

NCTM Annual Conference

Philadelphia, PA
April 25-28, 2012


Tech-Related Sessions

Work in progress. Edited: 4/7/12

Are you a speaker? Want to update your listing so it is included [here?](#)






Contact: ihor@clime.org and he will update it with your photo, blog links etc.

Session	Title/Speaker(s)	Description
5 Thu 8-9 Salon F-Marriott Downtown	Math Textbooks: Promise or Reality? Amanda Thomas and Barbara Reys	An iPad for every student? Hardbound textbooks a thing of the past? Digital textbooks seem to be all over the news lately, but what exactly is a digital textbook? This presentation will explore different types of digital mathematics textbooks currently available and discuss various models' and formats' benefits and limitations. Grade band: All audiences
29 Thu 8-9 Franklin Hall II - Marriot Downtown	Reasoning in a Calculator's Presence on the SAT Robin K. O'Callaghan and Andrew D. Schwartz	How can the SAT mathematics test engage students in reasoning and sense making in a calculator's presence? How does a calculator offer additional solution options for SAT questions? What have we learned about how students use their calculators on the SAT? Come hear the answers to these questions and more.
32 Thu 8-9 109 A/B (CC)	Investigating Technology's Effect on Students' Solutions Sirin Coskun	Examining technology's effect on students' problem solving, teachers must recognize how students' solution methods with dynamic software differ from their solutions with paper and pencil. Come explore the way technology changes students' thinking in solving algebra word problems. Grade Band: 9 to 12, Preservice and Inservice
33 Thu 8-9 Salon D (Marriott Downtown)	Solving Classic Problems Using Dynamic Mathematics Technology Lingguo Bu, Frackson Mumba and Mary Wright	Classic problems in school mathematics take on new dimensions when explored using new dynamic tools. Drawing on cases from several professional development projects, the speakers will discuss the processes of problem solving and posing and how dynamic technologies can enrich teachers' mathematical experience and didactical reflections.
34.1 Thu 8:30-9:30 118 B (CC)	Embracing the Common Core with Technology Mike Reiners (Casio) Exhibitor Workshop	Imagine a classroom where students take ownership of their learning! Through meaningful investigations, experience highlights of Casio's powerful PD program and Prizm technology that will inspire teachers to seamlessly implement best teaching practices and the common core into their classroom and empower students.
34.3 Thu 8:30-9:30 103 B (CC)	enVisionMATH Common Core: What Does Teaching through Mathematical Practice Look Like? Pearson Exhibitor Workshop	Through activities in this workshop, participants will develop an understanding of each of the Standards for Mathematical Practice and see how various types of learning tasks and questioning strategies can engage students in order to develop understanding and proficiency in mathematics. Grades: K-6
42 Thu 8:30-10 118 A (CC)	Extreme(Iy Fun) Challenges: Connecting Science, Technology, Engineering, and Mathematics (STEM) Melissa Higgins, Sharon Horrigan and Liz Parry	Participate in extreme engineering and math activities developed by classroom teachers and museum educators. Take a leap into parachute design and use your STEM skills. This hands-on, minds-on challenge will require participants to conduct experiments and work as a team in order to engineer a technology that can survive extreme environments! Grade Band Audience: 3 to 5







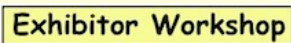
56 Thu 8:30-10 201 C (CC)	Fun Practice with the TI-84 Plus™ James A. Early and Neelia J. Jackson	Bored with the usual day-to-day, drill-and-kill practice? Learn how to use algebra applications on a TI-84 Plus to make practice fun and engaging. The focus will be on integers, rational numbers, and functions. Students won't want to leave math class. Apps are a tool that teachers can use to differentiate instruction while reviewing important content. Grade Band Audience: 6-12
58 Thu 8:30-10 Salon E (Marriott Downtown)	Powerful, Playful Pretzels Jan Gray	Discover how to use variously shaped pretzels as manipulatives to motivate students to learn mathematical concepts in algebra, geometry, trigonometry and precalculus. Participate in hands-on activities and games that appeal to students with diverse ability levels. Bring a graphing calculator, your imagination, and an appetite for fun. Grade Band Audience: 6-12
59 Thu 8:30-10:00 Ballroom A (CC)	Reasoning and Sense Making with Technology: Interactive Math Boxes Gail Burrill	Technology can be a productive tool for engaging students in activities that support the Common Core State Standards related to statistics and mathematical practices. Interactive math boxes and dynamic, interactive applets enable students to make sense of core concepts in statistics, from correlation to sampling distributions. Grades: 6-12
60 Thu 8:30-10 204 A (CC)	Designing Monte Carlo Simulations Using TI-Nspire™ Technology Natalie Jakucyn	How can you use technology to simulate the probabilities of the sum of three fair dice, that an airline will be overbooked, or of getting a sports trading card in a cereal box? Design Monte Carlo simulations using the TI-Nspire to explore these and several other neat applications. Some familiarity with TI-Nspire technology is suggested. Grades: 9-12
62 Thu 8:30-10 Salon G (Marriott Downtown)	Triangle Points of Concurrency: What's the Point? Tashana Howse and Mark E. Howse	Visualization plays a major role in understanding geometric concepts. Integrating technology fosters this understanding, offering visual images of mathematical ideas. Using Geogebra, engage in an activity that capitalizes on geometric intuitions by exploring the special points of a triangle. Grades: 9-12
69 Thu 9:30-10:30 114 (CC)	Guidelines for Choosing and Using Technology in the Mathematics Classroom Thomas P. Dick 	Technology can give powerful leverage for affording opportunities to learn mathematics, including real-world contexts and tasks requiring reasoning and sense making. The question "what does technology buy me," in the sense of new affordances created for learning and teaching, should guide us in choosing technology to use and implementing it well. Grades: All
74 Thu 9:30-10:30 123 (CC)	iLearn with iPad Donna Gee, Trey Smith and Jerita Whaley	This talk will demonstrate how teachers and students in upper elementary school math classes use the iPad. It will share apps used with students to learn math, with a focus on measurement, and for teachers to use in teaching. Examine, discuss, and share iPad apps and ideas for implementation with students to help motivate, engage, and learn. Grades: 3-5
80 Thu 9:30-10:30 Salon F (Marriott Downtown)	Math Talk: A Way to Build Students' Engagement Nancy Mueller and Margie Pligge	Math talks are quick routines that you can use in your classroom. Looking at a variety of math talks, you will be amazed by student's engagement and flexible mental math strategies. The speakers will facilitate math talks using Smart board technology, highlight connections to the Common Core State Standards, and analyze classroom video clips. Grades: 6-8
84 Thu 9:30-10:30 113 A (CC)	Building Digital Materials to Enhance Learning in Algebra Jennifer J. Kosiak, Heather Mathison and Bob Hoar	Come explore a free collection of digital learning objects for teaching algebra, including video podcasts, supplementary self-check problems, and tutorials for students. You will walk away from this multimedia presentation able to use free technologies to create these materials easily for your own classroom. Grades: 6-12
86 Thu 9:30-10:30 120 C (CC)	Connecting Teachers and Students through Skype Paul V. Buckley and Doug Tyson	Learn how to connect your class with others across the country through Skype and other free, Web-based technologies. Hear how a statistics class in D.C. collaborated in real time with classes in four other states. Through simple uses of current technology, your class can do the same. The speakers will offer examples of real lessons. Grades: 9-12

