**WSTA Fall 2014 Annual Conference**

**Spokane Convention Center, 334 West Spokane Falls Boulevard.**

**October 17th, 18th and 19th, 2014**

**Friday October 17**

7:00 AM to 6 PM Register and pick up packets, Convention Center Lobby

7:40 Field Trip Check in, loading onto busses or prepare to walk. Check in 20 min prior to departure

8:00 Busses/walkers leave

12:30 Afternoon Field Trips leave from front of Convention Center

5:30 Spokane Convention Center, Ballroom 111, Eat, meet and greet with vendors. Meet old friends, new friends, visit vendors and win prizes!

**Saturday October 18th**

7:00 am, all day Registration, Convention Center Lobby

8:30 to 9:40 Welcome comments and keynote from Patrick D’Amelio, Washington STEM

 “What is the future, where are the STEM jobs for our graduates”

9:40 to 10:10 Vendor Time! Visit vendors and win prizes!

10:10 to 12:20 Workshop Sessions

12:30 to 1:30 Lunch/regional meetings

1:30 to 2:30 Keynote from Ellen Ebert, OSPI “Transition to the Next Generation Science Standards”

2:40 to 4:50 Workshop Sessions

6:30 Awards Banquet, Mobius Science Center

**Sunday Morning, October 19th**

7:30 Sunday Registration, Convention Center Lobby

9:00 Keynote Okhee Lee and Rita Januszyk, on Science for All Students.

10:10 to 12:20 Workshop Sessions

12:30 Pick up pre-ordered lunches, depart.

