



## PRESENTER BIOGRAPHICAL INFORMATION

### **Amy Beal**

*Coordinator, Judy Center, Anne Arundel County Public Schools, MD*

As coordinator of the Judy Center, Amy Beal's work focuses on decreasing the achievement gap and ensuring all children enter school ready to learn. The Anne Arundel County Public Schools' Judy Center focuses on STEM learning, and is based on the Maryland Model for School Readiness. The Judy Center collaborates with many community partners and Beal is a member of the Anne Arundel Early Childhood Council, Local Interagency Council, and Maryland State Department of Education Family Engagement Coalition. She is also a board member for Arundel Child Care Connections. Beal has a master's degree in Human Services.

### **Marina Bers**

*Professor, Tufts University*

Marina Bers is a professor at the Eliot-Pearson Department of Child Development and the Computer Science Department at Tufts University. She heads the interdisciplinary Developmental Technologies Research Group. Her research involves the design and study of innovative learning technologies to promote positive youth development. Bers has received prestigious awards such as the 2005 Presidential Early Career Award for Scientists and Engineers (PECASE), a five-year Young Investigator's Career Award, and the American Educational Research Association's Jan Hawkins Award. Over the past decade and a half, Bers has conceived, designed, and evaluated diverse educational technology projects—ranging from robotics to virtual worlds— in schools, after-school programs, museums, and hospitals, both in the U.S. and abroad. She has received NSF grants and published her research in academic journals, and consulted for educational institutions and educational toy companies. Her book *Blocks to Robots: Learning with Technology in the Early Childhood Classroom* was published in 2008 by Teacher's College Press. Most recently, she has written *Designing Digital Experiences for Positive Youth Development: From Playpen to Playground*, which is being published by Oxford University Press. Bers is from Argentina. In 1994, she came to the United States and received a master's degree in Educational Media from Boston University and an MS and PhD from the MIT Media Laboratory working with Seymour Papert.

### **Kimberly Brenneman**

*Director, Early Childhood STEM Lab; Assistant Research Professor, National Institute for Early Education Research, Rutgers University*

Kimberly Brenneman's work focuses on ways to improve instructional practices that support STEM learning in preschool classrooms. She collaborates on research projects that involve preschool curriculum development, professional development for teachers, assessment, and the creation of authentic home-school connections around STEM learning. Her SciMath-DLL project involves the design, development, and preliminary testing of an innovative professional development model and related resources that integrate supports for dual-language learners (DLLs) with high-quality math and science

instruction. Funded by the NSF, SciMath-DLL is a collaboration with the Elizabeth, Long Branch, and Union City, NJ, school districts. With colleagues from Tufts University, University of Miami, and University of Northern Iowa, Brenneman co-directs Readiness through Integrative Science and Engineering (RISE), an effort to improve school readiness for DLLs by designing and testing resources for preschool teachers to strengthen connections between home and school, and to foster positive approaches to learning through hands-on science, technology, and engineering content. Brenneman is co-author of *Preschool Pathways to Science (PrePS): Facilitating Scientific Ways of Thinking, Talking, Doing, and Understanding*, a curriculum planning framework for educators to guide and facilitate their efforts to incorporate more science into their curricula. She also is a credited educational advisor for The Jim Henson Company's *Sid the Science Kid* television show and website, and authored the PBS Kids blog, *The Learning Lab*, which brings research-based ideas and activities for fostering children's science learning to teachers and parents. Brenneman received her PhD from the University of California, Los Angeles.

### **Claudine Brown**

*Assistant Secretary for Education and Access, Smithsonian Institution*

Claudine Brown is the assistant secretary for education and access for the Smithsonian Institution. She is responsible for defining the Smithsonian's education program and oversees five of the Smithsonian's organizations—the Smithsonian Science Education Center, the Smithsonian Center for Learning and Digital Access Education, The Smithsonian Associates, Smithsonian Affiliates, and the Smithsonian Institution Traveling Exhibition Service—and coordinates 32 education-based offices in museums and science centers. In 1990, she joined the Smithsonian to serve as director of the National African-American Museum Project. In this position, she coordinated the efforts of advisory committees that considered the role of the Smithsonian in the development of a national museum devoted exclusively to the documentation of African American life, art, history, and culture. She developed the Smithsonian's final study on the project and a program plan for the proposed museum. In 1991, she became the deputy assistant secretary for the arts and humanities and developed policy for many Smithsonian museums. In the past, Brown has been the director of the arts and culture program at the Nathan Cummings Foundation in New York. During her tenure at the foundation, Brown worked to strengthen community-based arts education programs and worked with innovative organizations that have helped creative young people acquire new-media literacy. Brown earned her bachelor's degree from Pratt Institute in New York City and her master's degree in Museum Education from Bank Street College of Education. She earned her law degree from Brooklyn Law School.