87 Thu 9:30-10:30 108 A (CC)	Fishing for Great Mathematical Explorations? Then "CAS"t a Bigger Net Donald T. Porzio	Computer algebra systems (CAS), when used appropriately, allow students to explore important mathematical concepts that they could not access easily without this technology. This session will present investigations that use CAS to connect algebra, geometry, and data. The speaker will offer classroom-ready handouts. Grades: 9-12
89 Thu 9:30-10:30 201 B (CC)	Exciting Activities with TI-Nspire™ for the Algebra 2 Brendan G. Kelly	This presentation will explore exciting activities for key topics in the standards for Algebra 2, such as baseball's power-speed number (rational equations), the time for pizza to cool (exponential and log functions), the Monte Hall Dilemma (probability), and several more. Receive handouts and a Web site for free TI-Nspire files. Grades: 9-12
90 Thu 9:30-10:30 Salon D (Marriott Downtown)	Resources for Constructing Application Problems and Using Spreadsheets Andrea Hendricks, Oiyin Pauline Chow and Todd Hendricks	The presenters will share Web resources for collecting real data that you can use for writing application problems for beginning to college algebra. They will share instructions for using Microsoft Excel to create charts, graphs, and trend lines. Get hands-on experience constructing your own application problems. Grades: 9 to 12
93 Thu 9:30-10:30 Salon H (Marriott Downtown)	3-D Modeling with Google™ SketchUp™ Mark A. Augustyn and Kathryn G. Shafer	Do your students confuse prisms with pyramids? Do they mix up slant height and shape height? Do they know where conic sections come from? Transform your classroom as you engage students with three-dimensional geometry. The speakers will share classroom activities that reinforce vocabulary, measurement, and visualization skills. Grades: 9-12 Grade Band Audience: <i>Preservice and Inservice, 9 to 12</i>
94 Thu 9:30-10:30 202 A/B (CC)	Sinuosity, the Crookedest Street in the World, Rivers, and $y = \sin x$ Ron Lancaster	Lombard and Vermont Streets in San Francisco are two of the most crooked streets in the United States. Use Sketchpad and Nspire to explore sinuosity, a ratio used to measure the crookedness of these streets, rivers, and $y = \sin x$. Connections to mathematical topics will include trigonometry, circles, distance between two points, and arc length.
95 Thu 9:30-10:30 Franklin Hall 5 (Marriott Downtown)	Connecting and Mentoring Beginning Teachers through Online Support Communities Nina R. Girard	Explore the effectiveness of online support communities to help mentor preservice or beginning teachers and encourage them to discuss, reflect on, and incorporate pedagogical theory into practice in their math classrooms. Discuss successful strategies for guiding these beginning teachers as they deal with their classroom challenges. Grade Band Audience: <i>Preservice and Inservice, Higher Education</i>
96 Thu 9:30-10:30 203 A/B (CC)	Using Mathematical Technology with Prospective Teachers to Develop Mathematical Practices M. Kathleen Heid	Interactive geometry, dynamic statistics, and algebra technologies create venues for engaging prospective teachers in the mathematical practices advocated in the Common Core State Standards. The speaker will offer examples of activities and research-based suggestions for using technologies to deepen engagement in these mathematical practices. Grade Band Audience: <i>Preservice and Inservice</i>
96.3 Thu 10-11 115 B (CC)	Math Upgrade: Elementary School Lessons Using Songs, Video, and Games Learning Upgrade LLC Exhibitor Workshop	Math Upgrade is an exciting alternative for elementary math success. Find out how teachers transform their classes using interactive whole class lessons and individual online courses. Join us for math, music, and fun! Grades: 3 to 5
100 Thu 10:30-12 Ballroom A (CC)	STEM Experiences for Elementary Students with the Mathematician's Notebook Tammy L Jones and Scott Eddins	Need a fresh approach to integrating a notebook in your classroom? See how the Mathematician's Notebook can change the way you teach mathematics and how your students learn and experience mathematics. The notebook becomes a dynamic place where language, data, and problem-solving experiences operate jointly to form meaning for the STEM student. Grades: PreK-5
101 Thu 10:30-12 Salon E (Marriott Downtown)	Games + SMART Board™: Formula for Learning and Fun Carolyn Belson and Sharon E. Huber	Involving students in learning is essential to success in math. Connecting games with the SMART Board creates a powerful tool to practice, apply, and reinforce math skills. Engage actively in games that promote learning and fun. Receive a CD of the games. Grades: 3-5






<p>103 Thu 10:30-12:00 PM 120 A/B (CC)</p>	<p>Resources for Using Virtual Manipulatives to Teach Fraction Concepts Katie Anderson, Arla Westenskow and Patricia Moyer-Packenham</p>	<p>Children often lack understanding when comparing fractions and identifying fraction equivalencies. Engage in technology-based activities, tried and tested in elementary school classrooms, that address common misconceptions with fractions. Examine students' work and receive copies of task sheets to use in your classrooms. Grades: 3-5</p>
<p>105 Thu 10:30-12 Franklin Hall 6/7 (Marriott Downtown)</p>	<p>SCRATCH Brings Math to Life Mary Q. Zocchi</p>	<p>Animation brings number sense, operations, geometry, integers, and Cartesian planes to life. SCRATCH, a new, free programming language from the Massachusetts Institute of Technology, helps ignite interest in science, technology, engineering, and mathematics and support the Common Core State Standards Mathematical Practices. Bring your laptop. Grades: 3 to 5</p>
<p>106 Thu 10:30-12 108 B (CC)</p>	<p>The Global Positioning System and Elementary Mathematics: Some Major Connections James E. Schwartz</p>	<p>The GPS is one of today's most high-tech systems. Although you all know what GPS devices can do, do you know how they work? Can you help children understand how they work? More important, can you use it to help children learn the required curriculum? Yes, yes, and yes will be your answers after you attend this presentation. Preservice and In-Service Gallery Workshop Grade Band Audience: Grades: 3 to 5</p>
<p>112 Thu 10:30-12 124 (CC)</p>	<p>Building Math: Integrating Algebra and Engineering in the Classroom Peter Y. Wong</p>	<p>Participants learn about Building Math, a supplemental program for middle schools. Three books—Everest Trek, Stranded!, and Amazon—each offer engineering design challenges in which the math guides the design. Participants work through two activities: one is hands-on, and the other uses agent-based simulation. Grades: 6-8</p>
<p>116 Thu 10:30-12 201 C (CC)</p>	<p>Walk the Talk: Pedometer Technology for Mathematics/Science Integration Jim Rye</p>	<p>Pedometer technology can drive inquiry-based learning that integrates mathematics and science. Engage in posing and answering questions through "feet-on" and "minds-on" activities that use pedometers and engage learners in measurement, data collection and analysis, and communication. Grades: 6 to 8</p>
<p>117 Thu 10:30-12 121 C (CC)</p>	<p>Beyond Pi: Helping Students Develop an Understanding of Irrational Numbers Margaret Coffey</p>	<p>Most students know pi is irrational, but some can't name any other irrational number, or explain why pi is irrational. The speaker will explore ways to describe irrational numbers. Then participants will work individually and in groups with geoboards, origami paper, and adding-machine tape to create models that make sense of irrational numbers. Grades: 6-8</p>
<p>120 Thu 10:30-12 201 A (CC)</p>	<p>Exploring Finite Differences through Multiple Representations of Functions Anne Papakonstantinou and Richard Parr</p>	<p>Explore finite differences to develop a deeper understanding of functions through hands-on activities and the use of graphing technology. Determine characteristics that make functions linear, quadratic, or exponential on the basis of finite differences. Discuss pedagogical implications for including such activities in your classroom. Grades: 9-12</p>
<p>122 Thu 10:30-12 Salon I/J (Marriott Downtown)</p>	<p>Illuminating the Standards for Mathematical Practice: Light It Up Linda K. Griffith</p>	<p>The NCTM Illuminations website is an excellent resource for lessons that promote the Common Core State Standards for Mathematical Practice. This presentation will use the website's Light It Up lesson to show how to accomplish this. Grades: 9 to 12</p>
<p>123 Thu 10:30-12 122 B (CC)</p>	<p>Investigations to Improve Students' Understanding of Limits and Derivatives Ken M. Collins</p>	<p>The speaker will describe investigations and explorations using a graphing calculator that he has found effective for helping students develop a real understanding of limits and derivatives. He will share copies of all the investigations and offer suggestions for developing similar ones and incorporating them into your class. Grades: 9-12</p>



