

The POGIL Inquirer

In The Spotlight

*Dr. Stephen
Prilliman*

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From The POGIL Project Director



Dear Friends,

I hope you are enjoying your summer and are having a chance to recharge for the upcoming school year. It's been a busy season for The POGIL Project and our dedicated community. We've trained more than 300 teachers during five regional workshops and many other meetings around the country. We had an outstanding turnout at the POGIL National Meeting and made great progress toward our strategic plan goals.

I also want to congratulate our colleagues Tom Higgins, Jim Spencer, and Ellen Yeziarski for being named American Chemical Society (ACS) Fellows in 2016, for outstanding contributions to the science and profession, and service to the ACS community.

While you're looking through the newsletter, make sure you take a few minutes to read about Stephen Prilliman's Oklahoma State University Inorganic Chemistry class and its study of the water in Flint, MI; the update on The POGIL Project's strategic plan; the list of recent POGIL published works; and of course, you won't want to miss "Ask the Mole."

It's been wonderful to see so many of you this summer and great fun to see all of the interesting places you have traveled, evidenced by a team of very adventurous POGIL water bottles! And, don't forget that POGIL Pledge Week is coming back Oct. 17-21. Thank you to our generous donors and to our entire POGIL community for all you do to support and further the important work of educational reform that we all do every day.

Richard S. Moog

Upcoming POGIL Events

- Aug. 8 Acalanes Union HS District
– Walnut Creek, CA
- Aug. 15 – Writing Guided Inquiry
- Aug. 19 Activities – Seattle, WA
- Aug. 18 1-Day Private Workshop
Introduction to POGIL –
S. Korea
- Aug. 31 – St. Michael's University
- Sep. 1 School - Canada
- Sep. 10 1-Day Private Workshop –
Vestal, NY
- Oct. 28 1-Day Introductory
Workshop – Saginaw, MI
- Nov. 11 Supporting the NGSS
Workshop – Portland, OR

**For more information on
upcoming POGIL workshops,
visit www.pogil.org**

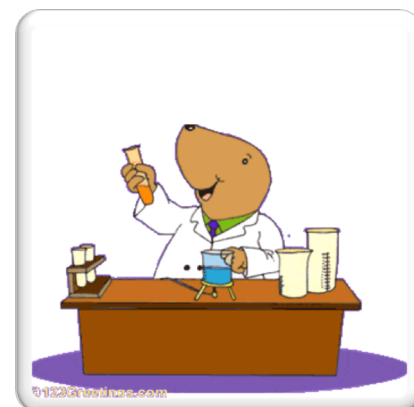
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 Rick Moog, Director Marcy Dubroff, Editor Rafael Benitez, Intern



Ask The Mole

Q: Does POGIL align with the Next Generation Science Standards (NGSS)?

A: Why, yes they do! The NGSS Science and Engineering Practices (SEPs) and the POGIL Process Skills overlap amazingly well. If you consistently facilitate as trained in a POGIL one day workshop or 3-Day Regional Workshop and you use POGIL-style activities that follow the learning cycle, your students will meet almost all of the NGSS SEP requirements. Note: The two portions of the SEPs that are not explicitly included in the POGIL strategies are the skills of planning investigations and developing models. To address these skills as well, you can intentionally add model development as an extension to many of the POGIL activities and, of course, add planning investigations into the lab component of your courses.



There are documents available that show the alignment of activities published in the Flinn Scientific books, POGIL Activities for High School Biology and POGIL Activities for High School Chemistry.

In addition to identifying each activity's alignment with the NGSS Disciplinary Core Ideas (DCIs), Science and Engineering Practices (SEPs), and Crosscutting Concepts (CCs), the documents include alignments with the Common Core State Standards for Math and for English Language Arts. Here is the link for these documents: <https://pogil.org/about/pogil-and-the-ngss>

If you have any questions regarding inquiry learning, POGIL materials, would like to set up an NGSS workshop, or any POGIL-related knowledge, email us at mdubroff@pogil.org.

Where in the World is the POGIL Water Bottle?

From humble origins in Lancaster, PA, POGIL has grown and expanded across the United States and around the world.

We're asking you to send us a picture of your POGIL water bottle wherever you may be to show the POGIL community the wide-ranging scope of our unique pedagogy (and our really cool bottle). Let's see how many places we can reach.

