

Grades 9–12

NCTM 2010 Regional Conference & Exposition • Baltimore, MD • October 14-15, 2010

The NCTM Regional Conference and Exposition in Baltimore will offer over 200 presentations focused on mathematics education. The following is a small sampling of the sessions and gallery workshops that will be offered at NCTM's Regional Conference for educators who work with students in grades 9-12. For additional presentations please visit the **Online Conference Planner** at www.nctm.org/baltimore.

Connect with Mathematical Curves in the Real World

Thursday, October 14 • 8:00 am - 9:00 am

Numerous activities and applications of mathematical curves—conic sections, spirals, fractals, and more—will be presented and discussed. Topics will vary greatly (some humorous) and will be appropriate for many levels of mathematics students. Come investigate curves using hands-on activities, calculator programs, online Applets, and more.

Slinkies and Tongue Twisters in Algebra

Thursday, October 14 • 10:30 am - 12:00 pm

Bring mathematics to life using slinkies or tongue twisters to gather data and make predictions. Participants will use multiple representations (Rule of 5)—and graphing technology, where appropriate—to determine the line of best fit. The focus will be an understanding of the concepts instead of formulas.

“Just Let Me Survive Today!” Math Classroom Management, Motivation, and “Brain-Based” Study Strategies

Thursday, October 14 • 10:30 am - 12:00 pm

Through a unique combination of games, incentives, a structured system of rules, humor (including “math dancing” among much else), “brain-based” study strategies, and traditional techniques, attendees will learn how to motivate and manage their students so that they will enjoy class and improve their exam results.

Algebraic and Geometric Reasoning in Mathematics: Important Connections for All Students

Thursday, October 14 • 11:00 am - 12:00 pm

Participants will engage in a hands-on look at lessons with a focus on reasoning and problem solving. Applications to real-world situations, such as Coast Guard operations and Broadway production design, will be emphasized. Questioning techniques that include essential questions, best practice, and current research will be addressed.

Probability Experiments on a Calculator? No Dice!

Thursday, October 14 • 12:30 pm - 2:00 pm

Many handheld calculators have probability applications that invite teachers and students to explore basic laws of probability through time-saving simulations. This session will introduce participants to interesting probability problems, technological tools for modeling them, and reasons we should do so.

Dynamic Interactive Technology: Its Role in Making Sense of Calculus

Thursday, October 14 • 12:30 pm - 1:30 pm

Calculus is difficult for many students: notation, limits, continuity, or mean value theorem. Even some of our best merely memorize enough to get by. Technology can give students fundamental understandings that will enable them to make sense of central calculus concepts and see how the ideas work together to make a complete and powerful whole.

Using Maps in Mathematics: A Connections Activity

Thursday, October 14 • 2:00 pm - 3:00 pm

This activity connects mathematics to other subjects and areas such as cartography, art, and social justice. It also gives teachers a method for convincing their students of the merits of collaborative learning. The three topics will be motivation for collaborative group work, the four-color theorem, and social justice in maps.

Successful Practices in Teaching Algebra and Geometry to At-Risk Students

Thursday, October 14 • 2:30 pm - 4:00 pm

Lynnfield High School earned a Massachusetts Compass Award when 70 percent of its at-risk students scored proficient or advanced on the state exam. This workshop will show how its teachers incorporated introducing topics numerically, algebraically, and geometrically with a strong technology program and a standards-based curriculum.

Teaching and Learning Geometry at the Secondary School Level

Friday, October 15 • 8:00 am - 9:00 am

State assessment data show students struggle with basic concepts such as area or reasoning about geometric relationships. Using research on teaching and learning, interactive technology, and the right questions can help students reason about mathematics in ways that develop understanding of core geometry concepts.

The Interactive Classroom

Friday, October 15 • 10:30 am - 12:00 pm

Experience several types of technological advances that will make students' math experience more enjoyable—interactive white-board activities, new Texas Instruments products, software program ideas, Internet activities that will get students interested in mathematical concepts, and more.

FRAPPY: AP Free-Response Questions as Formative Assessment in the Statistics Classroom

Friday, October 15 • 12:30 pm - 1:30 pm

One goal of AP Statistics teachers is to teach students how to communicate effectively. My AP reader experience has reinforced the importance of using formative assessments to develop communication skills. The FRAPPY assessment process, to gauge students' understanding and provide effective feedback, can be applied to any mathematics classroom.

The Algebra of Crop Circles: What Can a Mathematics Student Teach a Farmer?

Friday, October 15 • 2:00 pm - 3:00 pm

Using Google Earth, students can find fascinating examples of ways that farmers have tried to maximize the amount of land covered by irrigation circles. Use technology, including some computer algebra systems, to explore interesting mathematics, from pre algebra through calculus, grounded in a real problem-solving scenario.

Bring Recursion into Your Classroom with a Graphing Calculator

Friday, October 15 • 3:30 pm - 4:30 pm

Often students can provide the general term of a sequence with a recursive equation faster and with more understanding than by using the traditional approach. Use a graphing calculator to explore problems including the Tower of Hanoi, the Lions and Cages problem, and the Fibonacci sequence using recursive and traditional approaches.