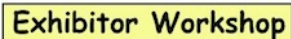
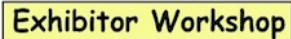
<p>126 Thu 10:30-12 Franklin Hall 9/10 (Marriott Downtown)</p>	<p>Identifying Appropriate Use of Technology in an Algebra Classroom Stephen F. Bismarck and Jeremy Zolkowski</p>	<p>The gateway to enhancing mathematics instruction with technology use is identifying technology's appropriate use. The speakers will present activities that demonstrate appropriate use of technology to promote reasoning. Participants will get several fruitful activities and gain knowledge of various types of technology, new and old. Grades: 9 to 12</p>
<p>128 Thu 11-12 Terrace Ballroom 2/3 (CC)</p>	<p>Breathing Life into Data and Chance with Tinkerplots 2.0 Cliff E. Konold</p>	<p>Choose: explore an example from the Common Core State Standards for Mathematics and see whether words in a grade 7 science book are generally longer than those in one for grade 4, or design and run a "factory" that makes virtual cats, use simulation to model a Georgia O'Keefe painting, and analyze real data to evaluate global-warming arguments. Grade Band: All</p>
<p>131 Thu 11-12 126 B (CC)</p>	<p>Can You Count Them for Me? Pamela A. Halpern</p>	<p>Come see and hear what children say as they read popular counting books that adults may identify as problematic. The speaker will present suggestions on how to use these books effectively with children and the role technology can play in the process. Leave with an evaluation instrument and a list of recommended books and activities. Grades: PreK to 2</p>
<p>132 Thu 11-12 117 (CC)</p>	<p>Formative Assessment of CCSS in Primary Grades John J. SanGiovanni and Kay Sammons</p>	<p>Informed instructional decisions derive from formative assessment. This session will focus on how to use formative assessment with the CCSS in the primary grades. Explore various tools for formative assessment, and receive print materials and ideas for using free technologies. Grades: preK-5</p>
<p>139 Thu 11-12 120 C (CC)</p>	<p>Dynamic Fractions in the Elementary School Classroom Janice Manning, Matt Silverman and Daniel Scher</p> <p></p>	<p>Experience the power of interactive Sketchpad 5 fraction tools that students use to build area models of any fraction, to divide and subdivide segments into equal parts, and to construct points on number lines at fractional locations. The presentation will feature videos of students, interactive examples, and classroom-ready activities. Grades: 3-5</p>
<p>141 Thu 11-12 108 A (CC)</p>	<p>Using an iPod App to Develop Computational Estimation Strategies Robert Q. Berry and Peter Malcolm</p> <p></p>	<p>The estimation calculator is an application for the Web, iPad, and iPod with which users must make a reasonable estimate prior to the calculator revealing the output. The application gives users visual feedback of estimates to computational problems. Interactions with the application support the development of computational estimation strategies. Grades: 3-5</p>
<p>142 Thu 11-12 121 B (CC)</p>	<p>Make It Move: Modeling Middle School Math with Technology Elizabeth DeCarli</p> <p></p>	<p>The Common Core State Standards ask students to "model with mathematics" and "use appropriate tools strategically." What does that look like in middle school? Use Sketchpad and TinkerPlots to explore geometry, probability, and statistics with dynamic models and representations, and help students ask "what if" questions about shapes and data. Grades: 6-8</p>
<p>143 Thu 11-12 107 A/B (CC)</p>	<p>Math Learning 2.0: New Vision for a Web 2.0 World</p>  <p>Ihor Charischak</p> <p></p>	<p>Come see examples of how Web 2.0 and dynamic math software can transform math learning and teaching. Experience activities that incorporate compelling software environments, including spreadsheets, interactive geometry, and Web applets that will help you engage students in gaining a deeper understanding of powerful mathematical ideas. Grades: 6-10</p> <p>Clime Connections blog</p>
<p>150 Thu 11-12 Franklin Hall 8 (Marriott Downtown)</p>	<p>Incorporating TI-Nspire™ CAS into an Inclusion Classroom Anna V. Panova</p>	<p>TI-Nspire with computer algebra system (CAS) can help struggling students learning a new topic understand the process without getting stuck with the calculations. The speaker will share strategies, specific activities, ready-to-use lessons. Participants new to CAS are welcome. Grades: 9-12</p>

<p>153 Thu 11-12 125 (CC)</p>	<p>The Intersection of Math, Music, and Technology</p>  <p>Mike Thayer</p> <p>LOR Strand</p>	<p>Students can now explore periodic functions and the musical concept of timbre easily with programs like Audacity, Mathematica, and GarageBand. The speaker will discuss how adding sinusoids together can simulate different instruments' sounds, and what makes real instruments sound the way they do. Come see a new way to integrate technology into math. Grades: 9-12</p> <p>Related Blog entry</p>
<p>154 Thu 11-12 Franklin Hall 11 (Marriott Downtown)</p>	<p>What? A Math Class That Is Not All Lecture? Heidi B. Hansen and Glen W. Richgels</p>	<p>This presentation will describe a standards-based, innovative mathematics class integrating algebra, statistics, and computer science. The course has been implemented with college and high school students who have struggled with mathematics. Grade Band Audience: 9 to 12, Higher Education</p>
<p>155 Thu 11-12 204 B (CC)</p>	<p>Reasoning and Sense Making with Technology Karen Hollebrands</p> <p>LOR Strand</p>	<p>Students have many opportunities to engage in reasoning and sense-making while learning mathematics and using technology. This session will highlight examples from NCTM's Focus on High School Mathematics: Reasoning and Sense Making with Technology. The speaker will demonstrate technological tools and discuss problems from various content areas. Grades: 9-12</p>
<p>158 Thu 1:00 AM-12:00 PM Salon F (Marriott Downtown)</p>	<p>Preparing Smart Teachers to Teach with SMART™ Technology Mary Lou Metz, Edel Reilly and Francisco Alarcon</p>	<p>Appropriate use of technology is an essential component of preparing preservice teachers to teach mathematics. The presenters will share lessons, activities, strategies, and tools they have used with the Smart Board in their work with preservice mathematics teachers in content, pedagogy, and technology courses. Grade Band Audience: Higher Education, Preservice and Inservice</p>
<p>158.2 Thu 11:30-12:30 113 B (CC)</p>	<p>Common Core State Standards (CCSS)–Aligned Mathematics for the Middle Grades Kendall Hunt Publishing Co.</p> <p>Exhibitor Workshop</p>	<p>Learn about Math Innovations, a middle grades curriculum in a digital format aligned to the CCSS focusing on reasoning, sense making, questioning, and mathematical discourse while increasing students' conceptual understanding, and about the interactive eBook and integrated learning tools—whiteboard activities, practice games, and more. Grade Band: 6 to 8</p>
<p>158.4 Thu 11:30-12:30 103 B (CC)</p>	<p>Pearson's New digits Program: Where Math Clicks! Pearson</p> <p>Exhibitor Workshop</p>	<p>Experience digits, the only middle grades math curriculum built for today's digital students with all Interactive Whiteboard lessons, online assessments, robust Rtl, and automatic grading and reporting. Find out how digits harnesses the power of technology to optimize your time and individualize their learning – both in and out of the classroom. Grades: 6 to 8</p>
<p>160 Thu 12:30-1:30 113 A (CC)</p>	<p>Effects and Affordances of Virtual Manipulatives on Students' Achievement Patricia Moyer-Packenham and Arla Westenskow</p>	<p>Studies show that virtual manipulatives have positive effects on students' achievement. Have you ever wondered why? This presentation will report results from a metaanalysis of virtual manipulative research. Connect research with your practice by exploring five unique, interrelated affordances with evidence that they promote students' achievement. Grade: All</p>
<p>163 Thu 12:30-1:30 204 B (CC)</p>	<p>Computers in Early Childhood: The Best of All Possible Worlds Julie Sarama and Douglas H. Clements</p> <p>LOR Strand</p>	<p>Technology use in grades pre-K–2 is increasing. The speakers will show how you can use it to provide the "best of all possible worlds"—the worlds of mathematics, physical models, and software models; of number, geometry, measurement, and patterning; and the appropriate, combined pedagogy in the worlds of activities, problem-solving, and tools. Grades: PreK-2</p>
<p>166 Thu 12:30-1:30 125 (CC)</p>	<p>Using Primary School Classroom Computer Gaming for Number Sense Ashish Amresh and Tricia Salerno</p> <p>LOR Strand</p>	<p>Enhancing classroom math using video games develops number sense. Involving gaming keeps students' engagement and motivation high. The speakers created the games from Singapore Math, because of its alignment to the Common Core State Standards. They will demonstrate social media that promote students' success further motivation. Grades: PreK-2</p>