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| **Title** | **Conference Theme** | **Description for Program** |
| Scientific Rumination Modules, an engaging and meaningful way to organize science units. | Science and STEM for Everyone,CTE, NGSS and STEM; | Do your students ask, “Why are we learning this?” Tired of students not retaining information? Scientific rumination modules (SRMs) are another tool to improve your students’ engagement and retention. Come learn how to set up a science unit that is based on real world science events, is full of student choice and meets ELA common core standards and Next Generation Science Standards. This middle school science model provides assessment differentiation and can be adapted for elementary use. |
| How to make the most of your school's large-format printer/plotter | Science and STEM for Everyone | Learn about the many applications for large-format inkjet prints in a school including technical & engineering uses, athletic events, signage, children’s artwork and more. Produce big cost-savings for your school, plus generate $$ from fundraisers with special event prints. Session also covers info on the care and feeding of inkjet printers/plotters in your technical departments. Find out how you can get the most out of your printer with tips and tricks, best practices, facts from fiction. |
| K-8 Waves and their Application in Technologies | Science and STEM for Everyone,Updates and training on NGSS and CCSS,CTE, NGSS and STEM; | One new ripple of the NGSS is the 4th core idea of the physical sciences. Participants of this workshop will explore the 1st grade, 4th grade, and middle school waves Performance Expectations, possible instructional activities, materials, and assessments. |
| MacGyver Wind Turbine Challenge | Science and STEM for Everyone | Come and engineer a wind turbine using commonly found materials. Through experimentation, design and construct different turbine blades to maximize the energy transferred from your wind turbine. Be ready for a challenge! |
| The River Mile Columbia River Watershed Network | Science and STEM for Everyone,Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS,Career recruiting and preparation for all in STEM careers | This session is an introduction “The River Mile” which is a network of K-12th grade educators, students, resource managers, scientists and environmental educators in the Columbia River Watershed sharing what they know and learn about the Columbia River Watershed and share best practices, lessons learned, examples of participation, links to resources and collect real world scientific data. Students and teachers become intimately familiar with their mile by spending time in the field inventorying, monitoring, and investigating site discoveries. |
| A Sneek Peek into WSTA Professional Development for the school year 2014-2015 | Updates and training on NGSS and CCSS,Biology EOC and Collection of Evidence | Come join your Washington Science Teachers’ Association representatives as they share about the professional development they will offer across the state. Representatives will share the following workshop sneak peeks: 1. The Beginning Nuts & Bolts of NGSS 2. Navigating the Biology Collection of Evidence and 3. Preparing for the Biology End of Course Exam. Bonus Time: Learn to navigate apps and tools that will enhance your conference experience. |
| Lights, Camera, Action: Using Popular Movies to Teach STEM | Science and STEM for Everyone | Looking for a way to connect science or STEM to students lives outside the classroom? Inject a bit of Hollywood into your classes with the author of NSTA's Blick on Flicks feature. |
| What can we learn from molecular structures? | Science and STEM for Everyone | A central challenge in teaching biology is that the molecules essential for life like ATP, DNA, RNA, and proteins, are invisible to the naked eye. Scientists explore these molecules by using tools like electron microscopy, x-ray crystallography, and NMR to gather data and computational modeling software to display that data in different ways. We will use diverse examples (e.g. biofuels, spider silk, antibodies, DNA) to demonstrate how students can use computational models to better understand relationships between structure and function. |
| The MiniOne: A Complete Electrophoresis Experience | Science and STEM for Everyone | The MiniOne™ delivers the complete, real-time electrophoresis experience in the palm of your hand. It is a safe, classroom friendly unit that replaces the traditional buffer tank, power supply and transilluminator. Separate, view and even take a picture of DNA bands within a single class period. We have also designed various MiniLabs and consumables to optimize teaching while minimizing lab prep time. The MiniOne makes teaching molecular biology easy for the teacher and engaging for the student. |
| Using project-based learning to Engage Underrepresented & Minority Students in STEM | Science and STEM for Everyone,Equity in STEM education | This presentation explores strategies that have successfully engaged and foster equity among Underrepresented in STEM. The presentation also provides participants with hands-on examples and strategies which can be adapted for use at various grade levels and subject areas. |
| MarsCubed - Mars, MAVEN and Modeling Planetary Evolution | Science and STEM for Everyone,CTE, NGSS and STEM; | NASA has a new satellite orbiting Mars to better understand the processes that took Mars from a watery planet to the dry, cold world we see today. Better understanding this process better helps humans understand Mars but also understand the complex interconnected systems that make Earth. This session includes an overview of the comparison of planetary evolution between Earth and Mars, hands-on inquiry and modeling activities, and plenty of classroom resources meeting NGSS and state standards. |
