Sounds of Change

26th ANNUAL LEADERSHIP SUMMIT

WEDNESDAY, MARCH 30
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Pearson – Thursday Morning Membership Breakfast & Annual Meeting
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Welcome!

From the National Science Education Leadership Association (NSELA)

Welcome to the 2016 NSELA Leadership Summit: The Sounds of Change!

On behalf of the National Science Education Leadership Association (NSELA), I want to welcome you to the 2016 NSELA Leadership Summit, here in Nashville. The future of science education is promising, and at the same time constantly changing. NSELA has chosen Dr. Joe Levine as a keynote speaker who will push us to embrace change globally in science education.

The slate of breakout sessions was carefully chosen to inform and guide our thinking as leaders in a changing environment. These break outs will focus on leadership in curriculum, listening as a leader: communicating with and motivating your team, and STEM career readiness.

Please join me as we explore new ideas and strategies to embrace change in science education as leaders. I encourage you to develop your leadership network and join other networks while in Nashville to continue the work we start this week.

Elizabeth Mulkerrin, Ed.D.
NSELA President, 2015-2016

NSELA Professional Development Committee

Larry Plank, Coordinator

Tom Doughty
Ann Hammersly
Trisha Herminghaus
April Holton
Nicole Jacquay
Janey Kaufmann
Susan Koba

Jim McDonald
Keri Randolph
Barbara Reinert
Bob Sotak
Jackie Speake
Tracy Staley
Deborah Tucker
National Science Education Leadership Association

2016 Leadership Summit

SOUNDS OF CHANGE
Wednesday, March 30, 2016
Omni Nashville Hotel – Broadway Ballrooms

7:00-4:30 Registration, Omni Hotel, Broadway C/D Foyer (Level 2)
7:30-8:15 Breakfast and Networking, Sponsored by Vernier Software and Technology
8:15-9:15 Welcome and Opening Introductions – Elizabeth Mulkerrin, NSELA President
8:15-9:15 Keynote Presentation – Dr. Joe Levine
  Museum Institute for Teaching Science, Marine Biological Laboratory, Organization for Tropical Studies
  “Global Change and Climate Resources from NCSE”
9:30-11:45 Breakout Sessions (selected during registration, complete information at back of program)
  Mockingbird 1 Creating Instructional Programs that Engage Students: The VISTA Way
  Brooke A. Whitworth, Northern Arizona University; Elizabeth Edmondson, Virginia Commonwealth University; Anne Mannarino, Regent University
  Mockingbird 2 Translating Three-Dimensional Learning into Curriculum, Instruction, and Classroom Assessment
  Jim Short, American Museum of Natural History; Dora Kastel, American Museum of Natural History; Vernelia Johnson, New York City Department of Education
  Mockingbird 3 The 21st Century Leader: Facilitating Effective Communication and Collaboration
  Holly Steele, Fullerton School District; Keri Randolph, Hamilton County Department of Education
  Mockingbird 4 From Industry to the Classroom: Developing STEM Leaders and Strategic Alliances
  Amy Threatt, S2TEM Centers SC; Tom Peters, South Carolina's Coalition for Math and Science; Susanne W. Teague, S2TEM Centers SC
  Cumberland 1 Transitioning to Three-Dimensional Learning
  Peter McLaren, Achieve
12:00-1:15 Luncheon and Keynote Speaker, Sponsored by Discovery Education
  Keynote Speaker – Hall Davidson
  Discovery Education
  Award Presentation
  NSELA Outstanding Administrative Support Award (OASA) – Led by Nancy Kellogg, NSELA Awards Chair
  Dr. Linda Atkinson of The University of Oklahoma – Sponsored by Kendall Hunt
1:30-3:00 Problems of Practice Sessions, Led by Larry Plank and Professional Development Committee Members
  (see next page for description)
  Breakout Rooms
3:15-4:30 Sense Making Session and Closing Session, Led by Keri Randolph and Elizabeth Mulkerrin

3:15-4:30 Sense Making Session and Closing Session, Led by Keri Randolph and Elizabeth Mulkerrin
Dr. Joe Levine
Museum Institute for Teaching Science, Marine Biological Laboratory, Organization for Tropical Studies

“Global Change and Climate Resources from National Center for Science Education”

Global change may be the most important and daunting challenge facing science teachers today, and its interdisciplinary science is ideal for NGSS-informed teaching. A new conceptual framework from the UC Berkeley Museum of Paleontology uses new informational graphics to organize and present core ideas, crosscutting concepts, and system models, in a unique and accessible format.

Joe Levine earned his PhD at Harvard University. His research has been published in scientific journals ranging from Science to Scientific American, as well as in several academic books. He has taught introductory biology, ecology, marine biology, neurobiology, and coral reef biology at Boston College and the Boston University Marine Biology Program. Also a broadcast journalist, Joe has dedicated himself to improving the public understanding of science. He has written for magazines such as Smithsonian, GEO, and Natural History. He has produced radio segments for National Public Radio and has acted as a scientific advisor for public broadcasting at WGBH in Boston. At WGBH, he has worked on NOVA and other PBS series.

