













## AGENDA



### JUNE 1, 2016

- 9:00 AM-12:00 PM      **CADRE Fellows Meeting** *(Invitation only)*
- 1:00-3:00 PM          **CAREER Awardee Meeting** *(Invitation only)*  
 [Session Resource List](#)
- 1:00-5:00              **Informal Networking**
- 3:00-5:00              **Registration**
- 5:30-6:30              **Working Dinner, Welcome, & Plenary Presentation: The Critical Role of K-12 STEM Learning for the Future of Science**  
*Joan Ferrini-Mundy, National Science Foundation*  
 [Slides](#)
- 6:45-8:00              **Poster Hall**  
[View Virtual Poster Hall](#) |  [WednesdayPM PosterHallList FINAL.pdf](#)

### JUNE 2, 2016

- 8:00 AM-5:00 PM      **Registration**
- 8:00 AM-5:00 PM      **Informal Networking**
- 8:30-9:30 AM          **Networking Breakfast**  
*An opportunity to meet with DRL program officers and DR K-12 colleagues.*
- 9:30-11:00            **Concurrent Sessions**
- **Data-Intensive Research in Education: New Opportunities for Making an Impact**  
*Elizabeth Burrows, National Science Foundation; Chris Dede, Harvard University*  
 Join a facilitated discussion about the application of data science to education, drawing on a recent NSF-sponsored report. Participants share insights from DR K-12 projects.  
 [Slides](#)

- **[Elementary Mathematical Writing Task Force Recommendations: Implications for Research and Classroom Implementation](#)**  
*Tutita Casa, University of Connecticut; Janine Firmender, Saint Joseph's University*  
 Learn about types of and purposes for elementary mathematical writing, and discuss implications for research and classroom implementation.  
[View The Task Force Recommendations Website](#) |  [Slides](#)
- **[Game-Based Learning Assessments: Using Data from Digital Games to Understand Learning](#)**  
*Jodi Asbell-Clarke, TERC, Inc.; James Diamond, Education Development Center, Inc.; Edys Quellmalz, WestEd*  
 Discover how digital games can inform classroom teaching using data from innovative formative assessments from three different game-based projects.  
 [Slides](#)
- **[On the Design and Implementation of Practical Measures to Support Instructional Improvement at Scale](#)**  
*Kara Jackson and Jessica Thompson, University of Washington*  
 Learn about two efforts to design and implement practical measures of science and mathematics teaching to inform school and district instructional improvement efforts.  
 [Slides](#)
- **[Perspectives on Solution Diversity and Divergent Thinking in K-12 Engineering Design Learning Experiences](#)**  
*Jennifer Chiu, University of Virginia; Christine Cunningham, Museum of Science, Boston; Ethan Danahy, Chris Rogers, and Kristen Wendell, Tufts University; Rich Lebrer and Megan Wongkamalasai, Vanderbilt University*  
 Consider multiple approaches to valuing, supporting, and studying the diversity of students' solutions to design problems through poster presentations and small-group discussion.  
[Virtual Poster Hall](#) |  [Slides](#) |  [Handout](#)
- **[Problematizing and Assessing Secondary Mathematics Teachers' Ways of Thinking](#)**  
*Kevin Moore, University of Georgia; Jason Silverman, Drexel University; Sarah Sword, Education Development Center, Inc.*  
 Engage with presenters as they discuss assessment and rubrics designed to measure secondary teachers' mathematical habits of mind.  
 [Slides](#)




- [\*\*Professional Development Approaches to Strengthen Collaboration among Educators with Different Roles to Improve Student Math Learning\*\*](#)  
*Amy Brodesky, Mark Driscoll, and Pamela Buffington, Education Development Center, Inc.*  
Discuss the benefits and challenges of creating mathematics professional development that brings together educators with different roles to build knowledge, practices, and collaboration for teaching students with diverse needs.  
 [Slides](#)
- [\*\*Using NGSS Implementation to Build Science Education Community\*\*](#)  
*Jennifer Childress and Peter McLaren, Achieve*  
Come and discuss opportunities to build synergy between Achieve’s efforts to support NGSS implementation across states and DR K–12 research initiatives.  
 [Slides](#)

11:00–11:15

Break

11:15 AM–12:00 PM

Concurrent “Short Talks”: Join the discussion.

- [\*\*Argumentation and Discourse\*\*](#)  
*Facilitator: David Yopp, University of Idaho*  
Join a discussion about models for teaching and learning argumentation and discourse in mathematics, including implications for teacher practice, classroom structure, and the nature of students’ learning.  
 [Facilitator Notes](#)
- [\*\*Co-Design Processes to Support the Development of Educational Innovations\*\*](#)  
*Facilitator: Marion Goldstein, Education Development Center, Inc.*  
Join a discussion about co-design approaches that can help ensure that educational innovations are designed and used to support teaching and learning in early childhood.
- [\*\*Culturally Responsive Education\*\*](#)  
*Facilitator: Amy Wilson-Lopez, Utah State University*  
Review themes related to culturally responsive STEM instruction, and generate ideas for advancing research and practice in this area.  
 [Handout](#)
- [\*\*Making Effective Videos for Dissemination\*\*](#)  
*Facilitator: Jim Galdos, Videographer and Consultant*  
Learn practical tips for planning and producing videos that effectively convey project work and intended messages.  
 [Tips for Making Effective Video](#)
- [\*\*Projects Supporting Linguistically Diverse Students\*\*](#)  
*Facilitators: Rachel Bower and M. Alejandra Sorto, Texas State University*  
Join a discussion about how ELL projects approach challenges associated with recruitment of teachers; build trust and administrative support; develop partnerships between institutions and schools; and disseminate.

