

2013 MCTM Pre-Conference Institute Descriptions

Institute Option – A

Strategic Use of Technology Tools Supporting Students' Attainment of the CCSS

Speakers:

Christian Hirsch, Brin Keller, Alden Edson

Description of presentation:

Participants will examine rich problem-based tasks aligned with the CCSS mathematical content and mathematical practices, and discuss the strategic use of technology that emerges. Institute participants will gain experience using NCTM's recently released *Core Math Tools*—a freely-available suite of interactive software consisting of a spreadsheet, a computer algebra system (CAS), and dynamic geometry, statistics, and probability tools. *Core Math Tools* provides teachers and students both in school and outside of school with powerful technological tools to amplify student learning and understanding of mathematics and develop facility with software use for computer-based assessments. (Bring your own laptop [not iPad] to download *Core Math Tools*).

Presenter information:

Christian R. Hirsch is Professor and Distinguished Faculty Scholar in the Department of Mathematics at Western Michigan University. Since 1992, he has directed the Core-Plus Mathematics Project, a problem-based, inquiry-oriented high school curriculum development and research project, funded by NSF. Chris is also Co-Director of the Center for the Study of Mathematics Curriculum and of the Core Math Tools Project, each supported by the NSF. eHEHe also currently directs the NSF-funded Transition to College Mathematics and Statistics Project that has developed a new fourth-year course for non-STEM college-bound students.



Brin A. Keller is an Associate Professor of Mathematics at Michigan State University. Her research interests over the last 20 years have resided at the intersection of mathematics, science, and technology. She was Co-director of the National Council of Teachers of Mathematics Illuminations Project from 2000-2003. Brin's current work is as a curriculum and software developer for the CCSS Edition of Core-Plus Mathematics and for the Transition to College Mathematics and Statistics Project funded by the National Science Foundation. She also is currently Co-Director of the Core Math Tools Project also funded by NSF. eHEHe

Alden J. Edson is a doctoral fellow in the Center for the Study of Mathematics Curriculum and a Ph.D. student in K-12 Mathematics Education at Western Michigan University. He is currently a research assistant with the Core-Plus Mathematics Project and with the Transition to College Mathematics and Statistics Project. AJ is interested in school mathematics curriculum development, the emergence of innovative technologies in mathematics education, the impact of highly interactive digital resources on students' mathematical learning, and the professional development of mathematics teachers at the secondary school level. His research interests center on the learning and teaching of mathematics in technology-rich environments.



Institute Option – B

Using Formative Assessment and Standards based Grading in the Mathematics Classroom

Speaker:

Sean Carmody

Description of Presentation:

Formative Assessment is a great way to give ownership of learning to students. The presentation will share some strategies that an active classroom teacher has used to help with his instruction and what success he has had. The discussion will include ways to get parents on board as well as resources that have been helpful in transition.

Participants will have time to create goals from the common core standards as well as the process standards. We will work through an entire process of setting up goals and discussing feedback as well as tools we can use to get formative data from the class.

Presenter Information:

Sean Carmody is currently a mathematics teacher at Holt High School. His focus this year has been teaching Algebra. He has worked with mathematics teachers in grades 5-12 as a mathematics consultant for Holt Schools and is currently a lead for the Formative Assessment for Michigan Educators project (FAME).

Institute Option – C

***Bringing the Standards for Mathematical Practice to Life:
Strategies for the 3-5 Classroom
and;***

Institute Option – D

***Bringing the Standards for Mathematical Practice to Life:
Strategies for the 6-8 Classroom***

Speaker:

Kristen Bieda

Description of Presentation:

Implementing the Common Core Standards for Mathematical Practice is an opportunity to show students how interesting mathematics can be. In this session, you will experience the mathematical practices and learn how to translate those experiences into your classroom. You will learn about tasks that promote work with the practices, and techniques for maximizing student engagement and discussion specific to each of the practices. More importantly, we will discuss how you can collaborate with your colleagues after you leave the conference to bring the mathematical practices into everyday instruction.

