



# Considerations for STEM Education from PreK through Grade 3

## AUTHORS AND CONTRIBUTORS

### STEERING COMMITTEE

**Douglas Clements (Co-Chair), University of Denver**  
**Project:** Using Rule Space and Poset-Based Adaptive Testing Methodologies to Identify Ability Patterns in Early Mathematics and Create a Comprehensive Mathematics Ability Test (NSF# 1313695)

**Julie Sarama (Co-Chair), University of Denver**  
**Project:** Learning Trajectories to Support the Growth of Measurement Knowledge: Pre-K through Middle School (NSF# 1222944)

**Maria Blanton, TERC**  
**Project:** Building a Grades K-2 Early Algebra Learning Progression Prototype for Diverse Populations (NSF# 1720129)

**Mark Hoover**  
*University of Michigan-Ann Arbor*  
mhoover@umich.edu  
**Project:** Building Assessment Items and Instructional Tasks to Build Intercommunity Capacity to Develop Teachers' Mathematical Knowledge for Teaching (NSF# 1502778)

**Christine McWayne, Tufts University**  
**Project:** Readiness through Integrative Science and Engineering: Refining and Testing a Co-constructed Curriculum Approach with Head Start Partners (NSF# 1621161)

**Nancy Romance, Florida Atlantic University**  
**Project:** An Integrated Instructional Model for Accelerating Student Achievement in Science and Literacy in Grades 1-2 (NSF# 1316433)

**Carolyn Staudt, Concord Consortium**  
**Projects:** Sensing Science through Modeling: Developing Kindergarten Students' Understanding of Matter and Its Changes (NSF #1621299); Teaching Environmental Sustainability - Model My Watershed (Collaborative Research: Staudt) (NSF #1417722)

### ADDITIONAL CONTRIBUTORS & TOPICAL GROUP MEMBERS

**Jeffrey Barrett, Illinois State University**  
**Project:** Learning Trajectories to Support the Growth of Measurement Knowledge: Pre-K through Middle School (NSF# 1222944)

**Tutita Casa, University of Connecticut**  
**Project:** A Task Force on Conceptualizing Elementary Mathematical Writing: Implications for Mathematics Education Stakeholders (NSF# 1545908)

**Laura Bofferding, Purdue University**  
**Project:** CAREER: Leveraging Contrasting Cases to Investigate Integer Understanding (NSF# 1350281)

**Christine Cunningham, Museum of Science, Boston**  
**Project:** Exploring the Efficacy of Engineering in Elementary (E4) (NSF# 1220305)

**Charlene Czerniak, University of Toledo**  
**Project:** Networking Urban Resources with Teachers and University to Enrich Early Childhood Science (NURTURES) Phase II: Expansion and Evaluation (NSF# 1721059)

**Meixia Ding, Temple University**  
**Project:** CAREER: Algebraic Knowledge for Teaching: A Cross-cultural Perspective (NSF# 1350068)

**Caroline Ebby, Consortium for Policy Research in Education, University of Pennsylvania**  
**Project:** Developing Formative Assessment Tools and Routines for Additive Reasoning (NSF# 1620888)

**Amelia Gotwals, Michigan State University**  
**Project:** Developing A Discourse Observation Tool and Online Professional Development to Promote Science, Oral Language and Literacy Development from the Start of School (NSF# 1620580)



## ADDITIONAL CONTRIBUTORS & TOPICAL GROUP MEMBERS Contin.

**Alissa Lange**, *East Tennessee State University*  
**Project:** Supports for Science and Mathematics Learning in Pre-Kindergarten Dual Language Learners: Designing and Expanding a Professional Development System (NSF# 1417040)

**Melissa Luna**, *West Virginia University*  
**Project:** CAREER: Investigating Fifth Grade Teachers' Knowledge of Noticing Appalachian Students' Thinking in Science (NSF# 1552428)

**Rita MacDonald**, *University of Wisconsin-Madison*  
**Project:** EAGER Proposal for a Teacher's Guide to the Mathematics and Science Resources of the ELPD Framework (NSF# 1346491)

**Jennifer McCray**, *Erikson Institute*  
**Project:** Collaborative Math: Creating Sustainable Excellence in Mathematics for Head Start Programs (NSF# 1503486)

**Jamie Mikeska**, *Educational Testing Service (ETS)*  
**Project:** Developing Preservice Elementary Teachers' Ability to Facilitate Goal-Oriented Discussions in Science and Mathematics via the Use of Simulated Classroom Interactions (NSF# 1621344)

**Kelly Mix**, *University of Maryland*  
**Project:** Collaborative Research: Using Cognitive Science Principles to Help Children Learn Place Value (NSF# 1664781)

**Laurie Van Egeren**, *Michigan State University*  
**Project:** Cluster Randomized Trial of the Efficacy of Early Childhood Science Education for Low-Income Children (NSF# 1119327)

**Megan Wongkamalasai**, *Vanderbilt University*  
**Project:** Understanding Space Through Engineering Design (NSF# 1316312)

**Tanya Wright**, *Michigan State University*  
**Project:** Developing a Discourse Observation Tool and Online Professional Development to Promote Science, Oral Language and Literacy Development from the Start of School (NSF# 1620580)

## CADRE STAFF

**Catherine McCulloch**, *EDC, CADRE Principal Investigator*

**Natalie Nielsen**, *N2 Consulting, Synthesis Project Manager*