

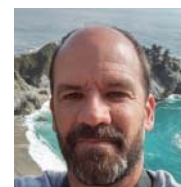
2016 STEP Conference for Teachers
Sea Change - Expanding the Role of Curiosity in Teaching & Learning

BREAKOUT SESSIONS

REGISTRATION BEGINS August 8, 2016

Option 1: Discrepant Events to Inspire Curiosity

In this connected world where students have answers at their fingertips, they can get the feeling that they know everything. Discrepant events are a great way to show them that knowledge and understanding are two completely different things and pique their interest in science. In this presentation, you'll experience several discrepant events and learn how they can be used to spark students' imaginations. *Special Note:* If you have a favorite discrepant event that you use in class, please bring copies to share with your colleagues.

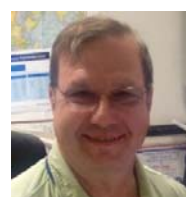


Mike Horton
Assistant Principal
Western Center
Academy

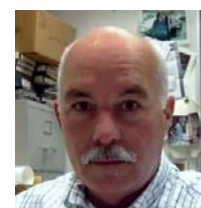
Option 2: Newton's Notions about Motion

Newton's 3 Laws of motion are of fundamental use throughout physical science and, for those living in the 17th and 18th centuries, represented a pivotal change in humankind's thinking about the rules of nature.

Newton's Notions about Motion science show presents lively demonstrations that apply Newton's Laws and provides audience members with understandable physical science concepts and reproducible hands-on classroom activities.



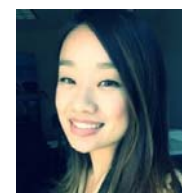
Alex Nagy
Engineer, General
Atomics Energy/Fusion
Group, on extended loan
from Princeton Plasma
Physics Laboratory,
Princeton, NJ



Rick Lee
Scientist, General Atomics
Energy/Fusion Group
Adjunct Professor,
Physics/Engineering
Department, Palomar College
Adjunct Professor,
Mathematics and Natural
Sciences, COLS, National
University System

Option 3: How to Make Solar Cells & the Environment More Safe

- Photovoltaic cells, also called solar cells, are devices that create electricity from light. The most common type is made from silicon in a process similar to the way computer chips are made and requires large, expensive factories the titanium dioxide semiconductor material separates the charge. The redox couple completes the circuit. The attendees will learn how to use raspberry juice to construct a simple dye-sensitized solar cell and measure the electricity the cell produces.
- Particles suspended in the atmosphere play an important role in cloud formation, as they act as seeds on which water vapor condenses to form cloud droplets. These aerosols that can uptake water are referred to as cloud condensation nuclei. The demonstration will show the process in which a liquid condenses onto a particle and then forms a cloud droplet, and the role that atmospheric pressure and temperature play in subsequent cloud formation.



Kathy Vang
Marketing and
Outreach Specialist,
CE-CERT

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Option 4: Shake, Rattle, and Roll into NGSS

Engage in a team activity exploring science, engineering, and math combining earthquake activity and structural integrity. Build, shake, and contemplate!



Linda Braatz-Brown
Curriculum Coordinator
Science & Environmental
Education, San
Bernardino County
Superintendent of
Schools

Option 5: Paper Cutting Polygons

Participants will explore the ancient Japanese art of Kirigami as they create regular polygons using paper and scissors. These activities will engage students to build vocabulary and attributes of geometric shapes.



Shirley Roath
Mathematics
Coordinator, Riverside
County Office of
Education

Option 6: Metric Estimator Game

About how many grams does a baseball weigh? Approximately how many millimeters long is a crayon? How many liters are in your water bottle? Become familiar with metric system (SI) measurements by practicing your estimation skills using everyday household items. Participants will work in small groups and earn points in this “Jeopardy” style game. Let the competition begin!



Elizabeth Gentry
Metric Coordinator,
National Institute of
Standards and
Technology

Option 7: Educational Exhibit Fair

A variety of educational and instructional resources for teachers to introduce in their classrooms to incorporate hands-on and meaningful lessons. Booth exhibits will feature engineers and scientists from high tech organizations demonstrating science and technology. Exhibitors will include:

- Bourns Energy Management/Automation
- Bourns Green Screen
- Bourns Technology
- Cal Baptist University Engineering
- Chaffey College’s Career Technical Education
- Explore Microscopy
- First Robotics-Stars for a Better Tomorrow
- General Atomics
- Jurupa Mountains Discovery Center
- Metrology Careers NIST
- My Learning Studio
- Navy Dazzle
- Navy Laser Lab
- Navy Sea Perch
- Navy STEM Drone
- Navy Thermal Imagery
- The Science Experience
- Vocademy The Makerspace