



## The EcoSense® pH10 Used in Science Fair Projects

For two straight years, Thomas (T.J.) Higgins has an A+ to show-off on his science fair projects. T.J. used the EcoSense® pH10 instrument as part of his on-going projects on pH in common household liquids and the effects of pH on plant growth. While most of his classmates at Tecumseh Elementary School in Xenia, Ohio, were making tornados in soda bottles or writing up stories about their dogs, T.J. was calibrating, measuring, and analyzing data from a scientific product and hypothesizing about the results - true scientific processes.

### Science Fair Project #1

T.J. spent time observing the results of ivy plants watered with an acidic mixture of vinegar and water and recording these results. The ivy plants were labeled Control, Slightly Acidic, Moderately Acidic, Very Acidic, and Acidic Spray. The Control plant was simply watered with regular tap water and the pH of the tap water recorded. The rest of the plants received the following: Slightly Acidic - 6.5 pH, Moderately Acidic - 4.5 pH, and Very Acidic 3 pH. The Acidic Spray plant was watered with tap water but sprayed with the very acidic mixture to determine the effects of acidic spray on the foliage.



*The EcoSense pH10 used for common household liquid pH values and the effects of pH on plants.*

After calibrating the instrument, T.J. would mix the vinegar and water solutions and check them with his pH10 and record the pH values. Once the solutions were made, pH values recorded and the plants watered, T.J. also performed a post check to determine drift with the pH10. His recordings show no more than a 0.2 pH drift from calibration to completion during one study.

As part of the project, T.J. also photographed his plants to correlate the plant's degradation over time with the recorded pH values. His observations were very close to his original hypotheses about how the plants would respond. He said about his project, "It was really cool to use an instrument like a scientist. My friends were all jealous when I showed them my project."

### Science Fair Project #2

As part of another project, T.J. used the pH10 to measure the pH values of common household liquids. After creating a pH scale and studying about acids and basis T.J. (and his parents) gathered several liquids around the house. The liquids included orange juice, tap water, milk, pickle juice, bleach, liquid soap, soda, pineapple juice and tomato juice.

The pH10 was used to measure the pH of all the liquids and the values were recorded on a large pH scale on the science fair poster board. Information about acidic and basic solutions accompanied the pH scale and information about pH in general. T.J. said his classmates told him they had no idea what hydrogen was or logarithmic scales. He said, "they all think I'm really smart" - and we agree.



The pH10 instrument, as well as all products in the EcoSense® product line, is very user-friendly and highly accurate. The products are designed to eliminate most of the complexity found in some higher-end, more expensive products. This allows the products to be incorporated into classroom settings and students are highly motivated using scientific instrumentation.

*For additional information regarding EcoSense Products for use in the classroom or other applications, please contact us:*

**YSI Environmental**  
 Tel. +1 937 767 7241  
 US 800 897 4151  
 Fax +1 937 767 1058  
 Email. [ecosense@ysi.com](mailto:ecosense@ysi.com)  
 Web. [www.y sicosense.com](http://www.y sicosense.com)