169 Thu 12:30-1:30 Salon F (Marriott Downtown)	iPad, Smartboard and Website Use in the Elementary School Classroom Janice Novakowski 	The speaker will share different ways to embed technology use into a math program, including using Illuminations, iPads, and Smartboards. Technology use enhanced conceptual understanding and encouraged practice and communication amongst the students. Although most examples will be from a grade 3 classroom, some apply to grades K–7. Grades: 3-5
172 Thu 12:30-1:30 Salon H (Marriott Downtown)	Real Research on Virtual Manipulatives: Strategies for Using Mathematics Technology Jenna Edelman and Linda Hutchison	This session will demonstrate practical, research-based applications of virtual manipulatives in elementary school classrooms, emphasizing what research says about using virtual manipulatives and their impact on students' learning. Come learn strategies for integrating virtual and physical manipulatives into everyday instruction. Grades: 3-5
174 Thu 12:30-1:30 120 C (CC)	Making the Common Core State Standards (CCSS) Accessible with Technology Ronald Twitchell, Jodi Mantilla and Sheryl J. Rushton 	Teaching with technology isn't limited to graphing calculators. This session will focus on using free, Web-based tools (e.g., virtual manipulatives, Google docs, and wiki pages) to help students develop mathematical proficiency while exploring the CCSS domain progressions of number and operations —fractions (3–5) and the number system (6–8). Grades: 6-8
175 Thu 12:30-1:30 117 (CC)	Mobile Math: Promoting Inquiry- Based STEM Learning through Mobile Technology Jane A. Lundin and Julie Reinhart 	This engaging session will showcase how to create engaging, inquiry-based science, technology, engineering, and math (STEM) projects in the math classroom. Participants will learn how such projects can use mobile technologies, such as iPads and wireless probes. Grades: 3-5
178 Thu 12:30-1:30 108 A (CC)	Using Microsoft® Software to Illustrate Fraction and Decimal Concepts Estella P. De Los Santos 	The presenter will show how to use Microsoft Paint, Excel, and Draw programs to illustrate conceptual understanding of fractions and decimals. The students like to use the technology to learn abstract concepts such as adding, subtracting, multiplying, and dividing fractions and decimals using concrete models. Grades: 6-8
183 Thu 12:30-1:30 Ballroom B (CC)	The Ethics of Using Advanced Technologies in a CCSSM Environment Zalman Usiskin	Using computer algebra systems (CAS) and other advanced technologies raises ethical questions in classrooms. Is it fair for some students to have CAS when others don't? Is it ethical to prepare students with these technologies if they are not allowed on high-stakes tests? The speaker will discuss these and other ethical questions. Grades: 9-12
184 Thu 12:30-1:30 107 A/B (CC)	Ten Terrific Applets for Teaching Statistical Inference Daren Starnes 	Want to estimate an unknown population parameter? Decide if one experimental treatment is better than another? Examine whether an association between two variables is statistically significant? This presentation will look at ten dynamic applets for learning inference concepts, from the Common Core State Standards to AP Statistics. Grades: 9-12
185 Thu 12:30-1:30 121 B (CC)	Using Videos to Capture Data in Precalculus and Calculus Maria L. Hernandez 	The speaker will use videos as a data source for precalculus and calculus problems. Using LoggerPro, collect the data and explore a swing's motion and related rates. Handouts with questions and instructions, and Excel and movie files containing the collect data collected will be made available. Grades: 9-12
186 Thu 12:30-1:30 Terrace Ballroom I (CC)	An Overview of CCSSM-oriented Core Math Tools Christian Hirsch and Brin Keller	Core Math Tools, a suite of Java-based mathematical software, includes a computer algebra system; spreadsheet; and interactive geometry, statistics, and probability tools that support strategic technology use recommended in the CCSSM. The software is available free from NCTM at http://www.nctm.org/coremathtools . Grades: 9-12
189.3 Thu 1-2 103 B (CC)	Improving Student Success Through Better Engagement: MathXL® for School Pearson 	Through rich, multimedia resources, MathXL® for School allows teachers to focus on important aspects of teaching, such as measuring learning outcomes, while students receive a personalized learning experience with immediate feedback, interactive learning aids, and practice, practice, practice! NEW - Alignment to Common Core State Standards! Grades: 6 to 12

190 Thu 1:00-2:30 121 C (CC)	Connect Tactile and Technology Tools for Early Learners, Grades Pre-K–2 Aldo Bacallao	This make-and-take involves interactive games for numeracy, model making for capacity, and multiple representations for number sense. Implement new ideas developed from recent brain research on how children learn. As you power up and power down, this presentation will balance new developments in tactile learning with technological innovations. Grades: PreK-2
198 Thu 1:00-2:30 108 B (CC)	Integrating Technology and Literature into the Mathematics Classroom Adam Goldberg and Maria Diamantis	Come get engaging, hands-on activities to bring back to your students. Examine ways to integrate technology and literature effectively into the classroom. All activities have been field-tested and are appropriate for elementary school students and preservice teachers candidates. Participants will receive an extensive bibliography. Grades: 3-5
202 Thu 1:00-2:30 Salon G (Marriott Downtown)	SMART Boards™: Connect Manipulatives, Discovery, Understanding, and Students' Total Involvement Paul Lawrence	Love interactive whiteboards but concerned about passiveness? Attend this session! Become engaged in, and leave with, files for simulated manipulatives; problem solving; interactive, conceptually based templates; games for differentiation; and techniques to create them all. Topics will include fractions, decimals, multiplication, and transformations. Grades: 3-8
206 Thu 1:00-2:30 121 A (CC)	Dynamic Data and Probability Modeling in the Middle Grades Jocelyn Van Vliet	Delve into the middle school Common Core State Standards for statistics and probability using hands-on explorations and TinkerPlots. Through a series of activities exploring variability, modeling and simulating data, and investigating probability and sample spaces, learn ways to engage students in answering statistical questions. Bring a laptop. Grades: 6-8
208 Thu 1:00-2:30 103 C (CC)	Engaging Activities for Your Classroom: Technology in Middle Grades Mathematics Ruth Casey and Margaret A. Bambrick	Come see how to use wireless slates, motion detectors, TI-Nspire handhelds, Internet resources, software, and TI-Navigator to investigate patterns and relationships that lead to understanding of algebraic concepts. The speakers will show ways to engage all learners using manipulatives and technology for instruction and assessment. Grades: 6-12
210 Thu 1:00-2:30 Salon E (Marriott Downtown)	Getting to the Core of Algebraic Thinking Using Virtual/Physical Manipulatives John F. Thomson	Engage in hands-on activities using both virtual and physical manipulatives to explore the connections between algebra and geometry. The speaker will use technology to integrate interactive virtual and physical manipulatives to discover basic algebraic concepts, and he will share those discoveries and articulate them in algebraic terms. Grades: 6-12
211 Thu 1:00-2:30 118 A (CC)	Helping At-Risk Students Visualize Mathematics through Technology James W. Kearns	At-risk students struggle to visualize math concepts. Using graphing software and an interactive whiteboard, the presenter will show how the technologies enhance students' understanding of algebra and geometry topics. These activities, professional development, and technology access helped the presenter's district earn state and national awards. Grades: 6-12
214 Thu 1:00-2:30 Franklin Hall 3/4 (Marriott Downtown)	Conics: Connecting Paper Folding to TI-Nspire™ Handheld Tools Arthur T. Mabbott	Develop a deeper understanding of the definition of parabolas, ellipses, and hyperbolas with paper folding. Discover that what looks like each conic section is really the "envelope" of tangent lines. Find where the loci of points actually are, mimic the same actions on the TI-Nspire, and compare and contrast the ellipse with the hyperbola. Grades: 9-12
216 Thu 1:00-2:30 Franklin Hall 1 (Marriott Downtown)	Tactile Trigonometry: A Hands-On, Technology-Focused Approach Ingrid J. Williams and Amy F. Gersbach	Radian Reeses? Spaghetti sine curves? Cosine tide patterns? Come experience new approaches to presenting trigonometry topics from radian measurement and right triangles to graphs and the law of sines. Go back to school on Monday ready to reach a classroom full of diverse learners using hands-on labs and technology-based projects. Grades: 9-12
219 Thu 1:00-2:30 116 (CC)	Using Students' Misunderstanding to Deepen Teachers' Understanding Patsy Wang-Iverson	Collaboratively discussing students' errors and misunderstandings can lead to richer, deeper understanding of mathematics for both students and teachers. The speaker will (1) work on a problem presented to students and (2) examine the research lesson plan and revisions made following postlesson discussions. Grade Band Audience: <i>Preservice and Inservice</i>