Please note that presenter names and session titles are listed in alphabetical order.

- **[Teacher Learning across Contexts](#)**  
*Facilitator: Maritza Macdonald, American Museum of Natural History*  
 Discuss these questions: What are the advantages and challenges of working across institutions—formal and informal—for teacher pre-service and in-service development, especially in science? What are current models, approaches, and findings?

11:15 AM–12:15 PM

**[Federal Agency Funding Opportunities: Within and Beyond NSF](#)**

*David Campbell (moderator) and Program Officers, National Science Foundation; Elizabeth Albro and Christina Cbhin, United States Department of Education; Tony Beck, National Institutes of Health*

In a roundtable session, representatives from NSF’s Directorate for Education and Human Resources (EHR) programs, NIH, and ED discuss funding opportunities within their respective agencies.

 [IES Slides](#) |  [NIH Slides](#) |  [NSF Slides](#)

11:15 AM–12:15 PM

**[Digital Learning Arcade](#)** *(Invitation only)*

Network with projects developing or researching educational technologies, and take part in extended play or interaction with products and in-depth discussion about cross-cutting ideas and issues.

12:00–12:15

**Break**

12:15–2:00

**[Working Lunch and Plenary Presentation: STEM, Language, Experience, Learning, and Life in the Modern World](#)**

*James Paul Gee, Arizona State University*

James Paul Gee presents a theory of STEM learning based on embodied cognition with a focus on the role of experience and language; discusses the role of digital media in powerful new forms of teaching and learning outside of school; and considers the wider framework within which STEM should sit in our world.


 [Slides](#) |  [Jodi Asbell-Clarke's Response](#)







2:00–2:15



**Break**

2:15–3:45

**Concurrent Sessions**

- **[Expanding Opportunities for STEM Teacher Leadership](#)**  
*Jay Labor, National Academies of Sciences, Engineering, and Medicine; Suzanne Wilson, University of Connecticut*  
 Learn about issues, opportunities, and models of teacher leadership to create transformative learning environments and improve education policy and decision making.  
[Report: Exploring Opportunities for STEM Teacher Leadership](#) | [Report: STEM Learning is Everywhere](#) | [Report: Science Teachers' Learning](#) |  [Slides](#)

- [Improving Student Learning and Teacher Practice in Mathematics: A Focus on Formative Assessment](#)**  
*Alison Castro Superfine, University of Illinois at Chicago; Jere Confrey, North Carolina University; Edward Silver, University of Michigan, Ann Arbor; Jonathan Supovitz, University of Pennsylvania*  
 Join a discussion with panelists from several projects about project model designs, initial findings, and implementation challenges associated with formative assessment in mathematics.  
 [Slides](#)
- [Issues in Integrating NGSS Standards and Literacy/Language Arts in Grades K–5 Science](#)**  
*Nancy Romance, Florida Atlantic University; Michael Vitale, East Carolina University*  
 Join in a discussion and give feedback on the work of a project integrating science and literacy/language arts, and issues associated with designing and implementing integrated science in K–5 schools.  
 [Slides](#)
- [Longitudinal Studies of Teacher Development in Elementary Mathematics and Science](#)**  
*Dan Hanley, Western Washington University; Temple Walkowiak, North Carolina State University*  
 Learn about the work and findings of two longitudinal studies examining the development of knowledge, beliefs, and instructional practices among pre-service and early-career elementary teachers in mathematics and science.  
 [Slides](#) |  [Longitudinal Studies Handout](#)
- [Practicum-based Professional Development Models: Considering Impacts from Multiple Perspectives](#)**  
*Dante Cisterna and Deborah Hanuscin, University of Missouri; Emily Weiss, Lawrence Hall of Science, University of California, Berkeley*  
 Join a discussion about making, understanding, and measuring the impacts of practicum-based teacher professional development models, and aspects of policy and context that mediate these impacts.  
 [Slides](#)
- [Preparing Teachers to Support Rich Disciplinary Discussions in Their Classrooms](#)**  
*Leema Berland, University of Wisconsin–Madison; Jeffrey Greene, University of North Carolina, Chapel Hill; Jarod Kawasaki, University of California, Los Angeles*  
 Learn about pre- or in-service teacher education activities designed to support teacher facilitation of student disciplinary discussions through enactments that illustrate teacher education activities.  
 [Slides](#)