This POGIL water bottle knows that proper hydration is important during a camping trip! Here, it takes a break at Gooseberry Falls State Park in Minnesota on the north shore of Lake Superior. Thank you Julie Abrahamson for this adventurous shot!



Send your photo or video of your water bottle to Marcy Dubroff at mdubroff@pogil.org.

Oklahoma City University Students Research Facets of Water Crisis

By Laura Eastes



The journey to restore safe water to Flint, Michigan, residents began this spring after a two-year battle between residents and government officials over dangerously high levels of lead found in the city's drinking water.

More than a thousand miles away, an Oklahoma City University (OCU) professor used the crisis as his catalyst for teaching inorganic chemistry. In January, Stephen Prilliman began his upper-level science course by passing out copies of a Detroit Free Press

article. It outlined the most recent response to the lead levels found in the Michigan city's drinking water. Students quickly realized the situation was a scientific catastrophe.

"Everyone's jaw dropped at the decisions that were made and the consequences of those actions," Prilliman said. "We used this as a means to learn about chemistry, but I emphasized that we had to remember it was affecting real people's lives. There are serious consequences of chemistry gone wrong."

Flint's water disaster was thrust into the national spotlight in January after President Barack Obama declared a state of emergency and endorsed using federal dollars to aid Flint's recovery.

However, Flint residents knew the public health crisis was years in the making. The water troubles are easily traced to the decision by city leaders to switch to a new provider in an effort to cut costs. The move required building a new pipeline, meaning the Flint River became the interim water source until the added infrastructure was operational. Flint River water began flowing through taps and drinking fountains April 25, 2014. Corrosion controls were not required to treat the water.

Weeks later, the first wave of concerns were reported as residents complained about the water's smell and color. After some time, *E. coli* and total coliform bacteria was detected, forcing residents to boil water and the city to increase chlorine levels in the Flint River. By early 2015, city officials warned water customers that Flint was in violation of the Safe Drinking Water Act, as high levels of total trihalomethanes (TTHM) also were discovered. A city test detected high lead levels in water at a resident's home. A battle began as Flint residents fought to stop the poisoned water from flowing into their homes.

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The clash eventually led to resignations by workers at the Michigan Department of Environmental Quality and regional Environmental Protection Agency, a congressional committee investigation and the state's attorney general filing criminal charges in connection with the water crisis.

For residents, water filters and bottled water are the new norm until water returns to safe levels. Most tragically, the community is dealing with the outcome of elevated lead levels found amongst the city's youngest residents.

Reactions, research

"There was a moment when I thought, 'Oh my gosh. This is really happening,'" said OCU student Kelli Kortemeier. "They were really letting this happen to people."

Other students shared her reaction. The outrage only intensified as they began their semester-long research assignment, part of the course requirement.

Prilliman instructed each student to select an area of the water crisis to study, such as the water's chlorine levels, treatments for lead exposure or the effects of lead released

from pipes. Through sources like scientific journals, news articles, government reports and data collected from a volunteer Virginia Tech University research team, the OCU students began forming their analysis.

Kortemeier and student Landan Beathard researched how chlorine impacted the oxidation of lead pipes. Basically, they wanted to understand the domino effect responsible for the contaminated water. Flint River's high chloride levels caused lead to leach from the pipes, which contaminated water running into homes. The two reviewed independent scientific studies like the one conducted by Virginia Tech. Both were disturbed that government officials ignored indications of a problem found within independent studies. According to the EPA, when lead levels hit five parts per billion, there is cause for concern. The highest lead level found by researchers at Virginia Tech was 158 parts per billion, 30 times higher than the EPA number indicating unsafe amounts of lead. The data came from a water sample from a Flint home submitted in fall 2015.

Student Rachel Young examined lead, which is a chemical element with the symbol "Pb" on the periodic table. Young was aware of lead-based paint warnings and endorsed testing drinking water for lead; however, she wanted to understand what made the element so dangerous. Part of its danger results from its ability to mimic other metals that take part in biological processes and interact with many of the same enzymes. The science confirms lead exposure is unsafe.