220 Thu 2:00-3:00 Salon F (Marriott Downtown)	Improving Assessment, Inquiry with Technology: TI-Nspire™ CX CAS and SMART™ Sean Bird	Experience the latest interactive handheld learning tool. Hear about inquiry learning resources from NASA, Texas Instruments, and publishers focused on improving high school math instruction. See how to use the TI-Nspire CX Navigator with interactive whiteboards for formative assessment or review and preparation for high-stakes tests. Grades: All
221 Thu 2:00-3:00 Terrace Ballroom 2/3 (CC)	Technology in Mathematics Is More than a Calculator Johnny W. Lott	Electronic games, the Internet, cell phones, Ipads, and other technologies are common to students. Even with multiple sets of standards, teachers must consider how to use different forms of technology and how their students are using this technology. The real question is are you as a teacher ready to deal with today's technology in the classroom? Grade Band Audience: General Interest/All Audiences
222 Thu 2:00-3:00 120 C (CC)	I.M.P.A.C.T. (Inexpensive Math Projects All Children Touch) Math Kimberly D. Mueller 	Have you ever gone math bowling? Ever do the ice cube shake? How about played popsicle math? These easy, hands-on, inexpensive math projects, plus many more, will have your students asking for more. Learn how to integrate technology, and receive practical, creative ways to reach your students. Grades: PreK-2
226 Thu 2:00-3:00 121 B (CC)	Online Resources Connecting Home and School for Math Sense Making Marianne V. Strayton and John Calvert 	This session will focus on specific, Common-Core-aligned Web resources for math instruction and share how a classroom teacher and technology learning facilitator have placed these tools at students', parents', and teachers' fingertips. The speakers will highlight resources that provide sense making for math concepts and support various learners. Grade Band Audience: PreK to 2, 3 to 5
227 Thu 2:00-3:00 126 B (CC)	Teaching as Design: Reprofessionalizing Elementary School Mathematics Teachers Jonathan E. Schulz and Susan A. Schulz 	Math teaching's mounting challenges—increasingly rigorous standards, Response to Intervention, high-stakes testing—require a shift in approach to planning and teaching. Teachers must be active decision makers instead of program implementers, using textbooks as tools to meet their goals. Teaching as design can help, and it's easier than you think. Grades: PreK-5 Session
229 Thu 2:00-3:00 108 A (CC)	Using Technological Probes to Enhance Mathematical Learning in Early Grades Sandi Cooper and Ellen Wiech 	Probes to measure temperature, light, motion, and more, with connection to a computer and user-friendly software, can open the doors to some exciting opportunities for elementary school children to use math skills to learn more about science. Come learn more about various probes, how they can enhance math learning, and how to connect children's literature! Grades: 3-5
235 Thu 2:00-3:00 125 (CC)	Virtual Manipulatives = Big Impact on Math Learning Deficits Debbie Gochenaur and Kelly Kozain 	Utilizing virtual manipulatives can empower students with disabilities that negatively impact their progress in a math class and help those students to succeed with little additional teacher preparation time required. Specific virtual manipulatives, as well as the targeted learning deficits that each addresses, will be discussed. Grades: 6-8
236 Thu 2:00-3:00 Salon H (Marriott Downtown)	Modeling and the Common Core: Pythagoras on a Virtual Geoboard Suzanne Hossler	Modeling is a crucial component of the CCSS; the Pythagorean theorem is one of the most important discoveries in mathematical history. Help Pythagoras live with Smart board technology and a virtual geoboard This rich instruction unit is guaranteed to be full of "ahas." Grades: 6-8
238 Thu 2:00-3:00 201 B (CC)	The Common Core: A Challenge and an Opportunity Eric Milou	Little doubt exists that implementing the CCSS poses a great challenge to all. We can view this challenge as an opportunity to improve mathematics instruction. This session will demonstrate strategies, activities, and technology that can enhance teaching and learning rational numbers and algebra. Grades: 6-8
239 Thu Thu 2-3 107 A/B (CC)	Eliciting Mathematical Reasoning with Digital Tools: Engaging Students and Teachers Mark W. Ellis	Learn how to use digital tools—podcasts, interactive applets, and collaboration sites—to engage diverse students, including English learners, in making sense of mathematics and sharing their mathematical reasoning. Receive activities and work samples with resources to transform your practice with new technologies. Grades: 6-12

240 Thu 2:00-3:00 Salon C (Marriott Downtown)	Learn to Love Polynomials through Colorful Visualizations of Polynomiography Bahman Kalantari and Bob Mann	Through a unique software called Polynomiography, grades K–12 teachers and students discover a fantastic, very powerful, easy-to-use medium where visualizing polynomial equations not only creates beautiful and diverse artworks, but also leads to discovering mathematical concepts and creative ideas. Polynomials turn into objects of desire. Grades: 9-12
241 Thu 2:00-3:00 204 B (CC)	Mathema-Tech: Great Ways to Use Technology in the Mathematics Classroom James J. O'Keefe 	This presentation will overview emerging technologies for teaching middle and high school mathematics—digital data collection tools, iPad Apps, open-source and low-cost software, and the new, exciting FluidMath system that converts your handwriting to dynamically linked equations, graphs, and tables. Grades: 6-12
243 Thu 2:00-3:00 123 (CC)	More than a Crutch: Connecting Functional Representations Using Graphing Calculators Janet R. Tomlinson and Suzanne Mathis	Are students making connections among multiple representations of functions from paper to calculator or vice versa? Or are they just punching buttons? How do we know? This presentation will explore these questions and will discuss interventions for helping students make explicit connections. Bring your graphing calculator. Grades: 9-12
245 Thu 2:00-3:00 117 (CC)	Tag! Using Technology to Address Understanding in Algebra and Geometry Trena L. Wilkerson and Rachelle D. Meyer 	From maximizing soda-can packaging to generating algebraic equations describing community resources from digital images, engage in real-world, problem-solving tasks that connect algebra and geometry through technology. Technologies will include Ti–Nspire graphing handhelds, digital cameras, and interactive geometry software. Grades: 9-12
246 Thu 2:00-3:00 Franklin Hall 8 (Marriott Downtown)	Archimedes' Quadrature of Parabola: Algebraic and Technology Versions Gunhan Caglayan	This presentation will offer methods of solving a parabolic quadrature, the area bounded by a parabola and the x-axis, using Archimedes' ideas of infinite area sums and limits. The algebraic version derives from a parabolic segment's dissection into many triangles. The technology version uses an exploratory approach with The Geometer's Sketchpad. Grades: 9-12
248 Thu 2:00-3:00 122 A (CC)	Preparing Teachers to Teach Mathematics with Technology Kay A. Wohlhuter	This presentation will describe a course designed to prepare grades 5–12 teachers to teach mathematics with technology. Bring your questions and ideas for helping teachers work with mathematics software, applets, and calculators. Grade Band Audience: <i>Preservice and Inservice, Higher Education</i>
250 Thu 2:00-3:00 119 A (CC)	Supporting Preservice Teachers in Practicing Instructional Explanations Using Free Technology Ellen Clay and Valerie Klein	Teacher training programs rarely offer practice explaining mathematical concepts. Who has time to listen to 30 students explain the same idea? Using online learning environments and screencasts, preservice teachers can practice, critique, revise, and improve explanations while solidifying content knowledge. Grade Band Audience: <i>Preservice and Inservice</i>
250.1 Thu 2:30-3:30 115 B (CC)	Smiles of Success for Students, Parents, and Teachers: Britannica Smartmath! Britannica Digital Learning 	Engage in a lively, interactive demonstration of Web-based practice and assessment for elementary school students. Move students toward computational fluency while using tools that allow teachers to differentiate, assess, track, and evaluate in real time. Students enjoy doing math at home or in the classroom. Grades: PreK to 5
250.2 Thu 2:30-3:30 118 B (CC)	Common Core Print Books Are Now Interactive American Book Company 	Presenting engaging and dynamic resource content to increase success on ACT and Common Core testing. Join us to see how our Common Core books become interactive on your Android devices, iPhones, iPads, SMART Boards, and Promethean Boards using our Augmented Reality technology. Grades: 3 to 8

