

Norwalk Citizen

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Budding scientist

Smith proves science prowess at state fair

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The secret to reducing the costs of home heating just may lie in the hands of Montessori Middle School seventh grader and Norwalk resident Eric Smith.

Smith, 12, placed first as a seventh grader at the annual Connecticut Science Fair, held at Quinnipiac University last month. He was awarded the Dominion Millstone Power Station Physical Science Award for his entry "Designing a low income eco-friendly house." Smith also received third place and the Barnes Aerospace Applied Technology Award in the contest's overall middle school category.

"I came up with this project when I was talking to my dad...and he was going to insulate the attic to save money with heating," Smith explained Tuesday at the school's Lois Street campus.

And then Smith did what all good scientists do when they see the intriguing glimmer of a new idea. He began to think.

What simple, inexpensive renovations could homeowners make to create heating and cooling cost savings? Are so-called "green alternatives" the complex, technologically advanced wave of the future, or are they, in large part, already available to the average homeowner?

As part of his science project, Smith drew up three unique experiments to put these questions to the test. Beginning with some basic cardboard and Plexiglass supplies, he constructed two model homes built to scale — a "reference" house and a "modified" house. These would serve as the testing grounds for his hypotheses.

In his first experiment, he fitted the reference house with north-facing windows and the modified house with windows facing south. Then he placed the houses out-



Amy Mortensen / Staff Photographer

Eric Smith, a seventh-grade student at Norwalk's Montessori Middle School, was awarded the Dominion Millstone Power Station Physical Science Award at the state science fair for his entry, "Designing a low income Eco-friendly house."

Science

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side and took internal temperature readings at regular intervals. The goal, according to Smith, was to determine which house would benefit most from the natural rays of the sun.

And the answer? If you're a homeowner and concerned about lowering your heating bill, you want those windows facing south, Smith said; in comparison to their north-facing counterparts, south-facing windows receive more sun exposure during winter, making that living room or kitchen a little more cozy, without cranking up the heat.

In his second experiment, Smith raided the 'fridge.

"I left the modified house insulated and the reference house uninsulated, put them in the refrigerator set at 38 degrees and checked the temperatures inside," he explained.

Smith said he was surprised how quickly the uninsulated house lost heat to the "outside" environment. He added that insulating walls, if possible, and insulating attic space are relatively simple methods that can help a homeowner save valuable cash on the heating bill.

In his third and final experiment, Smith put to use sodium acetate, an inexpensive chemical utilized in a wide range of applications, including those heating pads you might stick in a pair of gloves to help keep your hands warm.

"This experiment was more hypothetical in the sense that it wasn't quite proving anything, it was just a test to see if my idea would work," the explanation on Smith's project display board reads. "Since sodium acetate is an inexpensive chemical, I think if you produced it on a large scale, it could be an inexpensive addition to heating a home."

What Smith found, however, was that sodium acetate pads fitted into a house (placed inside Smith's trusty test refrigerator) created a quick spike in internal temperature, followed by a gradual temperature decline.

Window placement and quality insulation, then, seemed to be the temperature control methods of choice, he said.

Like with many scientific experiments, Smith's didn't always go smoothly.

"Throughout the project I had trouble with cutting the Plexiglass and some of the cardboard," he said. "Also, the thermometers wouldn't work properly. They wouldn't receive a signal. And the software that came with



Amy Mortensen / Staff photographer

Eric Smith with his science teacher, David Lavallee.

them crashed my computer."

After he worked through all the kinks, Smith developed a series of conclusions that proved to be good news for homeowners.

"The idea that interests me is that you don't need a lot of technology to save money and energy on your house," he said.

Montessori science teacher and Smith's advisor David Lavallee added: "Eric's project appeals to some basic knowledge that we already have. But we don't always carry it out. There is so much you can do to reduce heating costs."

This is the first time a student from the school has won a physical sciences award at the state science fair level.

"It really is a process that commands longterm

planning and attention to details. Eric tended to those and was motivated by his own interests in green technology," Lavallee said.

"He is an observer and thinker. Eric is driven by his curiosity and desire to learn about the world around him. He is currently making a solar car out of a loaf of bread. My job is just to guide the whole range of interests and pose questions so that Eric can achieve what he has set out to do. It's so rewarding to see where these projects go."

"I was pretty happy," Smith said of his awards. "There was a whole gymnasium filled with science fair projects."

Not surprisingly, science is one of his favorite subjects, along with language arts and history. Smith also enjoys trav-

Smith said.

Smith is also an athlete. He plays soccer and is a member of the Running Club.

As for the future, Smith admits he's not exactly sure what career path he will choose, but he hopes to do something outdoors. "At most I think about six months in advance," he said.

Smith was the only student from Norwalk to receive an award at the competition. Nearly 500 middle school and high school students from more than 120 schools showcased their science talents at the 2010 Connecticut State Science Fair. According to Ruth Hurwitz, Communications Director for Montessori, all middle school students at Montessori complete a science fair project before they graduate.

Just Kidding

To participate, please call
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Fall Registration Begins March 29th for full time students & April 5, 2010 for part time

Norwalk YMCA