

MATH FOR ALL: PROFESSIONAL LEARNING TO HELP TEACHERS REACH ALL STUDENTS IN THE MATHEMATICS CLASSROOM

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Short description of the Workshop Groups: organizers, aims and underlying ideas

Dr. Babette Moeller is a Distinguished Scholar at the Education Development Center. Her work focuses on the development of and research on technology-enhanced programs in science, technology, mathematics, and engineering that help to ensure that students with disabilities and from other traditionally underrepresented groups will be included in and benefit from educational reform efforts. Dr. Moeller is one of the lead authors of the Math for All professional learning program, and brings more than 15 years of experience implementing and researching it in various settings across the United States.

Mr. Matt McLeod is a Project Director at the Education Development Center. He brings experience with teaching, coaching, and professional development in K–12 mathematics. He has served as a Math for All facilitator for the past six years, working with teachers, staff developers, and school leaders in urban and rural settings. His philosophy is that all children can learn deep mathematics, and each one should be provided the opportunity by engaging them in the act of doing mathematics. He believes that a teacher's role is not to disseminate information, but to facilitate learning by establishing the right environment and providing the necessary resources for every student.

Persistent differences in mathematics performance between general and special education students underscore the need for improving teachers' preparation to better serve the needs of students with different strengths and needs. Math for All (MFA; Moeller, et al., 2012; 2013) is an evidence-based, intensive, 50-hour professional learning program designed to help general and special education teachers in grades K–5 make high-quality mathematics instruction accessible to ALL students, including students with disabilities. This workshop is intended for mathematics teacher educators and researchers. Our overall aims are to illustrate key professional learning strategies employed by Math for All to better equip teachers for planning cognitively demanding mathematics lessons that build on diverse students' strengths and needs, and to share research findings that demonstrate the efficacy of the program. We will demonstrate these strategies by engaging participants in the following activities in a hands-on manner: (1) learning about a neurodevelopmental framework for learning (e.g., Barringer, Pohlman & Robinson, 2010; Pohlman, 2008), (2) applying the neurodevelopmental framework in the analysis of the demands of a mathematical task and a focal student's strengths and needs using segments from a video-recorded third-grade case lesson on multiplication, and (3) reflecting on how instructional strategies for a mathematical task can be adapted to build on the strengths and needs of a focal student without undermining the rigor of the mathematical goals. We will conclude with sharing findings from multiple research studies that have demonstrated the efficacy of the Math for All approach.

Planned structure:

15 minutes	Math for All overview & introduction to the neurodevelopmental framework	Small group and large group discussions (Babette Moeller)
20 minutes	Analysis of the demands of the mathematical task of a case lesson	Viewing of video clip of the case lesson's teacher introducing the math task Hands-on exploration of the math task Small and large group discussion of the demands of the math task (Matt McLeod)
20 minutes	Observation of a focal student from the case lesson to understand her strengths and needs	Viewing of video clip of a focal student working on the math task Small group and large group discussion of the focal students' strengths and needs (Babette Moeller)
20 minutes	Discussion of the mathematical goals of the case lesson and instructional strategies employed by the case lesson teacher	Large group discussion of the mathematical goals of the case lesson's math task Small group viewing of video clips of case lesson teacher working with the focal student and other students as they engage in the math task Large group discussion of instructional strategies and how they align with the focal students' learning profile and support the goals of the lesson (Matt McLeod)
15 minutes	Discussion of research findings	Large group discussion (Babette Moeller & Matt McLeod)

Venue requirement:

Virtual meeting space, ideally Zoom, with breakout room and chat capabilities.

References

Barringer, M-D., Pohlman, C., & Robinson, M. (2010). *Schools for all kinds of minds: Boosting student success by embracing learning variation*. Hoboken, NJ: John Wiley & Sons, Inc.

Moeller, B., Dubitsky, B., Cohen, M., Marschke-Tobier, K., Melnick, H. & Metnetsky, L. (2013). *Mathematics for All: Facilitator guide for grades K-2*. Thousand Oaks, CA: Corwin Press.

Moeller, B., Dubitsky, B., Cohen, M., Marschke-Tobier, K., Melnick, H. & Metnetsky, L. (2012). *Mathematics for All: Facilitator guide for grades 3-5*. Thousand Oaks, CA: Corwin Press.

Pohlman, C. (2008). *Revealing minds: Assessing to understand and support struggling learners*. San Francisco, CA: Jossey-Bass.