

The Science of Innovation in Education

Nestled amidst the hustle and bustle of mid-town Detroit, an international science and research facility in Wayne State University's Tech Town is busy doing big things.



Pictured center: Briana Young demonstrates the application of bio-fuel technology as William Marshall watches.

Members of the AABE Michigan chapter listened intently as 13-year-old Amber Young, a frozen rat in one hand and a scalpel in the other, shared insight surrounding early findings as a result of her stem cell research.

Future Genetic Engineer, William Marshall (17), demonstrated how a water filtration system works, and 15-year-old Briana Young (pictured left), talked about soy bean production and in a second presentation, translated complex research terminology about bio-fuels that were made in the lab.

The student-led tour of Ecotek's main lab served as the grand finale for a presentation given by Keith A. Young Sr., lead scientist and founder of Ecotek; an organization dedicated to providing a unique environment for future scientists and engineers to gain real-world experience in research and global education.

Great Expectations

Young wanted to create hands-on opportunities for academically gifted students from major urban communities that would aid in the early development of critical skills, as well as help them understand the significance and global impact of research and technology. To enhance the global aspect of his vision, Young and his team of scientists focus on projects that align closely with the [United Nations Millennium Goals](#).

Even though Ecotek is primarily targeted at academically gifted students, the organization offers learning opportunities and resources for any middle school or high school student between the ages of 10-17 interested in learning more about science.

Young truly believes in being a part of the change he wants to see and credits the strong commitment by parents as key to the program's success. "We have to create our own vision of what tomorrow looks like," he said. "If we don't actively develop our children, then there's no need to ask them to do something great."

He also discourages students from labeling themselves as minorities, stating that from a global perspective, people of color are not in the minority. Instead, he views young people in the urban areas in which he recruits, as *under-represented* groups in fields of Science, Engineering and Technology.



Approximately twenty students are part of a core group of junior scientists that have conducted extensive research projects in areas such as environmental conservation, health care and alternative energy. Students are treated, and expected to carry themselves like real scientists, enduring rigorous mental and physical demands at times.

**Biotechnology Research Team**

Student scientists William Marshall, Nimet Williams, Janay Johnson, Jayla Hubbard, Christian Sledge, Amber Young and Annie Moore study the heart and the human cardiovascular system.

Ecotek is more than just another lab

Another aspect that sets Ecotek apart from other local programs is that the learning experience extends far beyond the lab walls. The budding scientists have traveled all over the country and across the globe. Back in 2008 for example, the team attended the 12th annual [Global Learning Expedition](#) in Cape Town, South Africa.



Amber Young - Global Learning Expedition, Cape Town, South Africa



The students have also toured the [National Superconducting Cyclotron Laboratory \(NSCL\)](#), located on the campus of Michigan State University and visit the United Nations at least twice a year to meet with delegates and present their research findings.

“Students used to ask me why travel all the way to the United Nations when we could just meet at COBO Hall, right here in Detroit. Young said, I told them it was because they needed to be able to see themselves like I do; as a citizen of the world”.

In addition to ongoing lab research and traveling abroad, students often have to conduct field studies for endeavors like the Brownfield and Climate Change research project students are working on.



Ecotek Student gathering soil sample for an Ecotek project

When asked what she likes most about being in the program, Amber Young who dreams of one day becoming a pediatric neurosurgeon said, “I love the hands on experience and working with dead animals”.



William Marshall was one of four presenters during the Ecotek lab tour

Future Genetics Engineer William Marshall says he first became interested in research after watching an episode of GI Joe about genetically modified super-soldiers. His goal is to create a model for gene manipulation that can be used by all scientists.

Spend just a little time with any of these amazing kids, and you will soon learn that their brilliance is rivaled only by their level of unselfishness. They not only want to serve humanity, students openly share what they have learned with other kids in a variety of ways. One way Ecotek scientists educate others is through their video-education program called [Young Xplorers](#).

As if this weren't enough, the students also find time to make a wide range of [science kits](#) which are created right in Ecotek's lab. These products serve as the primary source for fundraising and helps keep the cost of running the various programs down.



Future-forward thinking

I asked Briana Young what advice she would give to kids her age who are interested in becoming a scientist. “To achieve something, you have to work hard at it,” she said, “And if you want to be a scientist, you have to take the initiative to find programs in your area to get involved in.”

Ecotek’s international science and research lab represents one the most innovative and successful approaches to education in the country. Keith Young has created a program and given life to a vision that challenges young people to see themselves as individual contributors. He sets high expectations and provides them the tools and resources to meet them.

Mr. Young’s ultimate desire is to see Ecotek expand to other states and take on a life of its own. Long term, he wants to become a venture capitalist, and help rebuild the local economy by starting other businesses within the community.

Ecotek has set a goal to get science kits into the hands of at least 10,000 children across the nation. Not only is each item designed and created by Young and his team of *Young Xplorers*, the funds raised will provide critical support for continuing research at the facility.

If you would like additional information about the organization or the products Ecotek offers, please visit www.ecotek-us.com to learn how you can help. You may also contact Keith Young directly via email at keiyoung@ecotek-us.com, or call (313)399-7893.



From left to right: (Front Row) Kayla Young, Amber Young, Briana Young, Brenda Lee (AABE), Willam Marshall and (Back Row) Kieana McMichael (AABE), Carla Walker-Miller (AABE), guests, David Ellis (AABE), Shaltreece Reddick (AABE), and Sheila Patterson (AABE)