250.3 Thu 2:30-3:30 113 B (CC)	Financial Algebra: A 3rd/4th Year Math Course Cengage Learning Exhibitor Workshop	Financial Algebra is a comprehensive learning program aligned to the Common Core State Standards. It is an applications-rich, algebra-based, technology-oriented program that incorporates mathematical skills from Algebra 2, Precalculus, Calculus, Probability, and Statistics in real-world contexts. Grade Band Audience: 9 to 12
251 Thu 3:00-4:30 Salon E (Marriott Downtown)	Developing Algebra, Number Sense, and Geometry through NCTM's Free E-Examples Sarah Marie DeLeeuw	Make your classroom come alive while developing algebra, number sense, and geometry concepts through NCTM's E-examples. From geoboards and tangrams to hundreds boards and interpreting graphs, the newly revised, interactive e-examples offer online resources that demonstrate important topics in classrooms and for students to explore on their own. Grade Band: PreK-2
256 Thu 3:00-4:30 108 B (CC)	Developing Early Numeracy Concepts: Visual Models, Manipulatives, and Literature Books Karen A. Boreman	Teachers lay the foundation for developing number sense in prekindergarten through grade 2. Teachers' knowledge of the essential early number concepts is crucial for developing and facilitating students' learning. Develop concept knowledge through activities using manipulatives, calculators, and connections to literature. Grade Band: PreK-2
259 Thu 3:00-4:30 115 A (CC)	Bring Math Alive with Livescribe Joan Tellish, Sorsha Mulroe and Jennifer Stairs	See how using a Livescribe pen to develop student's communication skills plays an important role in implementing the eight Common Core mathematical practices. This session will focus on students' engagement, formative assessment, center use, parental communication, and professional development opportunities. Grade Band: 3-5
260 Thu 3:00-4:30 105 A/B (CC)	Using Appropriate Tools in Elementary Math: From Physical to Virtual Karen M. Greenhaus	Learn how to engage and extend understanding by using appropriate tools for learning elementary school mathematics concepts. Starting with physical models, extend and expand understanding through virtual models made with Sketchpad. Find out how to make elementary school math accessible to all students. Grade Band: 3-5
262 Thu 3:00-4:30 Salon A/B (Marriott Downtown)	L.E.A.P. into SMART Notebook™: Lessons, Explorations, Activities, Play Ginalouise Pflanz, Anna LaForgia and Wendy Nelsen	Are you using your SMART board to its full potential? Learn how to create games and lessons that can enhance your teaching and address both content and process standards. Explore the gallery items, math tools, and basic functions of SMART notebook software. Leave with a CD of game templates and lesson ideas you can use on Monday. Grade Band: 3-8
265 Thu 3:00-4:30 118 C (CC)	Common-Core, Nspired Probability and Statistics Activities for Middle School Denny St. John	Participants will explore several Nspire-based investigations dealing with the middle grades Common Core State mathematics standards for probability and statistics. Grade Band: 6-8
273 Thu 3:00-4:30 201 C (CC)	Calculus Applications of Real NASA Data Introduced Using 2012 Technology Natalee Lloyd and Paulette Granger	Use application problems, developed by the National Aeronautics and Space Administration (NASA), to help calculus students develop and reinforce knowledge and skills necessary to succeed in college. Work with these applications hands-on and familiarize yourselves with the TI-Nspire technology that some of the available material uses. Grade Band: 9-12
274 Thu 3:00-4:30 113 C (CC)	Combining Students' Work through Wireless Connectivity to Form New Functions Sara K. Dalton, Stephen J. Hegedus and Cathleen Marchessault	Use networked technology to enable students to build quadratic functions where each group member controls a different coefficient up front, independently and collectively. A surprise arises when they combine functions by addition, creating a new function. The speakers will promote connections, communication, and reasoning across representations. Grade Band: 9-12
276 Thu 3:00-4:30 122 B (CC)	Transforming Quadrilaterals and Their Changing Diagonals Charlene Keen	Make two classroom models that demonstrate the changing relationships between diagonals, angles, and sides as a quadrilateral transforms from parallelogram to rectangle or rhombus to square. The speaker will conduct a hands-on lab, discuss applications in vocational fields, and extend ideas using The Geometer's Sketchpad. Grade Band: 9-12

277 Thu 3:00-4:30 111 A/B (CC)	Induction, Recursion, and Modular Arithmetic with the TI-89 CAS Handheld Jay L. Schiffman	Technology enhances the concepts of induction, recursion, and modular arithmetic. Generate the Fibonacci and Lucas sequences and form conjectures on their divisibility and periodicity. Explore induction and modular arithmetic to furnish proofs, and witness the blending of number theory and technology. Grade Band: 9 to 12
278 Thu 3:00-4:30 103 C (CC)	Merging History and Technology: Immersive Strategies for Solving Cubic Polynomials Frederick W. Sakon, Angelina Kuleshova and Christopher G. Thompson	To illustrate novel instructional strategies, the speakers will actively guide participants in using history and technology to solve cubic polynomials. They will incorporate multiple representations and technological advances that help students visualize cubics. Rich discussion of historical development will connect to pedagogical knowledge. Grade Band: 9-12
283 Thu 3:30-4:30 204 B (CC)	Learn↔Reflect Reflection Session NCTM Professional Development Service 	This culminating session for those who attended the Learn↔Reflect sessions will be a facilitated discussion of the four reflection questions. [Link] Grade Band: All
291 Thu 3:30-4:30 202 A/B (CC)	A Dynamic Number Approach to Multiplication Kristen Johnson, Maryann Milewski-Moskal and Scott Steketee	Come learn about the experiences of two classroom teachers who implemented a new, technology-based approach to teaching multiplication that focuses on understanding, engagement, and mastery. Examples will feature classroom and interview videos, interactive examples from The Geometer's Sketchpad, and the new Bunny Times iPad app. Grades: 3 to 5
292 Thu 3:30-4:30 Salon H (Marriott Downtown)	Model and Solve Word Problems with Thinking Blocks Colleen King and Kathleen McClaskey	Learn how to model and solve a variety of math word problems with Thinking Blocks, a freely available, online resource. The speakers will present detailed examples, share actual classroom results, and demonstrate how to use Thinking Blocks to implement the Common Core Standards for Mathematical Practice. Grade Band: 3-5
293 Thu 3:30-4:30 Franklin Hall 2 (Marriott Downtown)	Constructivist Cautions: Promoting Concept Development with Computers and Manipulatives Roger P. Johanson	How do children learn math meaningfully with teachers' help? NCTM's standards embrace constructivism, but teachers naturally tend toward telling. The speaker will review constructivist environments, Illuminations and National Library of Virtual Manipulatives applets, and novel manipulative use, and offer teaching suggestions and cautionary tales. Grade Band: 3 to 5
294 Thu 3:30-4:30 125 (CC)	Fractions Talks That Strike a Chord with Students Arjan Khalsa	Engage your classroom in meaningful discussion about fractions where music, art, and community are the center of the action. Experience 10 math talks featuring musical performance, motivating topics, hands-on manipulatives and free, online technology. Help students discover the true joy in mastering the math that lies within favorite activities. Grade Band: 3-8
297 Thu 3:30-4:30 Franklin Hall 8 (Marriott Downtown)	Learning Algebraic Generalization with eXpresser Anna E. Baccaglioni-Frank	This talk will present eXpresser software, in which tasks involve the interpreting and constructing dynamic patterns. The system helps students aged 11–14 go beyond such patterns, grasp the relevance of mathematical generalizations, and move from the specific to the general, a fundamental way of mathematical thinking. Grade Band: 6-8
301 Thu 3:30-4:30 115 C (CC)	Flip-Flop Teaching with Screencasts S. Leigh Nataro	Are you teaching an infinite loop of “spend extra time reviewing homework, run out of time for the new lesson, modify homework, repeat?” Learn how to create free screencasts to flip-flop your teaching. Students view the lesson at home and do the “homework” problems in class. This method allows more higher-level thinking to occur. Grade Band: 6-12
302 Thu 3:30-4:30 Terrace Ballroom 1 (CC)	Robots, Speed Circles, and Proportions: Empowering Mathematics with Technology Ricky C. Carter	Mathematics Meets Robot Programming is a sample whole-class, interactive, technology-supported lesson that integrates math tools into a robotics investigation. Students use tables, plotting points, function machines, equations, graphs, and dynamic variables to determine scaling factors that allow them to drive a robot around circles at any speed. Grade Band: 6-12