### **Susan Carey**

*Professor of Psychology, Harvard University*

Susan Carey was employed at the Massachusetts Institute of Technology from 1972 to 1996 and New York University from 1996 to 2001 before joining the faculty at Harvard University in 2001, where she is chair of the psychology department. Currently, Carey is working on the role of executive function in conceptual change. Executive functions (working memory, cognitive control) likely play many roles in successful learning, as they include the capacities for sustained attention and maintenance of goal-directed activities. Her work involves characterizing the components of executive function, charting their development during the preschool and early elementary years, and exploring their role in the acquisition of STEM concepts. Carey's research concerns the psychological processes that underlie conceptual change. She has carried out case studies of the processes through which children construct their first concepts of integers, as well as case studies of conceptual changes within biology and physics that are targets of elementary school education. Carey is a member of the National Academy of Sciences and the National Academy of Education. She received both her BA and PhD from Harvard University.

**Victoria Carr**

*Associate Professor of Early Childhood Education and Human Development, University of Cincinnati;  
Director, Arlitt Child and Family Research and Education Center*

Victoria Carr is the executive director for the Arlitt Head Start program, executive producer for Arlitt Instructional Media, and co-founder of the Cincinnati Nature PlayScape Initiative. Carr teaches courses in the early childhood education, and developmental and learning sciences programs. She studies teacher efficacy, authentic assessment, and outdoor play. She has generated funding, including a PNC Grow Up Great with Science grant to support Head Start teachers' learning to use nature as a venue for science curricula. Her NSF funding supports an investigation into children's science learning in designed nature-rich environments, or playscapes. Carr serves on the Cincinnati Nature Center's Education Committee, Kentucky 4C for Children's Advisory Board, and Board of Directors for Milestones Therapeutic Horseback Riding. Carr has published and presented papers with regard to nature and children, challenging behaviors, assessment, and other related topics. She has co-authored *Engaging Your Child in Nature Play*, *Challenging Behaviors in Early Childhood Settings: Creating a Place for All Children*, and *Addressing Challenging Behavior in Early Childhood Settings: A Teacher's Guide*. She holds a bachelor's degree in Elementary Education and Learning and Behavioral Disorders, a master's degree in Gifted Education, and a doctorate in Early Childhood Special Education.

**Beth Casey**

*Research Professor and Professor Emeritus, Boston College*

Beth Casey's research has focused on the early development and teaching of spatial skills in young learners as an important factor in the acquisition of later math reasoning skills, with a particular focus on the effects of individual differences in spatial skills on girls' success in STEM. Currently, Casey leads the NSF-funded grant, Two Studies on Long-Term Changes in the Relation Between Spatial Skills and Math Achievement in Girls. Casey coordinated the Early Childhood Program at Boston College for many years, where she implemented a model for teachers on how to scaffold young learners' problem-solving skills. She developed an NSF-funded six-book early childhood storytelling/math series entitled *Round the Rug Math: Adventures in Problem Solving*, published by McGraw-Hill in 2002. The books are designed to develop spatially based math problem-solving skills through the medium of storytelling. Casey conducted a series of research studies showing the effectiveness of this approach for teaching young children. She worked with PBS as a math script advisor for *Curious George*, which was awarded an Emmy for Outstanding Children's Animation Program. Within PBS, she is on the Math Advisory Board of the Ready-to-Learn project, helping to develop its math frameworks. As their math advisor, she worked for the multimedia projects *Cat in the Hat*, *CloudKid*, *SciGirls*, *Peep and the Big Wide World*, and *Portfolio Entertainment*. Most recently, she served as a consultant to the University of Chicago on the new Pre-Kindergarten Mathematics Assessment. Casey received her master's and doctoral degrees in Developmental Psychology from Brown University.

