



Every month, INL employees volunteer to bring science, technology, engineering and mathematics (STEM) education to an after-school program at Summit Middle School in Blackfoot, Idaho. Here, INL's Garry Brown demonstrates light energy to a group of students.

## After-school students 'energized' by Idaho National Laboratory scientists

By Sarah Robertson, *INL Communications & Governmental Affairs*

Instead of watching TV or playing video games, students at Summit Middle School in Blackfoot spend time after class reinforcing the lessons they learned during the day. Four days a week, students at the newly opened charter school participate in hands-on sessions on a variety of topics taught by teachers and guest lecturers. Idaho National Laboratory employees present a lesson each month on science, technology, engineering and mathematics (STEM).

This is one of the many ways that INL promotes STEM activities in Idaho each year. In 2013, INL reached more than 60,000 students through science fairs, classroom presentations, community events, science bowls and other hands-on STEM activities. Investing in education makes good sense for the future of the lab that relies, in part, on the next generation of scientists and engineers who will conduct cutting-edge research and invent new technologies.

During the workshop in Blackfoot on Jan. 6, INL employee Garry Brown led a discussion on the topic of energy. The 18 youngsters listened intently as Brown explained the difference between exothermic and endothermic energy. To demonstrate the point, he instructed a student to carefully measure vinegar and pour it into a plastic baggie. Another student measured baking soda and added it to the vinegar, creating a fizzy solution. The students used a thermometer to take a temperature reading before and after adding the baking soda, and then they discussed the results.



***Summit Middle School students attach clamps to a wire inside an apple to learn about batteries.***

After the first experiment, the students broke into groups to learn more about kinetic, potential, chemical, light and electrical energy. The children took turns reading the instructions and then performing experiments while Brown and several other educators asked questions and guided the students through the procedures.

Diana Barrett, a paraeducator at the school, said the hands-on nature of the program makes learning fun. "The students are exposed to things they may not learn in a typical classroom," she said. "We've taken the kids swimming, taught lessons on music and instruments, performed science experiments — the kids really seem to enjoy it."



***Before beginning the experiments, Brown oversees the students as they read the instructions.***

As though on cue, a group of kids at one station began giggling. The students were huddled around a table, performing a project with an apple, two nails and a piece of wire. As the others looked on, one student inserted a nail and a wire into the apple and then connected the ends to a voltage reader. As the needle crept up, one student asked, "What would happen if you hooked up two apples?"

"It's important to keep these kids engaged and interested, and maybe someday they will become INL employees," said Brenda Greenhalgh, INL STEM administrator.

Greenhalgh says programs like this showcase what INL scientists do at the lab and increase student interest in STEM fields. "We have a list of employees who have knowledge in particular fields. We regularly contact these employees to ask if they are interested in teaching a workshop such as this one."

Summit Middle School was able to secure the funding for its after-school program through the 21st Century Community Learning Centers Program. This grant program is funded through the U.S. Department of Education to provide academic enrichment activities during nonschool hours for children, particularly those who attend high-poverty and low-performing schools. To find out more about this grant, [click here](#). You can learn more about INL's educational outreach activities [at this link](#).

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