Hall Davidson
Discovery Education


Students toggle between a microscopic view of a grasshopper and live feeds from outer space on their phone: learning has changed. Science ‘techbooks’ adjust lexile levels, read aloud, and change languages with a click: teaching has changed. From public health to gene splicing, classroom practice can make learners future ready. Leadership must guide this transformation. Examples, fun, and plans.

Hall Davidson has worked from think tanks in Turkey to classrooms in Tennessee. He has collaborated with educational thought leaders including teachers, superintendents, and departments of education. A former K-12 bilingual math teacher and college faculty member, he left the classroom to become part of an Emmy-winning team, creating math and technology integration programs. He helped launch California’s technology blueprint and now serves as a board member for ISTE, the International Society for Technology in Education. For forty years, he worked with transformational industry groups, and education ministries and with thousands of students every year through guidance of the nation’s oldest student media festival. Across four decades of work with education, he identifies right now as the most transformative and important time for teaching and learning.

AFTERNOON SESSION, 1:30-3:00 pm

Problems of Practice Sessions - Root Cause Analysis – Led by Larry Plank, NSELA

Throughout the Leadership Summit, participants will have the opportunity to respond to thought-provoking questions and statements connected to each of three strands: Leading in Curriculum, STEM Career Readiness and Listening as a Leader. During the afternoon, participants will analyze the responses of their colleagues and work with peers to determine root cause for each issue. These sessions will be led by members of the NSELA Professional Development Committee.

Facilitators
Leading in Curriculum - Bob Sotak, Trish Herminghaus
STEM Career Readiness - Tom Doughty and Larry Plank
Listening as a Leader - April Holton and Tracy Staley
In this session, participants will experience and learn about implementing problem-based learning (PBL) units in the classroom. We will engage the participants in activities that model how we introduce the instructional strategies involved in the professional development. For example, we will model the debrief session that highlights inquiry-based strategies using the NSES Inquiry Continuum (5 Essential Features) and NGSS Science Practices. We will discuss and provide outlines of how we work with teachers to integrate mathematics, literacy strategies, and engineering practices. We will model one of our lessons for teaching teachers how to explicitly teach the nature of science to students and we will we share several of the support documents that we provide the teachers. We will pull these ideas together by sharing how we collaboratively (teachers and facilitators) develop a PBL unit for a two-week science camp and then help the teachers develop their own unit for use during the school year. Participants will then learn about the professional development model, Learn-Try-Implement, and how the strategies used to encourage continuous improvement lead to the development of a professional learning community. The incorporation of scientists, engineers, and instructional coaches to support teacher learning and success in the classroom will also be described. We will describe how we prepare each of these groups for inclusion in the professional development for maximum teacher learning. Finally, the facilitators will discuss the research that led to the funding of the VISTA grant. They will then share research findings from the VISTA 5 year grant and its positive impact on student science and reading performance. The session will conclude with the participants considering how the strategies and components of our professional development model could be used in their own districts.

**Presenters:** Brooke A. Whitworth, Northern Arizona University; Elizabeth Edmondson, Virginia Commonwealth University; Anne Mannarino, Regent University

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The NGSS do not prescribe curricula or instruction, but instead are intended to guide the development of such materials. At present, there are few instructional resources, assessments, or professional development programs to help states and districts transition to these new science standards. The focus of this session is for participants to learn about the implications of three-dimensional learning. Using a newly developed and field-tested NGSS-aligned middle school ecosystems unit, participants will engage in a process designed to explore three-dimensional learning. In the first part of the session, participants will examine a 5E instructional sequence from the ecosystems curriculum. Within each activity in the sequence they will look for evidence of opportunities to learn about disciplinary core ideas, crosscutting concepts and science and engineering practices aligned with a bundle of performance expectations based on the middle school ecosystems standards. In the second part of the session participants will have an opportunity to explore how formative and summative assessments align with three-dimensional learning by using the teacher’s guide that accompanies the NGSS-aligned ecosystems unit. The last part of the session will provide participants with an experience in using a teaching tool for scaffolding how to construct scientific explanations based on claims, evidence and scientific reasoning in order to explore three-dimensional learning in instruction. Throughout the session groups will work on different tasks providing lots of opportunities for sharing knowledge and experiences about using the NGSS. The session will support the learning of classroom teachers, district science coordinators, school administrators, professional development providers, curriculum developers, and university faculty that work with schools and science teachers.