**Ann Caspari**

*Early Childhood Education Specialist, Smithsonian National Air and Space Museum*

Ann Caspari develops and teaches early childhood programming for school and family audiences at the Smithsonian National Air and Space Museum. She teaches professional development for early childhood teachers in District of Columbia Schools, focusing on using inquiry science methods to teach physical science to children ages 3 to 5. As a school programs coordinator at the National Building Museum, Caspari developed and taught STEM programming related to the built environment for preschool and school-aged audiences. At the Calvert Marine Museum in Solomons, Maryland, she developed and taught programs for school and family audiences about paleontology and the estuarine biology of the

Chesapeake Bay. Caspari has served on the Board of Directors of the Museum Education Roundtable. She received her BA from Trinity College in Hartford, CT, and her MAT through the Museum Education Program at George Washington University in Washington, DC.

### **Doug Clements**

*Kennedy Endowed Chair, Professor, and Executive Director, Marsico Institute, University of Denver*

Doug Clements conducts research and development activities in early childhood mathematics education. At the national level, his contributions have led to the development of new mathematics curricula, teaching approaches, teacher training initiatives, and models of “scaling up” interventions, and have had a tremendous impact on educational planning and policy, particularly in the area of mathematical literacy and access. Clements has served on the President's National Mathematics Advisory Panel and the *Common Core State Standards* committee of the National Governor's Association and the Council of Chief State School Officers, where he wrote national academic standards and the learning trajectories that underlie them. He was a member of the National Research Council's Committee on Early Mathematics and co-author of their report. Clements has also served on the National Council of Teachers of Mathematics National Curriculum and Principles and Standards committees. Clements has earned grants from the NSF, the National Institutes of Health, and the Institute of Education Sciences of the U.S. Department of Education. Clements received his PhD in Elementary Education from the University at Buffalo, The State University of New York.

### **Ximena Domínguez**

*Senior Research Scientist, SRI International*

Ximena Domínguez's research examines child-level factors and classroom-level processes that influence young children's learning behavior and science and math readiness. At SRI, she leads the Early Science Task Force and co-leads the Approaches to Learning Task Force for the Head Start National Center for Quality Teaching and Learning (NCQTL). She and her team have conducted reviews of evidence-based early childhood practices and are engaged in the development of an evidence-based mathematics and science higher education course and an approaches to learning course for early childhood staff. In addition, Domínguez co-leads the evaluation of a preK–3 mathematics professional development program developed by the Erikson Institute. She is a senior researcher for the NSF-funded Next Generation Preschool Math (NGPM) project, and the USDOE-funded LENS on Science project. She recently received NSF funding for Next Generation Preschool Science to develop an early science curriculum supplement that integrates technology in developmentally appropriate ways, and U.S. Department of Education funding for ENFOQUE en Ciencia to develop a science assessment for dual-language learners. Prior to joining SRI, Domínguez led several school readiness research initiatives in Florida. Domínguez recently received the Article of the Year Award by the *Journal of School Psychology*. She currently serves as an editorial board member for the *Journal of School Psychology* and a reviewer for *Early Childhood Research Quarterly*. Domínguez received her BA in Psychology and her MEd in Human Development from the University of Pennsylvania. She also received her MS and PhD in Applied Development Psychology from the University of Miami.

### **Janice Earle**

*Program Director, Directorate for Education and Human Resources (EHR), National Science Foundation*

Janice Earle currently serves as a senior program director for K–12 STEM education in the Directorate for Education and Human Resources (EHR) at the NSF. As such, she is responsible for NSF-wide activity on K–12 STEM education. She has been at the NSF since 1991 and has worked with several of the NSF's education programs. Previously, Earle served as the cluster lead for the Research and Evaluation on Education in Science and Engineering (REESE) and CAREER programs housed in the Division of Research

on Learning in Formal and Informal Settings and as coordinator for EHR evaluation activities. Earle works with several of the agency's policy-oriented efforts such as those with the National Academy of Sciences, the National Research Council, and the U.S. Department of Education. Earle received a BA in History from the University of Michigan, an MA from Teachers College, Columbia University, and a PhD in Education Policy and Planning from the University of Maryland.

