DISCOVERY RESEARCH K-12

DR K–12 PI Meeting
June 1–3, 2016
Washington Marriott Wardman Park
Washington, D.C.

Wednesday Evening Poster Hall
Exhibition Level, Lincoln 2, 3, & 4

Table #	Project Name	PI	List of co-PIs and Institutions	Content Areas	Grade Bands
1	Multiple Instrumental Case Studies of Inclusive STEM-Focused High Schools: Opportunity Structures for Preparation and Inspiration (OSPrI)	Sharon Lynch, George Washington University	Tara Behrend, George Washington University; Barbara Means, SRI International; Erin Peters-Burton, George Mason University	S,T,E,M	H
2	iSTEM: A Multi-State Longitudinal Study of the Effectiveness of Inclusive STEM High Schools	Barbara Means, SRI International	Ann House, Haiwen Wang and Viki Young, SRI International	S,T,E,M	H
3	Innovate to Mitigate: A Crowdsourced Carbon Challenge	Gillian Puttick, TERC, Inc.	Brian Drayton, TERC, Inc.	S,T,E	H
4	Bio-Sphere: Fostering Deep Learning of Complex Biology for Building our Next Generation's Scientists	Sadhana Puntambekar, University of Wisconsin-Madison	Sharon Derry, University of North Carolina, Chapel Hill; Jee-Seon Kim, University of Wisconsin-Madison; N. Hari Narayanan, Auburn University	S,T,E	M
5	Advancing Science Performance with Emerging Computer Technologies (ASPECT)	James Minogue, North Carolina State University	David Borland, University of North Carolina, Chapel Hill; Marc Russo, North Carolina State University	S,T	E
6	Integrating Computing Across the Curriculum (ICAC): Incorporating Technology into STEM Education Using XO Laptops	Shelia Cotten, Michigan State University		S,T	E
7	Overcoming Obstacles to Scaling-Up with a Cyberlearning Professional Development Model (Collaborative Research: Zahm)	Barbara Zahm, It's About Time	Steve Schneider, WestEd	S,T	M
8	SimScientists Games: Development of Simulation-Based Game Designs to Enhance Formative Assessment and Deep Science Learning in Middle School	Edys Quellmalz, WestEd	Daniel Brenner and Matt Silberglitt, WestEd	S,T	M

9	Investigating How to Enhance Scientific Argumentation through Automated Feedback in the Context of Two High School Earth Science Curriculum Units	Ou Liu, Educational Testing Service	Amy Pallant and Hee-Sun Lee, The Concord Consortium	S,T	M,H
10	Learning about Ecosystems Science and Complex Causality through Experimentation in a Virtual World	Tina Grotzer, Harvard Graduate School of Education	Chris Dede, Harvard Graduate School of Education	S,T	M,H
11	CAREER: Making Science Visible: Using Visualization Technology to Support Linguistically Diverse Middle School Students' Learning in Physical and Life Sciences	Kihyun "Kelly" Ryoo, University of North Carolina, Chapel Hill		S	M
12	Science in the Learning Gardens: Factors that Support Racial and Ethnic Minority Students' Success in Low-Income Middle Schools	Dilafruz Williams, Portland State University	Sybil Kelley, Ellen Skinner and Cary Snyder, Portland State University	S	M
13	Designing Assessments in Physical Science Across Three Dimensions (Collaborative Research: Harris)	Christopher Harris, SRI International	Joseph Krajcik, Michigan State University; James Pellegrino and Lou DiBello, University of Illinois, Chicago	S	M
14	Development of Language-Focused Three-Dimensional Science Instructional Materials to Support English Language Learners in Fifth Grade (Collaborative Research: Lee)	Okhee Lee, New York University	Lorena Llosa, New York University	S	E
15	An Integrated Instructional Model for Accelerating Student Achievement in Science and Literacy in Grades 1-2	Nancy Romance, Florida Atlantic University	Annemarie Palincsar, University of Michigan; Michael Vitale, East Caroline University	S	E
16	QuEST: Quality Elementary Science Teaching	Deborah Hanuscin, University of Missouri	Zandra de Araujo, Mark Ehlert, Cathy Thomas and Delinda van Garderen, University of Missouri	S	E
17	Multimedia Engineering Notebook Tools to Support Engineering Discourse in Urban Elementary School Classrooms (Collaborative Research: Paugh)	Patricia Paugh, University of Massachusetts, Boston	Kristen Wendell, Tufts University; Christopher Wright, University of Tennessee, Knoxville	E	E
18	Design Technology and Engineering Education for English Learner Students: Project DTEEL	Rebecca Callahan, University of Texas, Austin	Richard Crawford, University of Texas, Austin	E	E
19	CAREER: Community-Based Engineering as a Learning and Teaching Strategy for Pre-service Urban Elementary Teachers	Kristen Wendell, Tufts University		S,E	E,Post-Sec