- [Scientific Modeling across the K–12 Continuum: Alignment between Theoretical Foundations and Classroom Interventions](#)  
*Dan Damelin, The Concord Consortium; Cory Forbes, University of Nebraska–Lincoln; Joseph Krajcik and Christina Schwarz, Michigan State University; Nanette Marcum-Dietrich, Millersville University of Pennsylvania; Cynthia Passmore, University of California, Davis*  
Explore methods and challenges associated with supporting and evaluating scientific modeling in K–12 classrooms in this structured poster session.  
 [Slides](#)
- [The Question of Dissemination: Using Video to Draw Broader Audiences to NSF Research](#)  
*Ann House, SRI International; Sharon Lynch, George Washington University; Robert Margetta and Michael Sullivan, National Science Foundation*  
Consider the role project videos can play in dissemination of research with OSPfI describing their video experience, and NSF situating the work within their efforts to improve policymakers’ understanding of DR K–12 research and development.  
 [Slides](#)

4:30–5:45

[Poster Hall](#)

[Virtual Poster Hall](#) |  [ThursdayPM\\_PosterHallList\\_FINAL.pdf](#)

5:45

**Dinner on Your Own** *See the list of local restaurants.*

**JUNE 3, 2016**

8:00–11:00 AM

**Registration**

8:00–11:30

**Informal Networking**




8:15–9:15

**Networking Breakfast**






*An opportunity to meet with DRL program officers and DR K–12 colleagues.*

9:15–10:45

**Concurrent Sessions**

- [Designing Tasks for Assessing Three-Dimensional Science Learning](#)  
*Lou DiBello, University of Illinois, Chicago; Christopher Harris, SRI International; Joseph Krajcik, Michigan State University; Edys Quellmalz and Matt Silbergitt, WestEd*  
Explore approaches and challenges to designing assessment tasks that integrate the three dimensions of science learning in this panel-led session.  
 [Slides](#) |  [Report on Constructing Assessment Tasks](#)
- [District Leadership in Scaling Up Instructional Improvement](#)  
*Motoko Akiba, Florida State University; Paul Cobb, Vanderbilt University*  
Learn about two projects’ findings on district leadership practices critical for scaling up ambitious mathematics instruction through teacher professional development. Share your own insights, challenges, and recommendations for scale-up.  
 [Slides](#)

Please note that presenter names and session titles are listed in alphabetical order.

- [Exploring the Relationship between Rigorous Curriculum Materials and the Development of Ambitious Mathematics Instructional Practices](#)**  
*Jeffrey Choppin, University of Rochester; Erin Henrick, Vanderbilt University; Mary Beth Piecham, Education Development Center, Inc.*  
 Hear the findings and perspectives of three projects investigating the impact of and challenges related to teachers' use of ambitious instructional materials on their knowledge and practice.  
 [Slides](#)
- [Infusing Engineering into Secondary-level Classes](#)**  
*Rodney Custer, Black Hills State University; Jenny Daugherty, Purdue University; Jon Singer, University of Maryland, Baltimore County*  
 Participants learn about approaches to infusing or integrating engineering concepts into secondary-level science classrooms and engage in an analysis of two projects' products and outcomes.  
 [Slides](#)
- [Leveraging Open Source Tools across NSF-funded Projects: Partnerships, Integration Models, and Developer Communities](#)**  
*Amy Busey, Education Development Center, Inc.; Dan Damelin and William Finzer, The Concord Consortium*  
 Discuss the potential utility of CODAP and other open source tools in your work, effective cross-project partnerships, and supporting developer communities around open source materials.  
 [Slides](#)
- [Supports for Elementary Teachers Implementing the NGSS: Challenges and Opportunities across Science, Technology, and Engineering](#)**  
*Cory Forbes, University of Nebraska–Lincoln; Deborah Hanuscin, University of Missouri–Columbia; May Jadallah, Illinois State University; Sara Lacy, TERC, Inc.; Patricia Paugh, University of Massachusetts, Boston; Ji Shen, University of Miami; P. Sean Smith, Horizon Research, Inc.*  
 Consider methods and challenges associated with supporting upper elementary teachers' implementation of NGSS-based classroom interventions in this structured poster session.  
[Virtual Poster Hall](#) |  [Slides](#)
- [Teachers Extending Their Knowledge in Online Collaborative Learning Environments: Opportunities and Challenges](#)**  
*Arthur B. Powell, Rutgers University; Jason Silverman, Drexel University; Stephen Weimar, The Math Forum*  
 Join two projects to discuss the challenges and opportunities afforded through online environments for providing professional development and supporting classroom implementation of mathematical practices.  
 [Slides](#)

10:45–11:00

Break

11:00–12:00 PM

**[Plenary Presentation: Perspectives from the Field: What Research Do We Need?](#)**

*Moderator: Nancy Shapiro, University System of Maryland. Panelists: Linda Chen, Baltimore City Public Schools; Jack Smith, Maryland State Department of Education*

Participants are invited to look into the future with our panelists and consider a research agenda for STEM education that responds to the needs of our schools, districts, and states.

 [Nancy Shapiro's Response](#)

12:00

**Adjourn**