### **Joan Ferrini-Mundy**

*Assistant Director, Directorate for Education and Human Resources (EHR), National Science Foundation*

Joan Ferrini-Mundy is the National Science Foundation's assistant director who leads NSF's Directorate for Education and Human Resources (EHR), a position she has held since February 2011. Ferrini-Mundy is responsible for setting the vision and establishing the mission of EHR, whose budget in FY 2012 was more than \$800 million, with a staff of more than 150 people. She serves as a member of the NSF Senior Management Team and is involved in strategic planning and direction for the scientific and education mission of the NSF. Ferrini-Mundy's current activities include a government-wide performance management effort; a leadership role in defining the NSF's budget priorities for FY 2013 and 2014; and an ongoing collaboration with the White House Office of Science and Technology Policy in developing a government-wide strategic plan for science, technology, engineering, and mathematics (STEM) education and workforce development. From 2007 through January 2011, she was an NSF member of the National Science and Technology Council's (NSTC) Subcommittee on Education of the Committee on Science, and currently serves on two task forces of the new NSTC Committee on STEM Education. Ferrini-Mundy is currently a member of the Mathematics Expert Group of the Programme for International Student Assessment (PISA). In 2007–2008, representing the NSF, she served as an ex-officio member of the President's National Mathematics Advisory Panel. She has served on the Board of Directors of the National Council of Teachers of Mathematics (NCTM) and on the Board of Governors of the Mathematical Association of America. Ferrini-Mundy holds a PhD in Mathematics Education from the University of New Hampshire. Ferrini-Mundy holds an appointment at Michigan State University (MSU) as a University Distinguished Professor of Mathematics Education in the Departments of Mathematics and Teacher Education.

### **Mary Haggerty**

*Director of Media Engagement, WGBH*

Mary Haggerty co-manages a department that works in tandem with WGBH's television and interactive productions to develop resources and activities for parents, educators, youth, and lifelong learners, both in and out of school. She also plays a leadership role in overseeing the development and implementation of national education initiatives for non-broadcast and transmedia projects. Her work in STEM includes developing and implementing local and national outreach activities and campaigns for series such as *Curious George*, *PEEP and the Big Wide World*, and *Design Squad Nation*. Before coming to WGBH, she served in Mauritania, West Africa, as a Peace Corps rural health volunteer. Haggerty also held various positions at Reading Is Fundamental, where she focused on outreach to underserved audiences, including American Indian and Latino populations.

### **Kimberlee Kiehl**

*Executive Director, Smithsonian Early Enrichment Center*

Kimberlee Kiehl assumed the role of executive director of the Smithsonian Early Enrichment Center (SEEC) in July 2012. The lab school, serving 135 children ages 2 months through kindergarten, operates in two sites—one in the National Museum of Natural History and one in the National Museum of American History. Prior to coming to SEEC, Kiehl was the chief strategy and operations officer at the Center Of Science and Industry (COSI), a large science museum in Columbus, Ohio, for 12 years. There

she was responsible for both developing and implementing the strategic plan of the institution, as well as conceptualizing and managing partnerships with various community organizations. While at COSI, Kiehl participated in the start-up of Metro High School in partnership with Battelle and Ohio State University (OSU), and was responsible for organizing a number of STEM partnerships between OSU and COSI. She went to COSI after being an associate professor and director of the A. Sophie Rogers Lab School at OSU for 12 years. She was a Noyce Foundation Leadership Fellow from 2010 to 2011. Kiehl received her PhD in Curriculum and Instruction with a specialty in Early Childhood from Penn State University. She holds an MS in Special Education from the College of St. Rose and a BS in Speech Pathology and Audiology from SUNY Geneseo.

### **Leslie Kochanowski**

*Graduate Research Assistant, Arlitt Child and Family Research and Education Center*

Leslie Kochanowski is working towards her PhD in Educational Studies at the University of Cincinnati, where she has been a graduate research assistant at the Arlitt Child and Family Research and Education Center for the past two years. In this role, she coordinates research funded by the NSF to investigate preschoolers' informal science learning within intentionally designed nature playscapes. Her manuscript based on this research, *Nature Playscapes as Contexts for Fostering Self-Determination*, is in review by *Children, Youth and Environments*. Kochanowski's research interests include play and creativity, intrinsic motivation and environmental psychology. In addition, she is the founder of Loose Parts Project, an organization that promotes learning through play and encourages creativity and innovation in education. Kochanowski previously taught in a blended Early Head Start/tuition-based program in Asheville, NC, where she co-led the outdoor learning initiative and collaborated with fellow educators, naturalists, landscape architects, and local colleges to improve the quality of children's outdoor play while reconnecting them with nature. She was awarded the prestigious Gabbard Research Fellow scholarship during her master's degree program at the University of Cincinnati.

