle School.

They shook it, they tapped it, and the Lego house fell over.

The Holston Middle School eighth-graders were simulating an earthquake with a tin pan, plastic cup, sand and water to illustrate the day's topic: "liquefaction."

Structures sink and fall when loose sediment under them gets saturated, University of Tennessee doctoral student David Lewis explained. Case in point: The 1989 earthquake in San Francisco that caused the collapse of many bay-area homes.

"Science was boring before I got to do all the experiments," 13-year-old Stephenie Anderson said after the experiment. "The more you do it, the more you think, 'Wow, this is really cool and I want to do it someday.' "

That's exactly the reaction Lewis hopes for.

He's one of 10 UT graduate students who are part of a $1.96 million federal grant program benefiting middle schools in Knox, Blount, Jefferson and Sevier counties.

It's important work because the federal No Child Left Behind law begins measuring science scores next year. The United States lags behind other industrialized nations in science education. And if students don't get hooked by middle school, they might not take advantage of science classes in high school.

"Our fourth-graders are ranked along with top industrialized nations," said Becky Ashe, science supervisor for Knox County Schools. "But in eighth grade is when we start falling significantly behind other industrialized nations.

"Middle school is one of the first times they're really exposed to some abstract concepts and the first time they're really expected to understand the nuances of the concepts," Ashe said.

The UT students are working alongside middle school science teachers to enhance science education through hands-on activities that complement the curriculum.

The program, called the GK-12 Earth Project, is funded by the National Science Foundation. It also allows the UT students to share their research.

The Holston students that morning put Lewis' lesson to the test.

"It's a good way for us to learn," said Christian Leonard, 14, after the experiment. "It'll give us a better visual idea of what goes on in life. It's cool watching videos and stuff, but when you actually get to do it, it's fun. And it makes a mess."

Lewis also benefits from being in the classroom.

"This helps me learn how to communicate what I do in the world of science to someone who doesn't do what I do," said Lewis, who eventually wants to be a professor. "That's something that's lacking in the scientific community."

He and the other fellows are from UT's departments of geography and Earth and planetary sciences. They spend 10 hours a week in the middle schools. They also develop research projects.

The nationwide program focuses on schools that serve rural or partly rural areas, said Sally Horn, the

UT geography professor who applied for the grant.

Holston is rural/urban, and Halls Middle, the second Knox County school with a fellow, is considered rural/suburban, she said.

The schools in Blount, Jefferson and Sevier counties that the project serves are categorized as rural schools, she said.

One of the program's goals is to pique middle-schoolers' interest in the field of science, Horn said.

"Many middle school-aged students think of scientists as old white males with crazy hair," she said.

Seeing the UT fellows, young men and women, could prompt the students to think, "They are kind of cool. They're not that different from me."

Holston Earth science teacher Jay Bachmann touted his partnership with Lewis.

"A lot of kids are excited when they see results," he said. "As a teacher, I'm all for anything that gets students fired up about science."

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