| Mars cubed- Mars, Magnetism and MAVEN | Science and STEM for Everyone,CTE, NGSS and STEM; | What do Mars, Magnetism and MAVEN have in common? Explore magnetism, electro-magnetic fields and the mystery of Mars’ missing atmosphere using activities and data from the MAVEN satellite mission. This session includes an overview of the science, hands-on inquiry and engineering activities and plenty of classroom resources that meet NGSS and state science standards. |
| Transform Your Science Classroom Into Their Thriving Research Laboratory! | Science and STEM for Everyone,Career recruiting and preparation for all in STEM careers,Equity in STEM education,Connecting K-12 and College/University | Scientists perform research toward a more comprehensive understanding of the universe. I want to change your view of being an educator back to being a scientist who teaches! Let me show you how your students can drive the questions followed with research-based methodology. I can show you two-day trials, two-week trials, or the ultimate year-long course…all fulfilling the NGSS and cross-cutting the CCSS standards! Science and engineering are verbs, not nouns!  |
| TOMODACHI Toshiba Science and Technology Leadership Academy Experience | Science and STEM for Everyone | TOMODACHI Toshiba Science and Technology Leadership Academy experience fosters closer ties between U.S. and Japanese teachers and students. Students and teachers are inspired to use science and technology to address some of the world's most complex issues in the future. |
| Constructing Scientific Explanations in Elementary Science-Using Evidence in Argumentation | Updates and training on NGSS and CCSS | Participants will deepen their understanding of the connections between the NGSS Science and Engineering Practices of Engaging in Argument from Evidence and Constructing Scientific Explanations including reference to the connections to the CCSS-ELA evidence and speaking standards. Several resources will be highlighted as well as an opportunity to engage in a video-case study focused on a position-driven discussion. The focus will be on elementary education but the resources are applicable to K-12. |
| STEM and Certification Renewal Requirements | Training pre-service and new teachers on STEM, NGSS and CCSS,Career recruiting and preparation for all in STEM careers,CTE, NGSS and STEM; | This session may be repeated multiple times. Twice Saturday and on Sunday.  Legislation as well as action by the Professional Educator Standards Board (PESB) have led to changes in certification renewal requirements affecting elementary teachers and secondary teachers in STEM-related subject areas. This session will review these and other significant changes and answer the questions, “Who does this affect? How do they meet the new certification renewal requirements? And what resources are available?” |
| Engineering a Summer Science Program | Science and STEM for Everyone | Participants in this session will use North Kitsap School District's Summer Science Academy Program (NKSD's SSA) and the NGSS Engineering Design Process to understand how to define, develop solutions for and optimize plans for their own extended school year opportunity. NKSD's SSA serves elementary Title 1, LAP and ELL students by teaching reading, writing and math through hands on science investigations. |
| Poetry-fic Science: Using Poetry to Enrich Learning of Science Concepts in Elementary School | Science and STEM for Everyone | The presenters will share some thrilling ideas on how to make science more “poetry-fic” and exciting for students incorporating poetry into elementary science lessons based on the NGSS a& CCSS and the CCS for ELA, Reading, and Writing. Hands-on activities for the participants will be provided. The poems used for the lessons are from the book Poetry Friday Anthology for Science by Sylvia Vardell and Janet Wong. An overview of the lessons and worksheets used in the lessons will be provided by the presenters. |
| The Generator Project: Implementing NGSS with Modeling and Projects | Science and STEM for Everyone | Come participate in a mini-unit that demonstrates how the Science and Engineering Practices of the NGSS are implemented in a 9th grade integrated science curriculum. We use model-based inquiry to make sense of a phenomenon, guided and independent inquiry to make sense of the phenomenon, and project-based learning to help students apply their learning to a problem using the engineering design process. In this workshop, you will engage in model-based inquiry, participate in an investigation, and make plans to incorporate similar instructional plans into your curriculum. |
| The Science in Action! program - Connecting local schools and universities | Science and STEM for Everyone,Training pre-service and new teachers on STEM, NGSS and CCSS,Career recruiting and preparation for all in STEM careers,Connecting K-12 and College/University | Many teachers would like to expose their students to university science departments, but developing those partnerships can be challenging. Science in Action! is an outreach program that builds connections between schools, Gonzaga science departments, and the School of Education. The program visits elementary classrooms to do inquiry-based science activities that enrich and align with district curricula and standards. This presentation will discuss how SIA is set up and how this model could be transferred to other schools and universities. |