### **Richard Lehrer**

*Professor, Vanderbilt University*

Richard Lehrer is a Frank W. Mayborn Professor of Education at Vanderbilt University. Working in concert with teachers, he focuses on the design of classroom learning environments that support the growth and development of learning about foundational concepts and epistemic practices in science and in mathematics. In mathematics education, he investigates development of children's (K–6) reasoning about space, measure, data, and chance when instruction is guided by teacher knowledge of student reasoning. Closely related research conducted with Leona Schauble and with teacher-partners investigates fruitful ways of inducting children into the signature practice of science—invention and revision of models of natural systems. Most recently, this research has examined how children use invented and conventional representations and tools to inquire about and articulate the building blocks of evolution: variation, change, and ecosystem function. Other interests include the development of measures of learning consistent with the ambitions of the *Common Core State Standards* for Mathematics and the *Next Generation Science Standards*. He has served as co-editor of *Cognition and Instruction* and has contributed to several NRC committees, including one presently evaluating integrated STEM education and another examining science assessment in light of the new NRC framework for science education. Lehrer is a Fellow of the American Educational Research Association and the 2009 recipient of the American Psychological Association's Award for Distinguished Contributions in Applications of Psychology to Education. A former science teacher, he received a PhD in Educational Psychology and Statistics from the State University of New York, Albany, and a BS in Biology from Rensselaer Polytechnic Institute.

**Catherine Maltbie**

*Research Associate, University of Cincinnati*

Catherine Maltbie has been a research associate at the University of Cincinnati for the past 13 years. Currently, she holds positions at the University of Cincinnati Evaluation Services Center (UCESC) and the Arlitt Child and Family Research and Education Center. Maltbie has been the evaluator for more than 12 NSF-funded projects. As a member of the UCESC, Maltbie has coordinated evaluations for numerous projects related to K–20 education and STEM education, including the University of Cincinnati’s informal science education project evaluating playscapes’ impact on science learning. Specifically, she coordinated the development, usage, and analysis of data generated by an iPad application designed to record where and what children are doing on playscapes and the playground. Her research agenda explores ways to track children’s educational achievement from early childhood through school. Maltbie also investigates the correlation between children’s gaming activities and social and cognitive measures. Recently, she published and presented papers focused on research experiences and the professional development of inservice and preservice teachers. Maltbie is also a faculty mentor for the University of Cincinnati’s College of Engineering and Applied Sciences Tau Beta Pi Honor Society and a mentor for the Lakota Robotics Team 1038 in West Chester, OH. She has a PhD in Educational Foundations with a specialization in social and cognitive aspects of education, and a BS in Chemical Engineering.

**Natalie Nielsen**

*Senior Program Officer, Board on Science Education, National Research Council*

Natalie Nielsen is a senior program officer with the Board on Science Education at the National Research Council (NRC). At the NRC she has directed studies on K-12 and undergraduate science education, including the study that produced the 2011 report, *Successful K-12 STEM Education: Identifying Effective Approaches in Science, Technology, Engineering, and Mathematics*. Before joining the NRC, Nielsen was the director of research at the Business-Higher Education Forum, where her work focused on college readiness, access, and success, particularly in STEM. Previously, as a senior researcher at SRI International, Natalie conducted evaluations of a wide variety of federal, state, and district-level reform efforts—including technology, teacher quality, data-driven decision-making, and high school reform initiatives, and afterschool and youth development programs. She has also served as a staff writer for American Association for the Advancement of Science’s (AAAS) Project 2061, exhibit researcher at the Smithsonian Institution’s National Museum of Natural History, and exhibit writer and internal evaluator at the San Diego Natural History Museum. Nielsen holds a BS in Geology from the University of California, Davis, an MS in Geological Sciences from San Diego State University, and a PhD in Education from George Mason University.