303 Thu 3:30-4:30 109 A/B (CC)	Simulations as a Tool for Reasoning about Probability and Statistics Hollylynn Stohl Lee, Tina Starling and Marggie Gonzalez	Learn about using various technology tools to conduct simulations to investigate probability and statistics tasks. Discuss building a model, conducting large samples, and visualizing dynamic graphs as ways to promote reasoning among students. The speakers will share classroom scenarios. Bring your favorite technology, and engage in the fun. Grade Band: 6-12
308 Thu 3:30-4:30 Franklin Hall 5 (Marriott Downtown)	Accessing the Mathematics behind Calculator-Generated Linear Regression Lines Laura M. Bristol and Bethany A. Noblitt	Opportunities that students have to create lines of best fit usually include sketching lines and using graphing technology. Do students who understand linear functions need to wait until calculus to look more deeply into the mathematics behind calculating the least-squares regression line? The speakers think not. Grade Band: 9 to 12
309 Thu 3:30-4:30 120 C (CC)	Asking Better Questions Using Graphing Technology Daniel R. Ilaria	This session will demonstrate how using graphing technology can help teachers meet the Common Core State Standards (CCSS) of mathematical practice. Mathematical practice, as outlined in the CCSS, can be a framework for teaching content. Receive sample classroom activities showing how to engage students in higher-order thinking with technology. Grade Band: 9 to 12
310 Thu 3:30-4:30 117 (CC)	Technology-Enhanced Mathematics and Statistics Education Ivo D. Dinov and Nicolas Christou	The Statistics Online Computational Resource (http://www.socr.ucla.edu) develops, validates, and disseminates portable, online resources for probability and statistics education, technology-enhanced instruction, and statistical computing. SOCR resources include integrated and multilingual applets, computational and graphing tools, activities, and e-books. Grade Band Audience: Higher Education
328 Fri 8-9 Ballroom B (CC)	Exploring Middle Grades Geometry Using Google SketchUp® Suzanne R. Harper and Shannon O. S. Driskell	Learn about the basics of Google's free, 3-D geometry software and a variety of classroom-ready explorations on cross-sections and scaling. The speakers encourage bringing a laptop with Google SketchUp downloaded (http://sketchup.google.com) so you can participate actively in the presentation. (BYOD) Grade Band: 6-8
329 Fri 8-9 Franklin Hall 11 (Marriott Downtown)	Using the iPod Touch in Collaborative Math Activities Timothy W. Pelton and Leslee Francis Pelton	The iPod Touch and other iOS devices are wonderful tools for supporting data collection and math investigations. The speakers will share a collection of iOS apps that explore mathematics or integrate it with other subjects in collaborative learning activities, along with lessons learned from using these in middle school classrooms. Grade Band: 6 to 8
339 Fri 8-9 115 C (CC)	Using Fathom to Develop Linear Regression and Residual Plots Timothy Pope	The Common Core State Standards requires using technology to find correlation coefficients and least-square lines. Learn how to use software so that students see technology not as a magic box, but as a tool for developing a conceptual understanding for finding least-squares lines, finding correlation coefficients, and creating residual plots. Grade Band: 9 to 12
340 Fri 8-9 125 (CC)	Problem Solving and Critical Thinking in Online Teaching Eileen Fernandez	This presentation will introduce a model for online mathematics teaching that supports students' ability to work independently and makes opportunities for critical thinking. The model includes materials based on transactional reading strategies, interactive podcasts, YouTube videos for technology instruction, and online teaching sessions. Grade Band: 9 to 12
341 Fri 8-9 Salon D (Marriott Downtown)	Differential Equations Made Visual through Modeling with Matlab Simulink Benjamin Wiles and Casey Hord	Matlab Simulink creates a graphical, interactive representation of almost any real-life situation for easy experimentation, constructing a diagram of the problem and solving it numerically. The speakers will give an entry-level tutorial and construct models with attendees. Several take-home modules will be available. Grade Band: Higher Education
343.1 Fri 8:30 AM-9:30 AM 115 B (CC)	Engaging Your Math Students through Online Interactive Learning! Perfection Learning Exhibitor Workshop	Comprehensive Common Core digital math textbooks from Kinetic Books take maximum advantage of current technology. Through many interactive activities, digital stimulation with narrated instruction, self assessment, and problem solving support, Kinetic Books allow teachers and students to realize the promise of a digital learning environment today. Grade Band: All

