

The Impact of Exposure to Scientific Research on Student Classroom Experience



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Goal:

It is my project goal to inspire students by giving them the opportunity to participate in a research project in which they can see real world relationships with the concept that they are learning, and to be a role model by showing them that teachers are lifelong learners.

Action Plan:

I plan to incorporate the State of Connecticut embedded performance task of the SYNTHETIC POLYMERS lab while exposing students to college-level research and opportunities in science.

**State of Connecticut
Content Standards and Expected
Performances addressed in this project:
Grades 9-10 Curriculum-Embedded
Performance Task (Strand II: Chemical
Structures and Properties):
Synthetic Polymers Laboratory
Investigation**

Targeted Content Standard

9.6 - Chemical technologies present both risks and benefits to the health and well-being of humans, plants and animals.

Targeted Scientific Inquiry, Literacy and Numeracy Standards

- D INQ. 1** Identify questions that can be answered through scientific investigation.
- D INQ. 3** Formulate a testable hypothesis and demonstrate logical connections between the scientific concepts guiding the hypothesis and the design of the experiment.
- D INQ. 4** Design and conduct appropriate types of scientific investigations to answer different questions.
- D INQ. 5** Identify independent and dependent variables, including those that are kept constant and those used as controls.
- D INQ. 6** Use appropriate tools and techniques to make observations and gather data.
- D INQ. 7** Assess the reliability of the data that was generated in the investigation.
- D INQ. 9** Articulate conclusions and explanations based on research data, and assess results based on the design of an investigation.



DHS students show off "slime" they made during a field trip to WCSU Chemistry facilities.

Overview:

- Students were involved with Dr. Frederick's research program in several ways.
- Classroom visits by Dr. Frederick – discussions about research, opportunities in science;
 - Field trip to the WCSU Chemistry facilities – raised awareness of college science and research, hands-on activities with polymer chemistry.



Outcomes:

*Preliminary data derived from pre- and post-field trip surveys, qualitative assessment based on teacher observations.

1. Student awareness of scientific career opportunities increased.
2. They discovered that polymers are significantly present in everyday life, in obvious (plastics and textiles) and not-so-obvious ways (DNA, starch, cellulose).
3. Exposure to university research in Dr. Frederick's lab helped students grasp the importance of gaining basic understanding of polymer chemistry.
4. More assessment will be needed over time to see if the experience carries any long-term effects (greater percentage of students pursuing science degrees and careers, for example).

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