**Liz Penner**

*Primary Teacher, Verona Area School District, Verona, WI*

Liz Penner is in her 20<sup>th</sup> year of teaching in the Verona Area School District in Wisconsin. She has taught grades 1–2 in a multiage classroom for her entire career. Penner has participated in university research collaborations focused on student thinking in mathematics and science throughout her career. Currently, she is partnering with Long Term Ecological Research (LTER) faculty at the University of Wisconsin (UW), Madison, and the City of Verona Department of Public Works to develop a local detention pond as a research site for students in the Verona Area School District, researchers at the University of Wisconsin, and city workers. Penner is also co-facilitating a year-long course with a Verona Area high school ecology teacher; staff from UW, Madison, Arboretum’s Earth Partnership for Schools (EPS); and LTER faculty to offer professional development to K–12 teachers around ecology and the *Next Generation Science Standards*. Penner began her partnership with UW, Madison, faculty Rich Lehrer and Leona Schauble in 1995 on their Modeling and Mathematics and Science project. She became a teacher

facilitator on this project, leading staff in both summer and school-year curriculum development sessions. Penner was a site coordinator on an NSF-funded grant focused on the development of student learning constructs in ecology. She also participated in *Earth Partnerships for Schools* and contributed to its teacher curriculum publications on watershed ecology. Penner received her BS in Education and her MS in Cognitive Psychology from the University of Wisconsin, Madison.

### **Deborah Phillips**

*Professor, Georgetown University*

Deborah Phillips is a professor of psychology and associated faculty in the Public Policy Institute at Georgetown University. She was the first executive director of the Board on Children, Youth, and Families of the National Research Council and the Institute of Medicine, and served as study director for the Board's report, *From Neurons to Neighborhoods: The Science of Early Child Development*. She also served as president of the Foundation for Child Development and director of Child Care Information Services at the National Association for the Education of Young Children. As a Congressional Science Fellow of the Society for Research in Child Development, Phillips served as an analyst at the Congressional Budget Office and on the personal staff of Rep. George Miller. Her research focuses on the developmental effects of early childhood programs—for both typically developing children and those with special needs—including research on child care, Head Start, and preK programs. Phillips has served on numerous task forces and advisory groups that address child and family policy issues, including the Task Force on Meeting the Needs of Young Children of the Carnegie Corporation of New York, the National Scientific Council on the Developing Child, the Head Start FACES Redesign Expert Panel, and the Secretary's (U.S. Department of Health and Human Services) Committee on the Maternal, Infant, and Early Childhood Home Visiting Evaluation. Phillips is a Fellow of the American Psychological Association, the Eastern Psychological Association, and the American Psychological Society. In 2011, she received the Distinguished Contributions to Education in Child Development Award from the Society for Research in Child Development. Phillips holds a PhD in Developmental Psychology from Yale University.

### **Ashley Lewis Presser**

*Senior Research Associate, Education Development Center, Inc.*

Ashley Lewis Presser is a senior research associate at the Center for Children and Technology at Education Development Center, Inc. (EDC). Her work focuses primarily on research and development related to early childhood, mathematics, and science. Her projects cover a wide range that includes research-infused development of curriculum materials and tablet games for preschool mathematics, evaluation of STEM programs, and quasi-experimental and randomized controlled experiments. Lewis Presser is currently the principal investigator for the Next Generation Preschool Math Project, an NSF-funded project that designs preschool math units that integrate tablet-based games with supporting classroom resources to promote young children's learning. In July 2013, she had the honor of being accepted to the Institute for Education Science's Summer Research Training Institute on Cluster Randomized Trials. Lewis Presser holds a master's and a doctoral degree in Educational Psychology from the University of Minnesota and a BS in Psychology from the University of Massachusetts, Amherst.

**Amy Reese**

*Acting Coordinator of Elementary Science, Howard County Public Schools, MD*

Amy Reese is currently the Acting Coordinator of Elementary Science and oversees elementary STEM programs in the Howard County Public Schools (HCPS) in Maryland. She was a Biology major who switched to the education field and holds a bachelor's degree in Elementary Education. Reese also holds a master's degree in Reading and is a certified Reading Specialist in Maryland. She is facilitating the development of Howard County Public School System's Science and Engineering units for Kindergarten through fifth grade, based on the Next Generation Science Standards. Collaboration with the elementary Language Arts and Mathematics offices and integration of the Common Core Standards has been a key part of her curriculum development process. Reese has served on numerous workgroups for the Maryland State Department of Education, such as Early Childhood STEM Standards of Practice, Elementary STEM Standards of Practice, and Environmental Literacy. She has developed partnerships with local environmental agencies/volunteers to support STEM in field programs related to the environment and real world experiences. Reese was recently invited to visit South Korea, as part of their school system partnership with the South Korean Ministry of Education, to discuss Science and STEM education and enhance relationships for future collaboration.