Non-STEM POGIL Practitioners Group Forms on Website

A new group on the POGIL website, headed up by Bryson Mortensen of Virginia Wesleyan College, is looking for a few new members! Mortensen, a music faculty member, recently attended a POGIL workshop and has an interest in connecting with other non-STEM POGIL practitioners. The goal, according to Mortensen, is to "collaborate and support one another." If you or a colleague are interested in joining this group, go to the POGIL website, click on groups, and scroll down to Non-STEM POGIL Practitioners.

Let the discussion begin!

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“Before, this was something I only heard about,” Young said of her topic. “Now, I’m taking part and getting to the bottom of this problem. I have a better understanding of how much I’ve learned over the past four years. Before I came [to OCU], I wouldn’t have known how to do any of this.”

A week before the semester ended, students presented their findings to their peers. Prilliman advised them to explain their analyses in a scientific manner, but also be prepared to communicate findings to nonscientists. Their ability to communicate the science behind the evolving national news story became the professor’s proudest moment of the semester.

This article printed with permission of the Oklahoma Gazette and Laura Eastes. Originally published May 5, 2016.

<http://okgazette.com/2016/05/05/oklahoma-city-university-students-research-facets-of-water-crisis/>

The POGIL Peach Award

In 2015, The POGIL Project Steering Committee and Board of Directors established the POGIL Early Achievement Award (PEACH) in order to recognize significant and enthusiastic contributions of new practitioners to The POGIL Project. The award is given annually to one post-secondary and one secondary winner and is presented at the POGIL National Meeting (PNM). Recipients are invited to attend the PNM and are asked to give a short talk on their work. The award, which comes with a \$500 prize to be used for professional development, supports and encourages capacity building for POGIL Project leadership.



The POGIL Project is now accepting nominations for the 2017 PEACH Award!

Visit <https://pogil.org/about/the-pogil-peach-award> for more information on how to nominate someone and the criteria for selection.

Google Group Wraps Up Yearlong Grant

Over the past year, 12 fantastic high school teachers have been participating in POGIL's CS4HS (Computer Science for High School) Community of Practice, funded by a grant from the Google Education and University Relations Fund of TIDES Foundation. The group attended three in-person POGIL workshops to receive extensive POGIL training and monthly Google Hangouts to share experiences and receive community support. The teachers also tested a set of new POGIL-CSP (Computer Science Principles) activities in their classrooms and provided valuable feedback for the authors while practicing their newly-acquired POGIL facilitation skills. Additionally, the Google grant made it possible for two teachers to attend POGIL regional workshops this summer to advance their skills.

We appreciate the time, effort and feedback that the group gave during the year—particularly with already jam-packed schedules. Working with this talented group of educators, we had the opportunity to learn how we could improve this type of program in the future to better accommodate high school teachers, and how to make the beta POGIL-CSP activities as effective as possible. We're working to incorporate the group's feedback and look forward to finalizing the POGIL-CSP activities for distribution. We were also thrilled to hear that overall, the group felt that the year of training and support helped their classrooms become more student centered. Look for more from this small but mighty computer science cohort as we welcome them into the POGIL community!

Thank you to Tammy Pirmann from the School District of Springfield Township and Clif Kussmaul from Muhlenberg College, who facilitated the workshops and Hangouts and provided support for the CS4HS teachers during the year, and to Deepa Muralidhar, from the Atlanta Girls' School, who helped facilitate the initial three-day workshop. If you know of high school or college computer science teachers who might be interested in the POGIL-CPS activities, please contact Tammy or Clif through the POGIL office. We also want to say a special thank-you to Haverford College for hosting our in-person workshops, and to the Google Education and University Relations Fund of TIDES Foundation for their support.



POGIL Published Works

Developing Mathematics Instructional Package with POGIL that is Oriented to the Competences in Curriculum 2013

Pumomo, M., Abadi, A. *Proceeding of 3rd International Conference on Research, Implementation and Education of Mathematics and Science* (2016), 16, p. 163-172

ABSTRACT: The purpose of this research was to produce an effective instructional package for 7th grade students on their 2nd semester using POGIL that consisted of lesson plans and student worksheet. The quality of the package was determined based on the Nieveen criteria, including validity, practicality, and effectiveness. This study was a development research. The developing model in this research was the Plomp model, which consisted of preliminary research, development, and an assessment phase. The research instruments were validation sheets, teacher assessment sheets, observation sheets for learning process, student assessment questionnaires, tests, and observation sheets for attitudes. The analysis of the validity and practicality of the data was done by converting the quantitative data in the form of assessment result score into the qualitative data in the form of five scale. The analysis of the effectiveness of the test results was conducted by determining the percentage of the students' learning mastery. The assessment of questionnaires and attitudes observation was conducted by determining the percentage of the students for each category. The results showed that the developed instructional package was significantly effective based on the lesson plans and student worksheets. The instructional package showed significant results based on students' learning mastery, questionnaires of religiosity, and questionnaires of attitudes.

