

## ECOTEK Scientists Develop Cave Sustainability Assessment Protocol



How are caves formed? What type of animal and plant organisms are found in caves? How can you tell if a cave ecosystem is healthy or under stress? These are just a few of the questions that the student scientists at Ecotek Lab had to answer in their quest to develop the first-ever Cave Sustainability Assessment Protocol.

At the break of dawn, on Sunday, September 30, when many of their schoolmates were fast asleep, Danielle Young, (Roper School), Sharvina Goodson, Miguel Kendrick, and Shermillion Locke (all students at George Crockett Academy), set out to conduct an ecological assessment of Bear Cave.

Bear Cave is the only cavern in the Great Lakes area. It was formed in “tufa rock” which is a secondary limestone. It is estimated to be at least 25,000 years old. The cave is located near the St. Joseph River in the back woods of Buchanan, Michigan. One interesting fact about Bear Cave is that it served as an escape route for slaves on the Underground Railroad.

Before heading out to conduct their assessment, the students spent hours learning about the anatomy of caves; understanding how human activity is putting some caves at risk; reviewing best practices for developing environmental protocols; testing limestone to better understand how it reacts to acid rain and learning how to use diagnostic and safety equipment.

Once inside the cave the students started their work. Shermillion tested the moisture level of the limestone rock, while Miguel collected soil and cave water samples. He also gathered surface temperature data. Sharvina gathered air temperature readings and verified cave height measurements, while Danielle counted bats and collected plant material. After the students gathered their data and bio-samples, they returned to Ecotek Lab to conduct further tests.



Shermillion Locke gathering soil moisture data in Bear Cave

Research into cave system conservation is a growth area in the field of environmental science. Students like Danielle, Shermillion, Miguel and Sharvina are not only at the forefront of the movement, they are blazing a path for other scientists to follow. The students plan to share their protocol with environmental scientists at major conferences and with world leaders at the United Nations in Spring 2013.

### About the Ecotek Science Program

Ecotek is a science research lab program for young inventors and researchers in grades 5 thru 12. Student scientists work on projects aligned with the issues being addressed by world leaders at the United Nations. To learn more about Ecotek Lab go to <http://www.ecotek-us.com>

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