

## Mumford Students Design Protocols for Examining the Properties of Water



**Above:** Mumford students assessing the impact of chemical household cleaners on the phosphorous concentration levels found in drinkable water.

Water is the life blood of human existence on Earth. Without it life would not be possible. As the effects of climate change continue to shape the resources on the planet, it is becoming clear that conservation of water resources is critical. To ensure that the next generation of leaders will protect the environment, they must be exposed to a range of scientific topics.

During the month of June 2014 student scientists from Mumford High School spent time learning about the chemical and physical properties of water. The students were able to design and perform multiple protocols. The goal of the project is to help them understand the importance of water quality and how it can be measured.

The first phase of work focused on examining the quality of water at the school under different environmental conditions. The physical properties that the student scientists investigated included the following: diffusion rate, solute-solvency ratio, melting point, boiling point, freezing point, dew point, and density. The chemical properties of water that the students investigated included conductivity, probable hydrogen concentration, phosphorous concentration, and nitrate concentration.

The project is scheduled to go throughout the summer. Students will evaluate the quality of water from different bodies of water. On July 16 the students will begin collecting samples from the Detroit River. The students that do well on the first phase of the project will be given the opportunity to expand their work to Ecotek Lab research stations throughout the Great Lakes.



Student scientist measuring the impact of ionized solutes on the conductivity of water



Student scientists measuring concentration of hydrogen cations using pH meter



Student scientists calculating molarity of different elements that are commonly found in drinking water

### 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>