20	Tools for Teaching and Learning Engineering Practices: Pathways Towards Productive Identity Work in Engineering	Angela Calabrese Barton, Michigan State University	Scott Calabrese Barton, Michigan State University; Edna Tan, University of North Carolina at Greensboro	E	M
21	Identifying an Effective and Scalable Model of Lesson Study	Motoko Akiba, Florida State University	Aki Murata, University of Florida	M	PreK,E,M,H
22	Collaborative Math: Creating Sustainable Excellence in Mathematics for Head Start Programs	Jennifer McCray, Erikson Institute	Ximena Dominguez and Erika Gaylor, SRI International; Erin Reid, Erikson Institute	M	PreK
23	A Task Force on Conceptualizing Elementary Mathematical Writing: Implications for Mathematics Education Stakeholders	Tutita Casa, University of Connecticut	Janine Firmender, Saint Joseph's University	M	E
24	Investigating Simulations of Teaching Practice: Assessing Readiness to Teach Elementary Mathematics	Meghan Shaughnessy, University of Michigan	Timothy Boerst, University of Michigan	M	E
25	Learning Labs: Using Videos, Exemplary STEM Instruction and Online Teacher Collaboration to Enhance K-2 Mathematics and Science Practice and Classroom Discourse	Erika Andrew, Teaching Channel	Elham Kazemi and Jessica Thompson, University of Washington	S,M	E
26	Project ATOMS: Accomplished Elementary Teachers of Mathematics and Science	Temple Walkowiak, North Carolina State University	Sarah Carrier, Jayne Fleener, Steve Porter and Margareta Thomson, North Carolina State University; Ellen McIntyre, University of North Carolina-Charlotte	S,M	E
27	Focus on Energy: Preparing Elementary Teachers to Meet the NGSS Challenge (Collaborative Research)	Sara Lacy, TERC, Inc.; Stamatis Vokos, Seattle Pacific University	Nathaniel Brown, Boston College; Roger Tobin, Tufts University	S	E
28	Instructional Leadership for Scientific Practices: Resources for Principals in Evaluating and Supporting Teachers' Science Instruction	Katherine McNeill, Boston College	Rebecca Lowenhaupt, Boston College	S	E,M
29	Next Gen Alliance for Science Education Toolkit	Rachelle DiStefano, California State University, East Bay	Christine Lee, California State University, East Bay	S	M
30	Building Capacity for Science Standards Through Networked Improvement Communities	Jessica Thompson, University of Washington	Mark Windschitl, University of Washington	S	M,H
31	OPEN				
32	OPEN				

33	Further Development and Testing of the Target Inquiry Model for Middle and High School Science Teacher Professional Development (Collaborative Research)	Deborah Herrington, Grand Valley State University; Ellen Yezierski, Miami University	Ann Haley MacKenzie, Miami University	S	M,H
34	Developing Teachers' Capacity to Promote Argumentation in Secondary Science	William Sandoval, University of California, Los Angeles	Jody Priselac, University of California, Los Angeles	S	M,H
35	STEM Practice-Rich Investigations for NGSS Teaching (SPRINT)	Julie Yu, Exploratorium		S	M,H
36	Strategies for Leading Classroom Discussions Aimed at Core Ideas and Scientific Modeling Practices	John Clement, University of Massachusetts, Amherst		S	M,H
37	Assessing Student Engagement in Math and Science in Middle School: Classroom, Family, and Peer Effects on Engagement	Jennifer Fredricks, Connecticut College	Ming-Te Wang, University of Pittsburgh	S,M	M,H
38	Levels of Conceptual Understanding in Statistics (LOCUS)	Tim Jacobbe, University of Florida	Bob delMas, University of Minnesota; Jeff Haberstroh, Educational Testing Service; Brad Hartlaub, Kenyon College	S,M	M,H, Post-Sec
39	From Elementary Generalist to Mathematics Specialist: Examining Teacher Practice and Student Outcomes in Departmental and Self-Contained Models	Corey Webel, University of Missouri	Nianbo Dong, Barbara Reys and James Tarr, University of Missouri	M	E
40	Learning Trajectories in Grades K-2 Children's Understanding of Algebraic Relationships	Maria Blanton, TERC, Inc.	Barbara Brizuela, Tufts University	M	E
41	The Impact of Early Algebra on Students' Algebra-Readiness (Collaborative Research: Blanton)	Maria Blanton, TERC, Inc.	Eric Knuth and Ana Stephens, University of Wisconsin-Madison	M	E
42	Student-Adaptive Pedagogy for Elementary Teachers: Promoting Multiplicative and Fractional Reasoning to Improve Students' Preparedness for Middle School Mathematics	Ron Tzur, University of Colorado, Denver	Alan Davis, Michael Ferrara, Heather Johnson, Sally Nathenson-Mejia, Maria Uribe, University of Colorado Denver; Xin Wang, RMC Research Corporation	M	E
43	CAREER: Fraction Activities and Assessments for Conceptual Teaching (FAACT) for Students with Learning Disabilities	Jessica Hunt, University of Texas, Austin		M	E,M
44	CAREER: Characterizing Critical Aspects of Mathematics Classroom Discourse	Jessica Bishop, University of Georgia		M	E,M

