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Teaching through trees

By [Meghann Ackerman](#)/ Staff Writer

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Can planting a few trees really save the city hundreds of dollars each year in maintenance and energy costs? Do birds that live by T stops know when trains are coming and sing louder? For the past two weeks, students from middle and high schools across the city have been out in the field researching these and other questions.

A partnership between Boston College and the Urban Ecology Institute has brought students from Brighton High School, St. Columbkille's, Odyssey High School, the Urban Science Academy and Nativity Prep to sites around Brighton to measure and record data on trees and bird songs. Using donated technology, the students were then able to use the data to come up with answers to their research questions. Next year, the technology will be available to the schools so the project can be repeated in the classroom. The project was funded by a grant from the National Science Foundation.

"They're becoming more aware of the value of trees," said Anne Pfitzner Gatling, one of the project supervisors. "They're asking about tree planting."

About 60 students and a group of teachers worked around Chandler Pond, the BC Brighton campus, the Chestnut Hill Reservoir, and the intersection of Beacon and Hammond streets to collect their data. One group worked at each site measuring the sizes and health of trees, while another group recorded bird songs and background noises.

Mike Barnett, another project supervisor, explained that for the tree data, students entered their observations into a software program called ArcView, which then helped them calculate how much carbon trees in the area absorbed and how much stormwater they soak up. Trees can also be planted to shade air-conditioning units, which can equal savings on electric bills.

The software also allows students to manipulate tree placement, numbers of trees and time to find out what changes would make the for the best environment.

"They can ask 'What if?'," said Barnett. "It's an environment that allows them to be curious and ask questions."

Meredith Houle coordinated the groups measuring bird songs. She explained that in the past, studies done in Europe have shown that birds will adjust their songs to compete with background noise, but no study has been done in America yet. Using a program called Raven, which was donated by Cornell University, students can upload the recordings they take in the field and measure slight differences in pitch and volume.

Houle said that using the technology has helped some students grasp abstract physics concepts.







"It's purposeful," she said. "It's attached to something else."

Both projects, especially with the use of donated software, can easily translate into classroom projects. Although there is already a lot of data out there - including that collected over the past two weeks - there are always more things to measure.

"Our tree inventory doesn't cover park or residential trees," said Kyle Meister, who works with the Urban Ecology Institute. "They can always collect new trees."

Along with research, students have also learned about possible careers in science.

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"They're learning about technology; it's a lucrative area and we're trying to teach them that," said Barnett.

Marie Land has spent time talking to students about how to take their interest in science and turn it into a career.

"We talk about the resources and barriers between what they're doing and getting a job in this field," she said.

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