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The POGIL SPUR⁺ Grant Program

When Rick Moog was awarded the American Chemical Society's 2016 Pimentel Award for outstanding contributions to chemical education, he accepted the award on behalf of The POGIL Project and the entire POGIL community—noting that in true POGIL fashion, you can't do it alone. In honor of the Pimentel Award, and in celebration of the POGIL community and the power of people working together to bring about lasting change in education, The POGIL Project is introducing SPUR⁺.

The new POGIL SPUR⁺ is designed to promote new ideas and spur collaboration between POGIL community members. SPUR⁺ will award small seed grants of up to \$2500 for proposals that further the goals of The POGIL Project as described in its current strategic plan. The original SPUR grant program ran from 2007-2009 and funded 17 proposals, resulting in many significant and successful projects still in use today.

Important Dates for POGIL SPUR⁺

There will be one "round" of awards each year.

- **Deadline for proposals: 5:00 p.m. E.T. on October 1, 2016.**
- Proposals accepted: August 1 through October 1.
- Award decisions: November 15, 2016.
- Projects must start between January 1, 2017, and July 1, 2017.

Visit <https://pogil.org/resources/spur> for more information.

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Analysis of Instructor Facilitation Strategies and their Influences on Student Argumentation: A Case Study of a Process Oriented Guided Inquiry Learning Physical Chemistry Classroom
Stanford, C., Moon, A., Towns, M., and Cole, R. *Journal of Chemical Education* (2016).

ABSTRACT: Encouraging students to participate in collaborative discourse allows students to constructively engage one another, share ideas, develop joint understanding of the course content, and practice making scientific arguments. Argumentation is an important skill for students to learn, but students need to be given the opportunity in class to engage in argumentation. To investigate the importance of instructor facilitation on argumentation, two iterations of one instructor's Process Oriented Guided Inquiry Learning (POGIL) physical chemistry course were studied using the Toulmin analysis and the inquiry-oriented discursive moves frameworks. Data were collected by recording the class conversations and interactions taking place in the POGIL classrooms. Initial analysis of an individual instructor's implementation of the POGIL materials provided data regarding the nature of small group and whole class interactions and the nature and quality of student-generated arguments. The instructor was then able to make modifications to the facilitation of that course for the next iteration of the course. Data were collected for this subsequent implementation, and the two sets of implementations were compared. It was found that slight changes in facilitation can lead to significant differences in the types of student interactions and the nature of students' arguments. Simultaneous reporting was useful in encouraging iterative argumentation and discussion among students, and setting expectations that students must be ready to explain how they solved the problem and justify their work helped students develop their argumentation skills.

STEM for non-STEM Majors: Enhancing Science Literacy in Large Classes

Guang, J., and Bierma, T. *Journal of College Science Teaching* (2013), 42(6), p. 20-26

ABSTRACT: This study evaluated a strategy using "clicker," POGIL (process oriented guided inquiry learning), and a focused science literacy orientation in an applied science course for non-STEM undergraduates taught in large classes. The effectiveness of these interventions in improving the science literacy of students was evaluated using a variety of objective and self-assessed evaluation instruments. Measures of science literacy in this study included not only science knowledge, but also inquiry (the validity of evidence and the relationship between evidence and explanation) and appreciation (the connections between science, prosperity, and good public policy). Results demonstrated small but significant improvements in science literacy knowledge, inquiry, and appreciation and that most students attribute these gains to the teaching strategies introduced in the class. Results are promising given the relatively minor changes implemented in the course and the strong support demonstrated by students.

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Fundamental Nursing: Process Oriented Guided Inquiry Learning (POGIL) Research

Roller, M. *Journal of Leadership and Instruction*. (2015).