**Julie Sarama**

*Kennedy Endowed Chair in Innovative Learning Technologies and Professor, University of Denver*

Julie Sarama conducts research on young children's development of mathematical concepts and competencies, implementation and scale-up of educational reform, professional development models and their influence on student learning, and implementation and effects of software environments (including those she has created) in mathematics classrooms. These studies have been published in more than 50 refereed articles, four books, 30 chapters, and 60 additional publications. Sarama is also co-directing three large-scale studies funded by the U.S. Department of Education. She has been principal or co-principal investigator on seven projects funded by the NSF. She has taught secondary mathematics and computer science, gifted math at the middle school level, preschool and kindergarten mathematics enrichment classes, and mathematics methods and content courses for elementary to secondary teachers. In addition, she is presently the director of the Gifted Mathematics Program (GMP) at the University at Buffalo, SUNY. She has designed and programmed more than 50 published computer programs, including *Turtle Math™*, which was awarded *Technology & Learning Software of the Year Award* in 1995. Sarama received her PhD in Mathematics Education from the University at Buffalo, The State University of New York.

**Amanda Strawhacker**

*Research Analyst, Developmental Technologies Research Group, Tufts University*

Amanda Strawhacker is a researcher in the Developmental Technologies Research Group. This is her third year working with the group. Strawhacker is currently the coordinator for the ScratchJr project, which focuses on developing, implementing, and evaluating a new version of the Scratch programming language designed especially for early childhood education (K-2nd grade). Her work with STEM for early childhood has involved curriculum development, teaching, consulting, product design, professional/educator development, and data collection and analysis. Strawhacker completed her master's in Child Development at Tufts University last spring, and received the Eliot-Pearson Research-Practice Integration Award (2013) for her research with a Boston public school on programming interfaces in kindergarten classrooms.

**Amanda Sullivan**

*Graduate Research Assistant, Developmental Technologies Research Group, Tufts University*

Amanda Sullivan is a graduate research assistant at the Developmental Technologies Research Group at Tufts University where she is currently working on the NSF-funded Ready for Robotics project. Ready for Robotics devotes attention to two components of STEM that are often neglected in early childhood education: the “T” of technology and the “E” of engineering. To address this imbalance, Ready for Robotics is creating and evaluating a developmentally appropriate robotics system for use with young children (preK–2). Sullivan’s prior work has included curriculum development, integrating robotics with foundational early childhood content such as math and literacy. She has spent significant time teaching robotics, computer programming, and film production in school and camp settings, and assisting with technology-focused workshops for early childhood educators. Sullivan is currently pursuing her PhD in Child Development at Tufts University, where she was the recipient of the Eliot-Pearson Research-Practice Integration Award in 2012. She holds an MA in Child Development from Tufts and a BA in Psychology and Drama from Bennington College.

**Kate Taylor**

*Senior Executive Producer, WGBH*

Kate Taylor is senior executive producer for children’s programming at WGBH and a key architect in the educational children’s series the organization has produced over the past 20 years. She currently serves as senior executive producer of *Plum Landing*, an NSF-funded environmental science digital hub for elementary schoolers; *PEEP and the Big Wide World*, an NSF-funded animated science series for preschoolers; and *Design Squad*, an NSF-funded series for students ages 9–12. (This project recently won an Emmy Award for "new approaches" in television and Web). She was also the executive producer of the Emmy Award-winning shows *FETCH! with Ruff Ruffman*, *ZOOM*, *Where in the World Is Carmen Sandiego?* and *Where in Time Is Carmen Sandiego?*, and was the executive in charge of *Arthur*. During the early 1980s, Taylor served as the associate director of children’s and cultural programming at PBS in Washington, DC, where she was responsible for developing new children’s series and determining the national children’s programming schedule and agenda. Taylor holds an MS in Education from the University of Pennsylvania and has several years of experience teaching language arts in inner-city elementary schools.