| Examining Key Aspects of K-12/University Partnerships | Connecting K-12 and College/University | This workshop will examine the key aspects of developing K-12/University partnerships. School district needs (both administration and teachers) will be identified based on presenter’s experiences with a state MSP project (EUCAPS project http://sbs.wsu.edu/eucaps/index.html) and participants’ ideas. These needs will then be compared with those of the University. Upon identifying similarities and differences in school district and university goals and perspectives, we will collectively discuss how to most appropriately develop partnerships that support all stakeholders. |
| NGSS beyond K-12: Freshman College Biology “Gets Real” at Gonzaga University | Connecting K-12 and College/University | Next Generation Science Standards transfer us from breadth to depth. Are you concerned whether your students will be prepared for college-level science? Join us as Gonzaga University Biology faculty share their novel integrative curriculum, which includes an authentic research experience for all freshman students. Students isolate and characterize bacteriophage and submit their findings to an international public database. While narrow in scope, the students report gains in thinking like a scientist and in understanding what scientist do. |
| STEM-It: Developing Design Challenges that Ignite Learning | Science and STEM for Everyone | Learn about the elements of the STEM-It MSP project and how elementary teachers developed design challenges that engaged students in authentic application of science, mathematics and ELA learning. You will learn how teachers used a graphic process to deeply analyze their science units and make connections to Science and Engineering Practices, Crosscutting Concepts, Disciplinary Core Ideas and Common Core connections in the NGSS and experience a STEM-It design challenge and explore ways to create and access developed design challenges. |
| Partnering Classrooms & Science Pros: An Ecology Model for STEM Learning | Science and STEM for Everyone,Career recruiting and preparation for all in STEM careers,Equity in STEM education,Connecting K-12 and College/University | Ecology of the Okanogan is an elective at Okanogan High School focused on learning ecological science in the context of local environments; using science skills to support a salmon recovery project; and connecting students to STEM careers. Talk will cover the creation of the class, the curriculum created for the pilot year, and lessons learned and applied for Year Two. We will pay particular attention to building partnerships with local professionals and the potential for this class to be a model for other science disciplines. |
| Biology COE: First Year Reflections | Biology EOC and Collection of Evidence | A biology COE is a set of exemplary work samples that represent what a student knows and can do with respect to the biology content standards for high school. These are the same skills and expectations assessed on the biology end of course exam (EOC). |
| Integrating Your iPad with Vernier Technology | CTE, NGSS and STEM; | Using data-collection technology builds deeper student understanding of critical concepts in science and increases test scores. See how Vernier sensors, including our Go Wireless Temp, supports science inquiry in classrooms using iPad. This technology empowers students to collaboratively collect and independently analyze their data. |
| Investigating Renewable Energy with KidWind and Vernier | Science and STEM for Everyone | Learn how to incorporate engineering design principles into lessons focusing on renewable energy using KidWind Wind Experiment Kits and Vernier data-collection technology. These activities from our Renewable Energy with Vernier book, embody the spirit of STEM education through this highly relevant topic. |
| Washington State NGSS Transition Plans | Updates and training on NGSS and CCSS | Curious about the transition to the NGSS? This session focuses on the state transition plans for the NGSS. Participants will review the elementary, middle and high school plans. Come and learn about the elements of the plan and participate in a feedback discussion. |
| NGSS Updates from OSPI Teaching and Learning | Updates and training on NGSS and CCSS | This session will provide participants with current Science updates from OSPI's Teaching and Learning Department. Newest information from national and state wide sources will be presented. |
| Teaching Scientific Argumentation Using Owl Pellets | Training pre-service and new teachers on STEM, NGSS and CCSS | According to the NGSS, scientific argumentation as an integral part of both scientific and engineering practices. An essential part of scientific argumentation is the relationship between claims and evidence. In this session, I will demonstrate how to use owl pellets to introduce elementary school students to scientific argumentation and develop their basic science skills. |
| Engineering Design Challenges in the Elementary Classroom | Science and STEM for Everyone,Training pre-service and new teachers on STEM, NGSS and CCSS,Connecting K-12 and College/University | Discover how you can incorporate engineering design challenges into your elementary classroom. See how design challenges have the potential to integrate the disciplinary core ideas of engineering design and the Engineering Practices of the NGSS. This session will highlight a collaborative project between a university science methods course for pre-service teachers and an elementary school. In this session several sample projects will be shared. |
