

National Science Education Leadership Association **Professional Development Institute (PDI) Breakout Sessions – 4 Options**



Wednesday, March 11, 2015

Hyatt Regency McCormick Place Hotel – Chicago

(1) Coordinating Scientific Argumentation, the Next Generation Science Standards, and the Common Core State Standards through the Argument-Driven Inquiry Instructional Model

Summary: This session will engage participants in the Argument-Driven Inquiry instructional model to demonstrate an approach to addressing the NGSS and CCSS in science classrooms.

Overview: There is an increased presence in the role of argumentation across the NGSS and CCSS. This session will provide participants the opportunity to engage in the Argument-Driven Inquiry (ADI) instructional model to help them learn about how to incorporate scientific argumentation into their science classroom. The ADI instructional model also represents an approach that will allow teachers to coordinate the essential practices of science along with discipline specific reading and writing skills emphasized within the NGSS and CCSS. At the conclusion of this session participants will have a better understanding of what it means to teach using ambitious pedagogy and how to provide their students with more authentic and educative experiences in science.

Presenters: **Jonathon Grooms**, Research Faculty, Coordinator of Education Research in the Center for Education Research in Mathematics, Engineering, and Science, The Florida State University; **Patrick Enderle**, Research Faculty, Coordinator of Training in Education Research in the Center for Education Research in Mathematics, Engineering, and Science, The Florida State University

(2) English Language Development Opportunities for ELL Through Meaningful Integration of NGSS and CCSS

Summary: Participants in this session will learn how to effectively support ELL to develop science identities using NGSS and the scientific and engineering practices.

Overview: In this session classroom practices will be modeled that emphasize how the contextualized use of language in scientific and engineering practices helps English learners develop and practice complex language forms and functions leading to improved academic literacy. Modeling will be based on the use of scientific and engineering practices as a vehicle for promoting academic literacy. Evidence will be shared that shows how inquiry-based teaching that emphasizes the practices of science and literacy in science is an effective instructional strategy fostering opportunities for critical thinking, productive talking, writing and reading, as well as vocabulary development and deepening of conceptual understanding, and positive attitudes toward science. Practices-oriented science teaching is especially valuable for students that have been traditionally underrepresented in science disciplines.

Presenters: **Jerry D. Valadez**, Director, California Science Project; **Maria Simani**, Executive Director, California Science Project; **Ana G. Lopez**, Science Specialist, California Science Project; **Dawn O'Connor**, Science Director – Alameda County Office of Education; and **Joanna Totino**, Director of Bay Area Science Project, Lawrence Hall of Science, UC Berkeley

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(3) Implementing the Vision of the *Framework* and *NGSS*: A Professional Development Pathway

Summary: Learn how to put the vision of the NRC *Framework* and the *Next Generation Science Standards* into action in the classroom.

Overview: The *Framework for K-12 Science Education* (NRC, 2011) and the *Next Generation Science Standards* (NGSS) (Achieve, 2013) present an exciting vision of science education. Enacting the vision will require a large shift in existing curricula and science pedagogy. Professional development (PD) providers are urgently seeking resources to help implement the vision.

TERC in collaboration with middle school teachers from a district north of Chicago will present a PD approach that draws on an existing PD system (Talk Science) and curriculum exemplar (Inquiry Project) that will enable teachers to begin implementing the NGSS vision in their classrooms. To bring the language of the NGSS to life, participants are immersed in an existing curriculum that exemplifies the three-stranded nature of the new vision and meets an NGSS Grade 5 standard. They will be provided with tools that highlight the framework of the curriculum and architecture of lessons where students use science practices to understand core ideas. This system relies on Professional Learning Communities to support teachers as they implement the vision. A group of teachers who have experienced this PD system will chronicle their experience and reflect on high points and challenges.

Presenters: **Sally Crissman**, Senior Science Educator, TERC; **Sara Lacy**, Senior Scientist, TERC, Cambridge

(4) iHub: A Research-Practice Partnership to Design New NGSS Curriculum

Summary: In this workshop, participants will experience and hear about collaborative design processes that help teachers learn about NGSS while developing or adapting coherent, aligned curriculum.

Overview: Many district leaders today are being asked to embark on ambitious efforts to adapt or develop new curriculum materials aligned to the NGSS. Partnerships with external organizations that include expertise in science learning and in curriculum can extend district capacity and build science leadership. In this workshop, participants will experience and hear about collaborative design processes that help teachers learn about NGSS. Participants will gain experience with processes involving the design of new curriculum and adaptation of existing curriculum to incorporate more opportunities for productive talk. By the conclusion of this workshop, participants will be prepared to: (1) identify expertise in their local area needed to design or adapt curricula that is aligned to NGSS; (2) organize a design process that includes teachers and that results in a coherent sequence of instructional experiences for students; and (3) lead activities that simultaneously develop teachers' understanding of NGSS and new instructional materials.

Presenters: **William R. Penuel**, Professor of Educational Psychology and Learning Sciences, University of Colorado at Boulder; **Sam Severance**, Research Coordinator, University of Colorado at Boulder; **Heather Leary**, Research Associate, University of Colorado at Boulder; **Patricia Kincaid**, Grants Curriculum Coordinator, Denver Public Schools; **Jeffrey Miller**, Secondary Science Coordinator, Denver Public Schools

As of December 4, 2014