ABSTRACT: Measuring the effect of a Process Oriented Guided Inquiry Learning (POGIL) implementation in a fundamental baccalaureate nursing course is one way to determine its effectiveness. To date, the use of POGIL from a research perspective in fundamental nursing has not been documented in the literature. The purpose of the study was to measure the effects of participation in the POGIL process in Fundamental Nursing classes on the final grades and ATi (Assessment Technologies Institute, LLC) grads (national exam) of groups of students who did not participate in group scenario work in class. A comparative quantitative design measured the relationship of grades in two fundamental nursing classes taught by the same professor. The results demonstrated a short-term implementation of a POGIL program could increase grade performance significantly on a standardized exam. Final exam data revealed no significance in grade performance between groups. Utilizing the POGIL method may be beneficial in nursing courses.

Choosing Appropriate Models – Incorporating Climate Change into General Chemistry, in Chemistry and the Environment: Pedagogical Models and Practices

King, Daniel B., Jennifer E. Lewis, Karen Anderson, Douglas Latch, Richard Moog, Susan Sutheimer, and Gail Webster, Editor(s): Katherine C. Lanigan, Elizabeth S. Roberts-Kirchhoff, Kendra R. Evans, mark A. Benvenuto, Alexa Rihana-Abdallah, 1214, 2015 *American Chemical Society*, pp 1-15, DOI: 10.1021/bk-2015-1214.ch001.

ABSTRACT: A set of in-class activities were developed that use climate change concepts to help students learn general chemistry content. The activities are based on POGIL (Process Oriented Guided Inquiry Learning) pedagogy, in which students work in groups to develop conceptual understanding of the topics presented in the activity. A challenge faced in the development of these activities was how to effectively incorporate the climate change context. The result was a set of activities that incorporate climate change in a variety of ways. This chapter will present different model types used in these activities, along with discussion of the corresponding benefits of each particular model type. It is hoped that the reader will gain some insight into model development, and that the examples presented will make it easier for others to incorporate context-based examples into their own curricular materials.

Your support is transforming education – Join us for POGIL Pledge Week: October 17-20, 2016!

Thank you to our incredible POGIL community for your generous gifts last year during our fall fundraising season! You helped make it possible for The POGIL Project to provide workshops to more than 1,400 teachers in 2015, and bring student-centered learning to tens of thousands of students. And, this year, we hope to reach even more with your support.

POGIL Pledge Week (PPW) is a special time for us as a community—a time to celebrate and honor each other and support the important work of educational reform that we all do every day. Look for PPW videos featuring special conversations with POGIL community members who have made a difference for each other--the stories that show the power of community to bring about change.

We all know what a difference POGIL makes in the lives of teachers and students, and your gift helps The POGIL Project continue to work towards our vision of an educational system where student centered learning is the norm. Thank you for all you do to support and promote The POGIL Project! See you in October!



PLEDGE WEEK

October 17-21, 2016

Together, we are transforming education. Join us!

Did you know, that as a 501(c)(3) nonprofit organization, a large portion of the POGIL Project's operating budget comes from donations from our community of teachers, researchers and friends? Nearly 2/3 of the cost of POGIL workshops is funded by individual contributions.

Bringing POGIL Back to Life for the Visually Impaired

At the POGIL Regional 3-day meetings each summer, we spend a lot of time discussing obstacles for implementation. And everything gets brought up—student buy-in, loss of content, types of chairs, types of tables, administration support, personal insecurities, large classroom, small classroom, immediately available activities, etc. My co-facilitators and I take time to discuss ways we have circumvented these issues, or solutions others have used in their classroom through large group discussions and individual conversations that sometimes last for months. While every situation is unique, there is still a feeling that there isn't really anything new under the sun. This spring, however, I was presented with a new challenge.

Kathy Arndt experienced POGIL as a student in my Introductory Chemistry class at University of Wisconsin-Rock County in the fall semester in order to earn CEUs and boost her chemistry knowledge. As the only science teacher at her institution, she teaches a variety of courses for a variety of age groups, and for the first year in some time there was a cohort of students ready for chemistry. Even at a two-year school, it is atypical for a soon-to-be-retiring secondary teacher to take an introductory college course. But, as she told me many times, "My students have enough disadvantages, they deserve to have a teacher who understands the subject." You can't help but agree with her—Kathy teaches at the Wisconsin School for the Blind and Visually Impaired.