| Unpacking a Performance Expectation from the Next Generation Science Standards | Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS,CTE, NGSS and STEM | Participants will analyze a Performance Expectation from the NGSS to generate thinking about instructional design, shifts, and connections to the Common Core. |
| Reproductive Technologies | CTE, NGSS and STEM; | Oncofertility, a new field of medicine, encompasses comprehensive approaches to preserving fertility in patients before their cancer treatment begins. Scientists are freezing ovarian tissue for transplantation and growing follicles containing eggs outside of the body. Hands-on activities include determining which cryopreservation solutions are least damaging to tissue, and exploring the use of alginate for growing 3-dimensional follicles. A new oncofertility curriculum, including these two lab activities, will be presented along with the website where teachers can access curricular materials free-of-charge. |
| Project Learning Tree and Next Generation Science Standards | Science and STEM for Everyone | Join Pat Otto from Pacific Education Institute (PEI) for Project Learning Tree lessons that show the intertwining of cross cutting concepts, science and engineering practices, and disciplinary core ideas. Examine Tree Cookies to observe patterns and infer cause and effect and estimate the value of trees through www.treebenefits.com. Then use models building a tree and competing in Every Tree for Itself activities. Finally investigate plant diversity outdoors and practice claims, evidence, and reasoning with the data gathered. |
| Stormwater Engineering -Jump start science instruction using common core | Science and STEM for Everyone | The natural environment provides an exciting, hands-on, real world laboratory for students to develop skills relating to STEM. Pat Otto, from Pacific Education Institute will share how to start science instruction with an ELA performance task and then connect a field experience on your schoolyard with the Science and Engineering Practices using the PEI’s Project Based Learning Model. Integrate with Language Arts and build the science skills of your students while they engage with a real world stormwater engineering project. |
| OSPI Science Assessment Updates | Science and STEM for Everyone,Biology EOC and Collection of Evidence | What is happening in the world of science assessment? Are there changes coming soon because of the Next Generation Science Standards? Where are resources to help teachers and students? What are common mistakes students make? Answers to these and other questions will be addressed in the context of the grades 5 and 8 Science MSP and the Biology EOC. |
| Engaging in Argument from Evidence: Taking a look at the NGSS science and engineering practice. | Science and STEM for Everyone,Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS,Equity in STEM education | This workshop will offer teachers the opportunity to explore the Next Generation Science Standards Practice of Engaging in Argumentation from Evidence. Learn how this practice is developed throughout the NGSS from Kindergarten through Grade 12 and how to introduce scientific argumentation to your students. |
| Using Picture Books to Teach Engineering to Inservice and Preservice Teachers | Science and STEM for Everyone,Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS | Learn about engineering design in the Next Generation Science Standards by engaging with several dynamic and engaging picture books. The shared materials and resources have been used to help hundreds of preservice and inservice teachers in our state better understand engineering. All materials are also appropriate for use as engineering anchor lessons with K-5 learners. |
| Fossils: A 3-D Lesson Sequence Aligned to NGSS | Updates and training on NGSS and CCSS | What might 3-D NGSS instructioanl materials look like? 5th-grade teacher leaders in Bethel SD are piloting a 10-day Fossil Module. Applying the principles described in "Translating the NGSS for Classroom Instruction" (Bybee, 2013), the module attends to all dimensions described NGSS Performance Expectations 3-LS4-1 and 4-ESS1-1. The assessment includes non-traditional items that reflect the PEs and the instructional activities. The activities include fossil observations, multimedia activities, close reading and other text activities with the book "Mary Anning: Fossil Hunter." |
| Gene-Environment Interactions in the Nematode Caenorhabditis elegans | Science and STEM for Everyone | Participants will compare the activity of two nematode strains at two salt concentrations and will use their data to describe how gene-environment interactions determine traits. |
| Pre-service Teacher Poster Session | Training pre-service and new teachers on STEM, NGSS and CCSS,Connecting K-12 and College/University | Pre-service teachers from teacher preparation programs around the state will present posters of their work. Poster topics range from specific science research projects to class projects to lesson plans developed and tested. This event is hosted by the Washington Teachers of Teachers of Science organization. |
| Starting Small with NGSS: District-Wide Projects | Updates and training on NGSS and CCSS | We will describe two NGSS-oriented projects: (1) K-5 Argumentation (2) 6-8 STEM Engineering Project. These projects were explicitly based on limited parts of NGSS, and they were concrete, reasonable, and engaging for both teachers and students. Come hear how we used teacher leaders to launch each project, and get a link to our tools. |
