

Greater Lowell Tech students get ‘sweet’ take on science



Greater Lowell Tech students tap sugar maples to collect sap to make maple syrup, as part of their environmental science class. Teacher Tara Alcorn of Dunstable, and senior Jacob Benoit, 17, of Lowell set up a bucket on a new tap. At left is Heather Briere of Lowell. (SUN/Julia Malakie)

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TYNGSBORO — Kailey Murphy deftly wielded the drill Wednesday, carefully boring a hole through the rough bark of a sugar maple tree.

As the 18-year-old pulled back her tool, another student stepped forward to insert the tap, twisting and adjusting to achieve the perfect positioning. Almost immediately, a translucent liquid began to drip from the protruding metal valve.

“I think this is a good tree. And it tastes sugary, come try it,” instructor Tara Alcorn called. Her students gathered around to sample the substance as it trickled into a bucket below.

This is the second year environmental science students at Greater Lowell Technical High School have ventured outside to tap maple trees on the school’s grounds. As Alcorn was developing a curriculum for the course, which was recently added to the school’s catalog, she said she was looking for a way to keep students engaged during a time of year when they can become bogged down by winter blues and senioritis.

“Most of the students who take environmental science love being outside. So I was like, huh — what can we do to learn and kind of keep our science skills sharp and be outside at the same time? Outside my classroom window there’s two beautiful sugar maples that just have the most gorgeous foliage in the fall,” she said. “What if we tapped them and made it into maple syrup?”

After receiving some donated equipment, the students tapped two maple trees last year to produce enough sap for about a gallon of syrup, which was divided into small jars for them to take home.

The project encouraged collaboration across several departments at the high school, Alcorn said, drawing on students’ expertise in carpentry, culinary arts, graphic design and even early childhood education. While culinary students helped boil and can the syrup and the design department created a “Gryphon Syrup” label for the finished product, students in the early childhood education program taught a lesson on the tapping process and hosted a breakfast for their preschool kids, she explained.

And while the project provides an opportunity for science students to get outside and break up the school day, Alcorn said it also exercises important academic skills.

“The experiment (last year) kind of centered around the best location on the tree to put the taps. So we looked at the north side vs. the south side and also looked at the relationship between temperature and sap production,” Alcorn said. “So the students were able to do some really great data analysis and graphing with that.”

This year, the classes are experimenting by tapping another species of maple — silver maple — in addition to the sugar maples they tapped last year. The students worked with Alcorn to develop their own research questions, perhaps examining how tree size, health or species affects sap volume.

Cristian Colon, 17, of Lowell, stood holding what looked like a long yard stick with a right angle jutting from the top Wednesday. Students are using the tool to gauge where they should measure each tree’s circumference so that the measurements can be accurately compared, he said.

“So each time we switch trees, it’ll be the same height,” he said.

Sydney Foley, 17, who lives in Dracut, said she first heard about the maple syrup project from a friend who took the class last year. She noted that she tends to learn better when lessons are hands-on, which is why she’s enjoyed this project. She was armed with a clipboard Wednesday to record the volume of sap collected from each tree.

“I’ve never done anything like this in one of my science classes before, so it’s really interesting to go out and do this,” she said.

After tapping a new tree Wednesday, the students excitedly lugged buckets full of sap — from the trees that had already been tapped — inside the school to be measured and analyzed.

“It kind of perks them up,” Alcorn said. “... It’s kind of something a little bit different to get them outside and moving and re-engaged.”