



27th Annual OCTC

TIE Conference

Teachers, Industry & Environment Conference

Wednesday, October 9, 2019

4:00-6:00 p.m. **Conference Registration**

5:00-6:00 p.m. **Welcome Dinner - *Sponsored by The Lubrizol Corporation***

6:15 p.m. **Shuttle Transportation to Ashland Chemical Company**

6:45 p.m. **Tour of Ashland Chemical Company**

Ashland Chemical Company is a global specialty chemical company that provides products, services and solutions throughout a variety of industries. The tour of Ashland Chemical Company provides conference participants an inside look at an operating chemical plant.

8:30 p.m. **Depart for Conference Hotel**

Thursday, October 10, 2019

7:00 a.m. **Breakfast – *American Chemistry Council’s Chlorine Chemistry Division***

7:45 a.m. **Conference Opening Remarks**

Jenn Klein, President, Ohio Chemistry Technology Council

7:55 a.m. **Introduction of Ashland University Graduate Credit Opportunity**

Linda Pettit, Ashland University

8:00 a.m. **Teaching Science with TOYS - *Presented by LyondellBasell***

Unlock the mysteries of chemistry for your students by learning to use both homemade and purchased toys in your classes. Teachers will explore hands-on science activities that use toys and other common household items to teach the principles of scientific inquiry, physics and chemistry.

Amy Weiskittel, LyondellBasell

10:00-10:10 a.m. **Break**

10:10-11:00 a.m. &
11:10-12:00 p.m. **Concurrent Sessions**

Dancing Bubbles - *Presented by Solvay*

In this activity teachers will observe the relative densities of household liquids, like syrup, oil and alcohol and solids, like plastics, wood and paper.

Bonnie Bishop & Kelydra Welcker, Solvay

Project WET Sampler - *Presented by Ohio EPA*

On “The Incredible Journey,” students simulate the movement of water molecules within the water cycle. “Ask the Bugs” simulates bioassessment of a stream, the way that Ohio EPA collects macroinvertebrates as an indicator of water quality.

Carolyn Watkins, Ohio EPA



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Thursday, October 10, 2019 (Continued)

12:00-1:00 p.m. **Lunch - *Sponsored by PPG***

1:00-1:15 p.m. **Break**

1:15-2:15 p.m. **Concurrent Sessions**

&2:30-3:30 p.m.

Plastics in Industry and Environment – *Presented by Covestro*

Through a series of interactive demonstrations, participants will experience the stages of plastics manufacturing, including polymerization, extrusion, molding, quality analysis, and recycling. Participants will create polymer worms, participate in a live color matching process, and experience tabletop-scale representations of extrusion, molding, and quality analysis processes. Participants will also be introduced to information on the career opportunities and education requirements in the industry.

Tim Frisch, Jim Hamilton, Adam Houdeshell, Jeremy Bennett, Steve Burgess, Paul Prince-Wright, Mel Van Balen, Travis Lester, Jacob Rohr, Derek Fulk

Moon to Mars: Using Gravity Assist to Launch a Crew Vehicle - *Presented by NASA*

NASA is building a spacecraft to take astronauts to the moon and beyond to mars. It will dock with Gateway in orbit around the moon. Both distance and duration demand Orion to have systems that can reliably operate far from home, be capable of keeping astronauts alive in case of emergencies and still be light enough that a rocket can launch it. We will design a spacecraft and launch it using the slingshot gravity assist method. The inquiry based learning activities focus on Newton's laws and the Engineering Design process.

Susan Kohler, Education Specialist, NASA

3:30 p.m. **Break**

3:30-4:30 p.m. **Frosty Break - *Presented by LyondellBasell***

Liquid Nitrogen Fun!

Amy Weiskittel

4:30 p.m. **Ashland University Reflection**

This session is offered to those interested in obtaining 1 semester hour of graduate credit through Ashland University. The fee for the credit is \$190.00. Participants will work with an Ashland University facilitator on a reflection of the sessions attended during the conference, and how to incorporate what was learned into their curriculum.

Linda Pettit, Ashland University

4:30 p.m. **Evening on Your Own**



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Friday, October 11, 2019

7:00 a.m. **Breakfast – Presented by BASF**

7:45 a.m. **Opening Remarks**
Jenn Klein, President, Ohio Chemistry Technology Council

8:00 a.m. **Carnegie Science Center**

9:00-9:10 a.m. **Break**

9:10-10:00 a.m. **Concurrent Sessions**

& 10:10-11:00 a.m.

Bouncy Balls: The Science of Polymers - Presented by LyondellBasell

Why do some balls bounce higher than others? Why do diapers absorb so much liquid, do all plastics repel water? The basic concepts of plastics (polymers) including the properties of plastics and their many uses will be discussed.

Amy Weiskittel, Jan Galbraith, LyondellBasell

Industrial Concepts as Student-Friendly Experiments - Presented by Solvay

Discover concepts and processes important to the design and operation of chemical plants. Concepts will be illustrated with simple hands-on demonstrations/experiments that can be used in a classroom setting. These demonstrations will be linked with real-world operational and safety concerns from a chemical plant.

Adam Beckmeyer, Solvay

11:00 a.m.

NASA ECOSTRESS mission: The Fate of Earths Ecosystems - Presented by NASA

As Earth's climate warms and parts of the world become drier, how will plants respond to changes in water availability? Which ecosystems are most vulnerable to the impact of more frequent, longer droughts? What varieties of crops will enable farmers to keep feeding the world? The ECOSystem Spaceborne Thermal Radiometer Experiment on Space Station (ECOSTRESS) will measure the temperature of plants and use that information to better understand how much water plants need and how they respond to stress. NASA Resources for STEM Project Based Learning will be explored. These activities are dynamic by nature and incorporate cooperative learning and exploration. The activities are versatile and can be used as stand alones or incorporated into complex units.

Susan Kohler, Education Specialist, NASA

12:15 p.m.

Conference Closing Remarks

Jenn Klein, President, Ohio Chemistry Technology Council