**Presenters:** Jim Short, American Museum of Natural History; Dora Kastel, American Museum of Natural History; Verneda Johnson, New York City Department of Education
Science education leaders face many of the same challenges as business leaders: communicating with team members, fostering collaboration, and workflow. Many of these challenges can be addressed with the support of robust digital tools, which not only serve to make communication easier, but also more efficient and effective. In the digital age, there are many ways for teams to communicate and collaborate. As technology becomes more and more ubiquitous in our lives and classrooms, our leaders need to understand the role these tools can play in motivating and communicating with our teams. It is only with a firm grasp of 21st century communication and collaboration that science education leaders truly become future ready.

Join us to: Develop an understanding of selected digital tools and the roles they can play in managing, motivating and communicating with teams; Explore and use examples of several classes of digital tools (collaboration, communication, project management); Identify how digital tools can make collaboration, communication and project management more efficient.

The session will be useful to science education leaders at the district level, school level and classroom level. No prior experience required-appropriate for all levels of expertise from novice to expert in both technology skills and science education.

**Presenters:** Holly Steele, Fullerton School District; Keri Randolph, Hamilton County Department of Education

This PDI is designed to prepare leaders at the classroom, school, and district levels to build an engaged STEM community and promote an integrated approach to teaching the STEM disciplines through engineering design principles.

An engaged STEM community is a partnership of all stakeholders including school staff, students, parents and strategic alliances. Together, these partners embrace the school's STEM vision and share responsibility for the success of each student. STEM schools work in partnership with stakeholders to provide support and services to develop all students' capacity and confidence to meet the challenges of STEM.

In this session, participants will analyze their school's vision for STEM education, focusing on the existing state of business/industry partnerships and identify a desired state. We will also explore shared leadership goals within an engaged STEM community that apply to their vision for STEM education. Using case studies, participants will identify characteristics of effective and ineffective partnerships and capture the information using a graphic organizer.

Participants will also engage in an engineering design challenge to explore a concept essential to one of our business/industry partners. Participants will learn strategies that cultivate engineering habits of mind and 21st Century skills in students and make connections between engineering and education perspectives and practices.

Participants will walk away with a plan to implement an integrated STEM program that incorporates business/industry partnerships that addresses the needs of all students.

**Framing Questions:**
*How are current STEM-related job trends influencing decisions to help students prepare for career/college?*
*What are some STEM learning opportunities available to students that give them insights into the nature, challenges, and excitement of STEM career choices and prepare them for the world of work?*
*In what ways does your school work in partnership with stakeholders to provide support and services so that all students meet the challenges of STEM?*

**Presenters:** Amy Threatt, S2TEM Centers SC; Tom Peters, South Carolina's Coalition for Math and Science; Susanne W. Teague, S2TEM Centers SC
The National Research Council's (NRC) Framework for K-12 Science Education has put forth a bold vision for science education where students actively engage in science and engineering practices, utilizing crosscutting concepts and core ideas to make sense of phenomena and to solve problems. As an instructional leader, how will you support this three-dimensional approach to learning? Now, more than ever, principals, lead teachers, science department heads, and district science leadership need to be at the forefront of this exciting time in science education. This session is designed to provide instructional leaders with an understanding and some tools to support the implementation of the Framework’s vision by modeling three-dimensional learning in your school and district.

**Presenter:** Peter McLaren, Achieve

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**NSELA’s Mission**

*Formed in 1959 – Over 50 Years of Service*

NSELA catalyzes leadership to maximize effective science teaching and learning in a complex and changing environment. We connect and support emerging and experienced leaders by providing:

- high-quality professional development,
- a collegial network,
- access to research and resources, and
- a voice for leaders in science education.

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NSELA Leadership Summit

Registration – Foyer of Broadway C/D (2nd floor)
General Session Room – Broadway C/D (2nd floor)
Breakfast – Broadway A/B (2nd floor)
Breakout Rooms – Mockingbird 1, 2, 3, and 4 (3rd floor)
Breakout Room – Cumberland 5 (3rd floor)

NSELA Board Members, 2015-2016

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Larry Plank, Professional Development Coordinator
Kenneth Roy, Safety Compliance Officer
Brenda Wojnowski, Science Education Journal Editor
Beth Harris, Webmaster

Kenneth W. Heydrick, Executive Director
Please join us for the following NSELA Events in Nashville

**Wednesday, March 30**

**NSELA/CSSS Reception**
6:00 pm - 7:30 pm
Omni Hotel – Legends D (Level 2)

Sponsored by Fisher Science Education and STEMscopes™

**Thursday, March 31**

**NSELA Annual Breakfast & Membership Meeting**
Recognition of Outstanding Leadership in Science Education Award Winner – Cathy Cox-Boniol
7:30 am – 10:00 am
Omni Hotel – Broadway A/B (2nd Floor)

Sponsored by Pearson

**Friday, April 1**

**NSELA/ASTE Annual Luncheon & Honor Celebration**
Keynote Dr. Julie Luft “Strengthening Science Education through a Teacher Learning Continuum”
Recognition of Local Heroes in Science Education
12:00 pm – 2:00 pm
Omni Hotel – Broadway A/B (2nd Floor)

Sponsored by Lab-aids®