Presenter Information:

Dr. Kristen Bieda is an assistant professor of teacher education at Michigan State University. A former middle school teacher, Kristen researches how teachers engage students in mathematical reasoning and proof and provides leadership in MSU's secondary mathematics teacher preparation program. She recently co-authored a book published by NCTM entitled: "Connecting the NCTM Process Standards and the Common Core State Standards for Mathematical Practice to Improve Instruction" with colleagues from the University of Arizona and the University of Missouri.



Institute Option – E

Infusing the Classroom with Reasoning and Sense Making: Keys to Student Engagement

Presenter:

J. Michael Shaughnessy, Immediate Past President of NCTM

Description of Presentation:

Mike has made Infusing the Classroom with Reasoning and Sense Making one of the primary goals during his term as president of NCTM. Reasoning and Sense Making begins with the students themselves. Listening to student's is critical for teachers because it provides feedback on the *what*, the *how*, and the *why* of our students' thinking. Students must be encouraged to question, experiment, estimate, explore, and suggest explanations. NCTM's initiative in Reasoning and Sense Making include a series of publications, a web-based bank of reasoning and sense making tasks, and the launch of a digital library of practice with video clips of students engaged in reasoning and sense making in their classrooms. This talk will inspire all educators to get the students to be the ones to carry out the thinking and reasoning in our mathematics classrooms.

Presenter Information:

Mike Shaughnessy has taught mathematics content courses and directed professional development experiences for mathematics teachers at all levels, K–12, community college, and university. He has authored or co-authored over 70 articles, books, and book chapters on issues in the teaching and learning in mathematics education. From 1996–2008 Shaughnessy was the Director of the Doctoral Program in Mathematics Education at Portland State University. Throughout his career his principal research interests in mathematics education have been in the teaching and learning of statistics and probability, and in the teaching and learning of geometry. Mike was on the faculty of the Mathematics Department at Oregon State University from 1976 to 1993, and subsequently joined the Department of Mathematics and Statistics at Portland State University from 1993 to 2008. He will soon complete his four year term serving on the Board of Directors of NCTM with a year as President Elect, then two years as President, and this year as Immediate past President of the National Council of Teachers of Mathematics.

Institute Option - H

Supporting a Culture of Mathematics Learning

Speakers:

Michigan Association for Intermediate School Administrators (MAISA)

Description of Presentation:

To leverage regional mathematics teacher leaders to assist in the state-wide enactment of the Common Core State Standards in Mathematics. To this end, the training sessions are designed to prepare cadres of teachers, supported by a local regional service agency, to engage their peers in professional learning experiences focused on implementation of the MAISA resources.

Through the MAISA State-Wide Common Core Curriculum Project, mathematics curriculum resources have been developed that are available to assist every district in every region with the enactment of the CCSS-M.

The MAISA CCSS Mathematics Curriculum Materials provide resources to help teachers create opportunities for students to build connections within and among mathematical ideas in increasingly sophisticated ways. They are not intended or designed to fully replace daily instructional materials or prescribe a single pathway through a particular unit. Rather, the intended use is to support shifts in teachers' instructional practices consistent with the CCSS-M.

The MAISA materials organize the standards into mathematically coherent and sequenced units of study that make visible connections among mathematical ideas. The highlight lesson and formative assessment topics within the units of study are selected to emphasize content that might be new, different, or challenging for teachers and students. With this purpose, the materials are designed as professional learning tools to improve educators' understanding of the CCSS. While the highlight lessons, formative assessments, and unit resources are prepared for immediate use in classrooms, the intent is that holistically these materials are used to spark important planning and problem solving discussions related to full implementation of the CCSS-M.

Presenter Information:

The team is composed of seventeen mathematics consultants representing 14 regional service agencies (i.e., RESA, ISD, RESD) across Michigan

Each member has content expertise as well as experience supporting teachers to engage their students with the Standards for Mathematical Practice.