Shelburne Falls, Massachusetts • February 18, 2011 Two sections • $1.25

Mohawk Science Fair: Salt, splat, and stroop

By Alita Savory

BUCKLAND—Tri-fold poster boards are propped up side-by-side atop tables in the library depicting projects designed to test the loss of soda through fizz and to create a solar water heater and an experiment about whether running barefoot or with shoes is more effective (barefoot is, according to results).

The 18th Annual Mohawk Trail Regional High School Science Fair included 21 individual projects and one group project this year. There were 10 judges, including teachers, community members and two students. Students presenting were all freshman, with the exception of junior Shawn Andrews.

Andrews, from Halifax Vt., won first place this year with his project "Salt's Effect on Old Man Winter," an experiment using salts and other substances to find out how effective they really are on ice.

A company donated Biomelt and ECO-Salt for his project, and he used facilities at UMass to run tests. ECO-Salt worked best, he said. Although the box says it works to -20 Fahreinheit, Andrews could only get his temperature to -15 F. It's also supposed to last four days on the road. The least effective kitchen substance was sugar and the best was regular salt.

Andrews said that calcium chloride (found in Biomelt) is the best for melting ice, but it isn't used on roads because it causes corrosion. Biomelt also eats away at wood and pets' paws. It has been mixed with other substances to lessen these effects.

Andrews executed a similar project as a freshman, but said it was less educated. He got the idea from home, where his family has an ice cream maker. When the motor broke, his dad, a former engineer, decided to hook it to a bike.

Andrews walked to the library window and returned with a plate full of ice. He put it under the table and dumped some ECO-Salt onto it.

"After a half hour it turns into slush and a significant amount of water," he said.

In 2010, Andrews won the Fair with his project about the building material Pykrete, which he said is 10 times stronger than ice.

Jonah Godfrey of Buckland won second place at this year's Fair with "Splat!"

Godfrey built a small bus with six compartments inside:

Photo by Alita Savory

Shawn Andrews, of Halifax, Vt., earned first prize at the Mohawk Trail Regional School's annual science fair.

one for each of six eggs. Then he sent the bus down a 60-degree ramp until he found a way to do it without breaking an egg.

He did this experiment with school bus safety in mind, with the eggs serving as people, and he learned that two things were absolutely necessary: padding in the seats and a "crumple zone" at the front of the vehicle to "slow impact and absorb energy before the crash."

He wound each egg in bubble wrap and taped two soda cans to the front of the bus. Then he sent it down the ramp four times without breaking a single egg.

In conclusion, he decided that "the best crumple zone may not be practical," but for this project it was.

Emma Taylor of Shelburne won third place with her project "The Stroop Effect." The Stroop Effect is when a color is written in a different color — for instance, the word purple is written in yellow — the naming of the color the word is written in takes more time than reading the word itself.

Taylor hypothesized that age would affect the results because those who can't read (for example, preschoolers) should have less trouble picking out the color. After testing, Taylor concluded, "the age of a person does affect the speed at which a person can name the ink color of the words given."

Twelve students from this Fair will now attend the Regional Science Fair.