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2016-17 POGIL Regional Coordinators

North Central Region—**NC** (IA, IL, IN, MI, MN, SD, ND, NE, OH, WI)
Urik Halliday, Friedrich W. Von Steuben Metropolitan Science Center (2017)
(urhalliday@cps.edu)
Craig Teague, Cornell College (2018)
(cteague@cornellcollege.edu)

Northeast Region—**NE** (CT, DC, DE, MA, MD, ME, NH, NJ, NY, PA, RI, VT, WV)
Steve Gravelle, St. Vincent College (2016)
(sgravelle@stvincent.edu)
Joe Brown, U.S. Coast Guard (2017)
(joseph.d.brown@uscga.edu)

Northwest Region—**NW** (AK, ID, MT, OR, WA)
Bonnie Wehausen, Idaho Falls High School and
Laura Lavine, Washington State University (2017)
(bonnweha@gmail.com/lavine@wsu.edu)

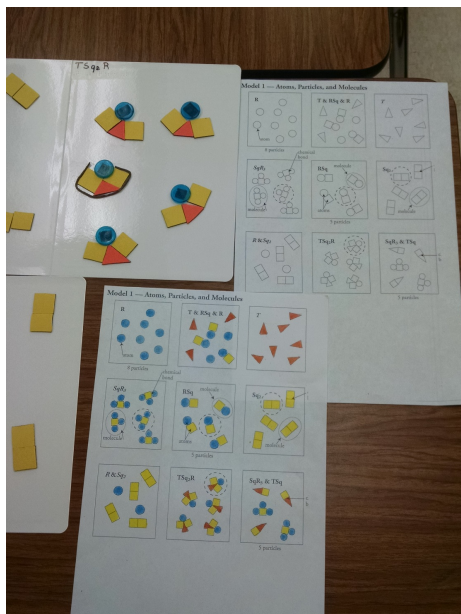
Southwest Region—**SW** (AZ, CA, CO, HI, NM, NV, UT, WY)
Heather Wilson-Ashworth, Utah Valley University (2017)
(heather.ashworth@uvu.edu)

South Central Region—**SC** (AR, KS, LA, MO, OK, TX)
Michael Garoutte, Missouri Southern State University (2017)
(Michael.garoutte@gmail.com)
Tricia Shepherd, St. Edward's University (2018)

Southeast Region—**SE** (AL, FL, GA, KY, NC, MS, SC, TN, VA)
Megan Hoffman, Berea College (2017)
(hoffman@bera.edu)

Please contact any of the Regional Coordinators if you have any questions about events or workshops in your region.

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After her experience with POGIL from a student perspective, Kathy was interested in applying the pedagogy to her own classroom, using activities from the POGIL Activities for High School Chemistry text edited by Laura Trout. But what do you do when your students can't see? This was an implementation obstacle I had not encountered, or even thought about. Of course, the text would need to be enlarged or translated to Braille as appropriate, but with low to zero vision, how would the students be able to interact with the models? Would the roles be different?

Those answers ended up being different for different activities. Some models could be made tactile using a Piaf Tactile Image Maker, which can turn any carbon-based ink into a tactile surface, but sometimes the result did not yield distinguishable shapes for the students with the lowest vision so we resorted to other activities.

For the Classification of Matter Activity, students were able to explore and develop desired concepts by the use of manipulatives placed on a magnetic journal. We ended up using magnets of different shapes where each shape represents an atom and Wikki Stix® to circle and highlight parts of the models. The models were also best used when brightly colored and highly contrasted models were used for those students with low vision (this idea actually came from a student!). An unexpected benefit to these adaptations was that the students helped make physical models, which effectively extended the exploration phase of the activity. The letter symbols for the shapes are printed on braille labels for the student and printed for teacher reference. According to particle arrangement, students determine if something is classified as an element, compound or mixture. These general methods were also applied to the Limiting and Excess Reactant activity where the students work as a team to determine if there is enough chemical reactant to make a desired amount of product.