| Using Wind Turbine Models to Integrate Science and Engineering Practices | Science and STEM for Everyone | Wind Energy is one of the fastest growing renewable energy sources in the US. This workshop uses wind turbines as models for students to investigate the design process and to learn about the underlying Disciplinary Core Idea of Energy. Wind turbines are a great device to introduce planning and carrying out an investigation. By changing various wind blade variables students can maximize the electrical output of the turbine. |
| Integrating the Science of Energy and The NGSS (4-PS3 Energy, 5-PS3 Energy) | Science and STEM for Everyone | Come explore different forms of energy and how they are transformed utilizing common items. Students will learn to master the forms of energy and teach what they have learned to others. The class will focus on 4th and 5th grade energy performance expectations from the Next Generation Science Standards. |
| The science behind the science: Maximize meaningful learning in your class | Science and STEM for Everyone | You have so much to teach and so little time to do it. Did you know that teachers spend an average of 5-9 hours per week warning, correcting, correcting again and eventually referring low-level problem behaviors in the classroom? Take back that time for exciting projects, experiments and exploration! In this jam-packed session you will receive powerful, research-based tools proven to improve student scores and motivation, reduce behavioral issues and eliminate referrals giving you more time to teach! |
| Elementary STEM Integration | Science and STEM for Everyone,Equity in STEM education | Evolving from science demos to full STEM integration. Learn how a neighborhood public K - 5 elementary school transformed from classroom science demonstrations to a fully STEM integrated school in just a couple of years. We will discuss inquiry/design challenges, student mentoring, parent involvement,cross-grade level teaming,community partnerships and technology enhancements. |
| Edgar Allen Poe Anticipated CCSS and NGSS | Science and STEM for Everyone,Career recruiting and preparation for all in STEM careers | Engaging students’ minds and imaginations in CCSS and NGSS can start with Edgar Allen Poe’s short stories, progress through increasingly contemporary fiction and nonfiction, and conclude with community-based, service-learning projects. Projects collaboratively carried out by local high school and university student teams working with local professionals and business owners are used to describe how a sequence of K-12 capstone experiences can engage students in fulfilling numerous CCSS and NGSS standards while learning about and contributing to their surrounding community. |
| Partner's in Science program-M.J. Murdock charitable trust | Career recruiting and preparation for all in STEM careers | Partners in Science grants provide research opportunities for teachers to work with scientists in academic labs.The purpose of this $15,000 grant is to bring the knowledge from the research lab back into the classroom. Approximately 25 grants are awarded each year to teacher-mentor partnerships in the Pacific Northwest. |
| Strategies for Ensuring Each Student has a STEM Future | Science and STEM for Everyone | ￼We will share strategies and tools we used to implement a district-wide STEM program, impacting each student, articulating with higher education and industry. |
| Engaging Students in the NGSS Science Practices through Citizen Science: Environmental Field Science Investigations with Students in the Schoolyard | Science and STEM for Everyone,Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS,CTE, NGSS and STEM | Learn how to engage your students in citizen science projects using the NGSS science practices throughout the year in your classroom and schoolyard. Come prepared to go outdoors for a meaningful science investigation. |
| Connecting NGSS with CCSS: Is It Living? | Updates and training on NGSS and CCSS | Experience an instructional model focusing on the Common Core connections within a performance expectation. In this model, participants will explore life cycles in order to describe what all life cycles have in common. These observations will be coupled with evidence gleaned from text in order to write a claim-evidence based response. |
| Connecting NGSS with CCSS: Fossils | Updates and training on NGSS and CCSS | Experience an instructional model focusing on the Common Core connections within a performance expectation. In this model, participants will explore fossils in order to describe patterns within the fossil record. These observations will be coupled with evidence gleaned from text in order to write a scientific explanation. |
| Convection Currents and the Crosscutting Concepts | Updates and training on NGSS and CCSS | Come learn about the connections between the Common Core State Standards in English Language Arts and the Next Generation Science Standard's Crosscutting Concepts. Hands-on! |
| PASCO's SPARKscience for High School Biology Students | Science and STEM for Everyone | Learn how SPARKscience engages students in Scientific and Engineering Practices, affording a deeper understanding of scientific concepts. Participate in investigations to experience real-time data collection with probeware and SPARKvue® software. |
| Application is Engineering | Science and STEM for Everyone | Experience an overview of the Engineering Design Process as described in the Framework for K-12 Science Education. We will be making connections for teachers in grades 4-8 between WA State Application standards and the NGSS using a design challenge. We will also be showing participants how to transition to a design classroom while supporting students on our current assessment system. |