45	Evaluating the Developing Mathematical Ideas Professional Development Program: Researching its Impact on Teaching and Student Learning	Jim Hammerman, TERC, Inc.		M	E,Other
46	Theorizing and Advancing Teachers' Responsive Decision Making in the Domain of Rational Numbers	Susan Empson, University of Missouri-Columbia	Vicki Jacobs, University of North Carolina, Greensboro	M	E
47	InterLACE: Interactive Learning and Collaboration Environment	Ethan Danahy, Tufts University	Daniel Hannon, Tufts University	S	H
48	Developing Critical Evaluation as a Scientific Habit of Mind: Instructional Scaffolds for Secondary Earth and Space Sciences	Doug Lombardi, Temple University	Janelle Bailey, Temple University	S	H
49	Modeling Scientific Practice in High School Biology: A Next Generation Instructional Resource	Cynthia Passmore, University of California, Davis	Julia Gouvea, Tufts University; Richard Grosberg, University of California, Davis	S	H
50	Science Teachers Learning from Lesson Analysis (STeLLA): High School Biology	Christopher Wilson, Biological Sciences Curriculum Study	Jody Bintz, Biological Sciences Curriculum Study	S	H
51	OPEN				
52	OPEN				
53	OPEN				
54	OPEN				
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56	OPEN				
57	Fostering Pedagogical Argumentation: Pedagogical Reasoning with and About Student Science Ideas	Leema Berland, University of Wisconsin-Madison	Melissa Braaten and Rosemary Russ, University of Wisconsin-Madison	S	Other
58	An Innovative Approach to Earth Science Teacher Preparation: Uniting Science, Informal Science Education, and Schools to Raise Student Achievement	Maritza Macdonald, American Museum of Natural History	Mordecai Mac Lowe, Ed Mathez and Ro Kinzler, American Museum of Natural History	S	Post-Sec
59	Supporting Large Scale Change in Science Education: Understanding Professional Development and Adoption Variation Related to the Revised Advanced Placement Curriculum (PD-RAP)	Arthur Eisenkraft, University of Massachusetts, Boston	Chris Dede, Harvard University; Barry Fishman, University of Michigan; Abigail Levy, Education Development Center, Inc.	S	H

60	Building High School Students' Understanding of Evolution through Collection and Analysis of Data, Evidence-based Arguments, and an Understanding of Heredity	Louisa Stark, University of Utah	George DeBoer and Jo Ellen Roseman, AAAS Project 2061; Kevin Pompei, University of Utah	S	H
61	CAREER: Exploring Beginning Mathematics Teachers' Career Patterns	Min Sun, University of Washington, Seattle		M	E,M,H
62	Differentiated Professional Development: Building Mathematics Knowledge for Teaching Struggling Learners	Amy Brodesky, Education Development Center, Inc.		M	E,M
63	Improving Formative Assessment Practices: Using Learning Trajectories to Develop Resources That Support Teacher Instructional Practice and Student Learning in CMP2	Alison Castro Superfine, University of Illinois at Chicago	Susan Goldman, Mara Martinez and James Pellegrino, University of Illinois at Chicago	M	M
64	Developing Principles for Mathematics Curriculum Design and Use in the Common Core Era	Jeffrey Choppin, University of Rochester	Jon Davis, Western Michigan University; Corey Drake, Michigan State University; Amy Roth McDuffie, Washington State Tri-Cities	M	M
65	Preparing Urban Middle Grades Mathematics Teachers to Teach Argumentation Throughout the School Year	Jennifer Knudsen, SRI International	Teresa Lara-Meloy and Nikki Shechtman, SRI International; Harriette Stevens, Mathematics Education Consultants	M	M
66	Using Math Pathways and Pitfalls to Promote Algebra Readiness	Jodi Davenport, WestEd	Yvonne Kao and Alma Ramirez, WestEd	M	M
67	Leveraging MIPOs: Developing a Theory of Productive Use of Student Mathematical Thinking (Collaborative Research)	Laura Van Zoest, Western Michigan University; Shari Stockero, Michigan Technological University; Keith Leatham, Brigham Young University	Blake Peterson, Brigham Young University	M	M,H
68	Teaching and Learning Algebraic Thinking Across the Middle Grades: A Research-based Approach Using PhET Interactive Simulations	Kathy Perkins, University of Colorado, Boulder	Karina Hensberry, University of South Florida, St. Petersburg; David Webb, University of Colorado Boulder; Ian Whitacre, Florida State University	M	M,H
69	Computer-Supported Math Discourse Among Teachers and Students (Collaborative Research: Powell)	Arthur B. Powell, Rutgers University	Steven Weimar, The Math Forum	T,M	M,H

70	Completing, Validating, and Linking Learning Trajectories for K-8 Rational Number Reasoning Tied to the Common Core Standards	Jere Confrey, North Carolina State University		T,M	M
71	OPEN				
72	OPEN				
73	OPEN				
74	OPEN				