My favorite adaptation, however, was when the students actually did the lab, rather than looking at a table of data, in the Fundamentals of Experimental Design activity, which was difficult for them to analyze. Students conducted the experiment illustrated in the using a Lab Quest™ which verbally states the readings obtained from the temperature probe.

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In conversation with Kathy, she expressed that the development of positive social skills is difficult when you are visually impaired. The POGIL pedagogy, and particularly the use of roles, provided students the opportunity to work effectively as a part of a collaborative team and develop their leadership and communication skills. In this case, roles were chosen based on ability. For example, students with the higher vision were chosen to record the group's consensus answer. In contrast a student with lower vision had the role of manager. With the use of the Lab Quest™ and the braille copy of the experiment, he was able to lead his peers in investigating the different types of variables which allow you to design a controlled experiment.

Kristin Plessel

University of Wisconsin – Rock County

The 2017 National Conference for Advanced POGIL Practitioners (NCAPP): Expand, Engage, Empower, scheduled for June 26-28, 2017 at Muhlenberg College in Allentown, PA, is ready to roll out! NCAPP is a new kind of conference for The POGIL Project. Highly interactive, the conference is designed for high school and college practitioners to engage through sessions, speakers, and create a space to try new things to improve student learning. Because of the extensive “wisdom in the room,” participants will also contribute their experience during the conference program. Look for application information on the POGIL website at <https://pogil.org/news/ncapp>



NCAPP 2017

Kudos

To **Kristina M. Lantzky-Eaton** for being named **Interim Provost and Vice President for Academic Affairs** at **Hilbert College**.

To **Michael Everest**, Professor of Chemistry at **Westmont College**, for receiving the **Teacher of the Year Award in the Natural and Behavioral Sciences**.

To **Daniel King**, Associate Professor of Chemistry at **Drexel University**, for receiving the **Christian R. and Mary F. Lindback Foundation Award for Distinguished Teaching**, the most prestigious award given to full-time faculty members who have demonstrated the highest achievements in teaching.



To **Jim Spencer** (left), **Franklin & Marshall** emeritus, **Thomas Higgins** of **Harold Washington University**, and **Ellen Yeziarski** (right) of **Miami University**, who have been named **lifetime fellows of the American Chemical Society!** Jim was recognized for his leadership in the involvement of undergraduates in chemistry research and in the reform of the methods used to teach chemistry at the high school and post-secondary levels. Tom was recognized for his serve on three national committees and the ACS Scholars Program Committee, organizing multiple symposia, and receiving the Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences. Ellen was recognized for helping to create premier professional development programs and funding mechanisms for secondary and university chemistry teachers through the Division of Chemical Education, the ACS Education Office, and ACS-Hach Programs. They will be honored at the ACS national meeting later this summer.

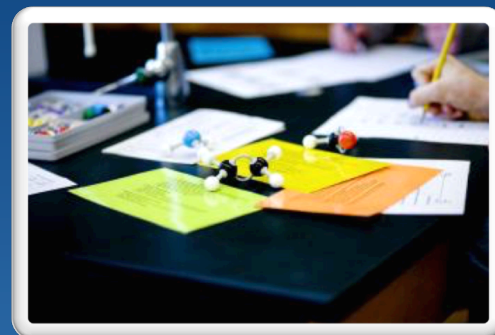


To **Stephen Prilliman** (left), Chemistry Professor and Department Chairman, for winning this year's **Oklahoma City University Outstanding Faculty Award**. The award celebrates outstanding performance in all areas of academic pursuit and acknowledges special achievement in the endeavor of teaching.

Looking to Book a Workshop?

- If you would like to bring a POGIL workshop to your area, please get in touch with us! We are interested in teaching more instructors about POGIL at both the high school and post-secondary levels and want to help them make their classrooms and laboratories more student-centered.

Please visit our website and submit an event request at <https://pogil.org/contact/enter-request> or email Marcy Dubroff at mdubroff@pogil.org.



Send us your news!

We'd love to feature your news, your grant, or your video on the POGIL website and in the POGIL newsletter. Send news to Marcy Dubroff at mdubroff@pogil.org

Get all the latest POGIL news by following us on Twitter or Facebook! Sign up to get our @POGIL tweets at [twitter.com](https://twitter.com/POGIL).

POGIL

The POGIL Inquirer

The POGIL Project

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