| The DIG Field School: teachers digging dino’s with UW Paleontologists | Science and STEM for Everyone,Connecting K-12 and College/University | Take a fresh look at the Mesozoic extinction event that so many of us take for granted was “solved” with the discovery of the meteorite collision evidence. This session will feature on-going research around the problem that Paleontologist Greg Wilson has invited teachers and their classes to become part of through the DIG Field School. |
| College Courses Taught in High School: STEM Coursework in Partnership with Universities | Connecting K-12 and College/University | High schools can offer college courses for college credit through programs administered by Eastern Washington University, Central Washington University, and the University of Washington. These programs feature college-approved and trained high school teachers teaching official college courses in the high school classroom, the students in those courses can register to earn college credit. Learn how these programs works, what STEM courses are available through each university, and how your school can partner to enhance STEM opportunities for your students. |
| POGIL Part IV: Overcoming Obstacles to Implementing POGIL | Science and STEM for Everyone,Training pre-service and new teachers on STEM, NGSS and CCSS,CTE, NGSS and STEM;,Connecting K-12 and College/University | Puzzled about how to make POGIL work or work better in your own classroom? This is the session for you! Whether you have just heard about POGIL at one of today’s sessions or you have been using POGIL in your classroom for years, here is the place to ask those burning questions. |
| POGIL Part III: Process Skills and Facilitation Skills in a POGIL Classroom | Science and STEM for Everyone,Training pre-service and new teachers on STEM, NGSS and CCSS,CTE, NGSS and STEM;,Connecting K-12 and College/University | Students need to master more than simply disciplinary core ideas. Help your students to internalize the scientific and engineering practices they will need in STEM careers. Help yourself to hone your own skills in facilitating guided-inquiry activities with your students.  Work with your HS and college peers to investigate the scientific and vocational process skills incorporated into POGIL activities and the teacher facilitation skills utilized during a POGIL lesson.  This session assumes a basic understanding of POGIL pedagogy, from the “POGIL Part I” session or a prior POGIL presentation you have attended. |
| POGIL Part II: The Structure of Guided-Inquiry Learning Activities | Science and STEM for Everyone,Training pre-service and new teachers on STEM, NGSS and CCSS,CTE, NGSS and STEM;,Connecting K-12 and College/University | Work with your HS and college peers in a collaborative small group to deconstruct a science activity that encourages students to question, use models, analyze data, argue from evidence, and improve oral and written communication skills. Discover the underlying design of a POGIL activity and identify how the learning cycle is embedded within its structure.  This session assumes a basic understanding of POGIL pedagogy, from the “POGIL Part I” session or a prior POGIL presentation you have attended. |
| POGIL Part I: An Introduction to Process-Oriented Guided-Inquiry Learning | Science and STEM for Everyone,Training pre-service and new teachers on STEM, NGSS and CCSS,CTE, NGSS and STEM;,Connecting K-12 and College/University | Collaborate with your HS and college peers to complete two guided-inquiry activities that encourage students to question, use models, analyze data, argue from evidence, and improve oral and written communication skills.  Immerse yourself in a POGIL environment to experience this effective pedagogy for improving STEM mastery. This session is a very helpful foundation for building your POGIL understanding in the following sessions, POGIL Parts II – IV. |
| Engineering, Technology, and the Application of Science K-8 | Science and STEM for Everyone,Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS, | Ready to prepare your district’s students for STEM careers? Using practical applications of science skills from practices-based inquiry lessons, you will learn to integrate engineering processes into best practices. |
| Integrative STEM Learning | Science and STEM for Everyone,Updates and training on NGSS and CCSS,Training pre-service and new teachers on STEM, NGSS and CCSS, | Engage in disciplinary core ideas from the Next Generation Science Standards and learn how to incorporate Science and Engineering Practices and Crosscutting Concepts. Learn how science, technology, engineering, and mathematics can be integrated as part of your STEM school model |
| NGSS Science Assessment Systems | CTE, NGSS and STEM; | Participants will explore possible science assessment systems prescribed by the recent National Research Council's report Developing Assessments for the Next Generation Science Standards with a focus on the effect on the classroom: teachers, instruction, and learning |
| Some Hands-on STEM Activities for Physics and Physical Science | Science and STEM for Everyone | We will explore some digital electronics activities to help make electricity more STEM meaningful. Participants will build some circuits, and we will include a look at microcontrollers such as the Arduino. |
| Providing Leadership in these STEM Times | Science and STEM for Everyone,CTE, NGSS and STEM;,Equity in STEM education,Connecting K-12 and College/University | Learn how to help teachers implement the NGSS and CCSS across the curriculum with proven successful examples.  |