**Phil Vahey**

*Director of Mathematics Learning Systems, SRI International*

Phil Vahey has an established track record in leading large-scale design efforts that integrate technology into preK–12 mathematics education, as well as significant experience evaluating preK–12 mathematics programs. Vahey is co-principal investigator on the NSF-funded Next Generation Preschool Math project, which is designing tablet-based media resources for use in preschool classrooms. He also leads the Cornerstone Mathematics and SunBay Mathematics programs, which are integrating Web-based resources into middle school mathematics classes in England and Florida. Both projects are using technology to meet new, rigorous standards that include mathematical practices. In the past, Vahey was senior research scientist on a Department of Education study to evaluate the relative effects of math curricula that show promise for improving math achievement in the early elementary school years. He was also a principal investigator or co-principal investigator on NSF-funded projects to increase students’ data literacy through the use of cross-disciplinary curriculum materials. Vahey holds a master’s and doctoral degree in Education from the University of California, Berkeley. His dissertation, which won Outstanding Dissertation of the Year, investigated the use of technology-based simulation software to teach probability to middle school students.

**Jeff Winokur**

*Senior Training and Technical Assistance Associate, Education Development Center, Inc.*

Jeff Winokur is a senior training and technical assistance associate at Education Development Center, Inc. (EDC) and an instructor of early childhood and elementary science education at Wheelock College. In his more than 30 years in science education, he has worked on numerous projects with teachers, schools, and districts, and has also developed and taught undergraduate and graduate courses in the teaching of science to children ages 3–12. He was a member of the Center for Urban Science Education Reform (CUSER) and EDC K–12 Science Curriculum Dissemination Center teams. Winokur was a contributing author of *The Young Scientist Series*, published by Redleaf Press, a set of teacher and professional development guides for teaching science in preschool. His current work at EDC is in the development and delivery of science education courses based on *The Young Scientist Series* for early childhood educators. Winokur has presented this early childhood science work at conferences of the National Association for the Education of Young Children (NAEYC) and the National Science Teachers Association (NSTA). He has also been a member of the Connecting Science and Literacy Project team at EDC, and is co-author of *The Essentials of Science and Literacy*, and *Science and Literacy: A Natural Fit*, both published by Heinemann. Winokur received his BS from the University of Pennsylvania and an MEd from Antioch University.

**Karen Worth**

*Chair of Elementary Education, Wheelock College*

Karen Worth is faculty at Wheelock College, where she teaches early childhood and elementary education with a focus on science education. She works closely with the Mathematics and Science Department to enhance the preparation of preservice students at Wheelock College. She also coordinates the Integrated Elementary and Special Education Program at the graduate level. She is currently chair of the Elementary Education Department. Worth also worked as a senior research scientist at Education Development Center, Inc. (EDC), leading a range of programs focused on science curriculum development, professional development, and systemic reform. These included the NSF-funded development projects Connecting Science and Literacy Program: A Professional Development Program for Elementary Teachers, Tool Kit for Early Childhood Science Education, and the project that resulted in the publication of *Insights, an Elementary Inquiry-Based Curriculum*, which is currently in use nationally and internationally. Worth also co-led two major NSF-funded science systemic reform projects nationally. She has been a consultant and advisor to a number of museums, including the Boston Children's Museum and the Chicago Children's Museum. She has advised public television stations, including WGBH, PBH, and community organizations across the country and internationally. She served as the chair of the working group on Science Teaching Standards for the National Academy of Science's National Science Education Standards effort. She is a recipient of the Exploratorium's Outstanding Educator Award, the international Purkwa Prize for the scientific literacy of the children, and the NSTA Distinguished Service Award. Worth holds a BS from Radcliffe College and an MS from Bank Street College of Education.

**Betty Zan**

*Associate Professor, University of Northern Iowa; Director, Regents' Center for Early Developmental Education*

Betty Zan's current work focuses on assisting preschool teachers in learning how to integrate science, technology, and engineering into their classroom practices in ways that are authentic and meaningful to children, respectful of the children's cultural backgrounds, and intellectually rigorous. She and her colleagues are currently working with Head Start programs that serve children of immigrant families with limited English proficiency. She is also working on a project that provides professional development

for preschool teachers and childcare directors focused on preparing them to become effective preK STEM coaches. She also teaches undergraduate and graduate students in early childhood education. Zan was the principal investigator for the Ramps and Pathways project, funded by the NSF. This project developed curriculum materials and professional development for teachers of children ages 3 years through grade 2. She was also the principal investigator for the Coaching and Mentoring for Preschool Quality project, funded by the Office of Head Start, which developed an intensive model of professional development for Head Start teachers to increase their use of effective teaching strategies. The project had a particular focus on instructional support, including concept development, and provided professional development focused on STEM. Zan received her BS in Human Development and Family Studies, and an MA and PhD in Developmental Psychology from the University of Houston.