343.2 Fri 8:30 AM-9:30 AM 118 B (CC)	Simply Calculate the Difference! Casio Exhibitor Workshop	Presented by: Amber Branch. Technology that grows with students as they advance through mathematics! Explore Casio's redesigned, seamless and intuitive fraction & scientific calculators, from Elementary to Engineering! Our patented Natural Display removes technological barriers to learning - giving Educators what you need, when you need it! Grade Band: All Audiences
343.3 Fri 8:30 AM-9:30 AM 103 B (CC)	Focus on Mathematical Practice: Seven Teaching Actions to Enrich Problem-Based Interactive Learning Pearson Exhibitor Workshop	We all agree that asking students to "think harder" doesn't work. Instead, incorporate seven effective teaching actions to create rich classroom conversations and develop conceptual understanding. Experience how to use tablet technology to amplify envisionMATH Common Core Problem-Based Interactive Learning in daily your instruction. (K-6) Grade Band: K-6
343.4 Fri 8:30 AM-9:30 AM 113 B (CC)	One Giant Leap for Mathkind: TI-Nspire™ Excites Students & Transforms Learning Texas Instruments Exhibitor Workshop	See why TI-Nspire makes student interest skyrocket. TI-Nspire CX technology brings math & science to life with a full-color display, interactive touchpad, photos & images, real-time data collection, and multiple representations on a single screen. The TI-Nspire™ CX Navigator™ system lets you see what every student is thinking and doing at any time! Grade Band: 6 to 12
348 Fri 8:30-10 Salon A/B (Marriott Downtown)	To 10 and beyond Using Free Illuminations Resources Julia Zurkovsky	Ten fingers, 10 toes, 10 digits—learning why ten is so special is a key to learning early math concepts! Explore and enjoy a variety of ready-to-use resources and games about pairs adding to 10, place value, and operations on two-digit numbers. Best of all, everything is available free from the NCTM Illuminations project (illuminations.nctm.org). Grade Band: PreK-2
358 Fri 8:30-10 Franklin Hall 12/13 (Marriott Downtown)	Probabilistically Correct: Simulations and Games That Build Intuition Dovie Kimmins and Jeremy J. Winters	Engage in probability simulations and games that can be implemented immediately in the classroom. These fun, motivating activities help students build intuition about probability. Make connections to technology and other disciplines. Grade Band: 3 to 8
359 Fri 8:30-10 Salon G (Marriott Downtown)	Infusing Technology into the Classroom with Texas Instruments and Friends Vanessa R. Wimberly and Gloria R. Facey	This hands-on workshop will lead you in step-by-step instructions that guide you and your students to a new level of mathematics and science synergy, conceptual knowledge, and real-world application. Students will be amazed when they make connections between textbook content and everyday life as they participate in these activities. Grade Band: 6-8
361 Fri 8:30-10 108 B (CC)	Building Lessons for All Students Edward C. Nolan	Develop lessons to meet the needs of your classroom's wide range of students. Examine strategies in many different aspects of lesson development, including design, multiple entry points, questioning, activity selection, assignment choice, technology, and assessment. Discuss how to get all students engaged and learning mathematics. Grade Band: 9-12
363 Fri 8:30-10 116 (CC)	Geogebra's Interactive Graphics and Spreadsheets Edward M. Knote and Evonne H. Pankowski	Welcome to the GeoGebra movement, driven by free, interactive mathematics software. See how GeoGebra can transform your classroom into a room full of visualization and in-depth learning. The speakers will dive into the past, present, and future of GeoGebra, using its many algebraic, geometric, and statistics tools. Grade Band: 9-12
365 Fri 8:30-10 Salon E (Marriott Downtown)	Teaming Technology with Financial Literacy: Capturing Students' Interest Susan Brooks and Brooke A. Lancaster	Motivating students to achieve personal success in mathematics is a teacher's ongoing concern, because many students shut down when faced with challenges. See how, through differentiated technological activities, diverse learners can use technology to learn the basics of financial literacy. Handouts will be included. Grade Band: 6-12
366 Fri 8:30-10 Franklin Hall 9/10 (Marriott Downtown)	Tools? Toys? Technology? Engaging Students in Algebra Sara Delano Moore	How do manipulatives and interactive whiteboard (IWB) technology affect teaching algebra? How can we integrate these resources effectively into mathematics instruction? Where do virtual manipulatives fit? Learn about the research behind these models of instruction and strategies for integrating manipulatives and IWB tools into your algebra class. Grade Band: 6-12

371 Fri 8:30-10 119 B (CC)	Using Technology to Develop Statistical Thinking: Understanding Distributions Roxy Peck	Thinking about data as distributions rather than isolated data points is key to students' understanding of statistical inference. This gallery workshop will focus on how to use technology to develop students' distributional thinking. Engage in activities suitable for classroom use. Grade Band: 9-12
372 Fri 8:30-10 204 C (CC)	Making Sense and Modeling Mathematics: Common Core with TI-Nspire Technology Jeremy Zolkowski and Stephen F. Bismarck	The CCSS increases modeling expectations. Focus on making sense hands-on of two mathematical topics through modeling with TI-Nspire technology and its teacher edition software. Navigator will engage participants and demonstrate advantages of wireless classrooms. Grade Band: 9-12
375 Fri 9:30-10:30 Terrace Ballroom I (CC)	Euclid's Elements: An Interactive Geometry Perspective Nicholas R. Jackiw Personal page	Modern tools, like Sketchpad, and modern applications, like fractals and computer graphics, have revitalized school geometry. Yet "the most famous textbook ever," Euclid's Elements, has dominated geometry's development for millennia. Take a fresh look at the book's mathematical and cultural impact from our current, technology-rich perspective. Grade Band: Highlighted Presentation
380 Fri 9:30-10:30 115 C (CC)	Using Research in Mathematics Educational Technology to Guide Classroom Teaching Robert N. Ronau, Christopher R. Rakes and Sarah B. Bush	This session will present results from a systematic, comprehensive review of 1,786 manuscripts related to using educational technology in mathematics education. The speakers will discuss the effect of specific types of technology on student s' mathematical learning. They will show how to evaluate and use research to guide classroom practice. Grade Band: All Research Session
384 Fri 9:30-10:30 108 A (CC)	Mathematical Practices in Action: Using Video-Supported Professional Learning Communities Juli K. Dixon	The mathematical practices are crucial to achieving a depth of understanding, but what teaching to the mathematical practices looks like remains elusive. Explore classroom-tested examples as a foundation for professional learning communities, using videos to support the process, and learn how you can facilitate the practices in your classroom. Grade Band: PreK-5
387 Fri 9:30-10:30 Franklin Hall 8 (Marriott Downtown)	Combining Movie Making and Math with the Reel Math Challenge® Kristen L. Chandler	Through the free Reel Math Challenge, MATHCOUNTS provides a way for students to produce creative videos demonstrating solutions to challenging math problems, share them online, and see how their videos measure up to others. Receive overviews of this new program, the MATHCOUNTS competition program, and the free club program. Grade Band Audience: 6 to 8
390 Fri 9:30-10:30 109 A/B (CC)	Using Geographic Information Systems to Teach Mathematics for Social Justice Jacqueline Leonard and Robert M. Hobbs	We can use GIS to examine resources and cultural capital found in certain communities. For example, some communities have more grocery stores, libraries, and parks than others. Having access to goods and services is a social justice issue. The presenter will use GIS to show mathematics teachers how to create lessons that examine such resources. Grade Band: 6-8
391 Fri 9:30-10:30 125 (CC)	Using Technology to Construct the Definition of Similarity George J. Roy and Farshid Safi	Middle school students often define similarity as "same shape, different size," a definition that can limit a more conceptual understanding of this important geometric concept. This session will explore middle school students' understanding of similarity and ways to develop this understanding using dynamic technology. Grade Band: 6-8
392 Fri 9:30-10:30 Salon C (Marriott Downtown)	Higher-Order Thinking, GIMP, Pick's Theorem, and Pixel Counts Brian H Giza and Olga Kosheleva	The Gnu Image Manipulation Program (GIMP) is a sophisticated but free open-source graphics editor. See how GIMP tools and features, such as pixel counts, layers, and grid lattices, can help teach higher-order thinking about changes in area. Compare using Pick's theorem to using pixel counts as methods for comparing areas on satellite images. Grade Band: 6-8
393 Fri 9:30-10:30 Franklin Hall 2 (Marriott Downtown)	Seeing and Doing Math with Photographs Roser Codina and Carmen Burgues	Learn about a program, carried out over the last five years, that used digital photography not merely as an illustration, but as a resource for doing mathematics. The speakers will present activities, describe their development, show preservice teachers' productions, and give ideas for work with pupils in grades 6-8. Grade Band Audience: 6 to 8, Preservice and Inservice

394 Fri 9:30-10:30 126 B (CC)	Data Games: Learn Math and Achieve Victory through Data Analysis William Finzer	Playing a game generates data, but the data evaporates when the game ends. What if the data streamed in real time into a data-modeling environment? Can students analyze the data to improve their game strategy and deepen their mathematical understanding in the process? Learn why the NSF-funded Data Games project believes the answer is yes. Grade Band: 6 to 12
396 Fri 9:30-10:30 Franklin Hall 5 (Marriott Downtown)	Construction Site Geometry: A Lesson in Cooperative Learning Sara J. Garrison and Brad Hunt	Interested in implementing cooperative learning, problem-solving, or performance assessment into your geometry course? Students will work in groups to design a corporate park in this activity developed in cooperation with the University of Cincinnati's STEP program. Each team has to solve problems, perform calculations, and compromise. Grade Band: 9-12
397 Fri 9:30-10:30 107 A/B (CC)	Visualizing Systems of Equations with GeoGebra Ana Escuder and James Duke Chinn	Use Geogebra for an interactive, visual process of solving systems of equations in two and three dimensions. The speakers will discuss the connections with matrices and showcase the use of dynamic technology, as well as the relationship between the equations and the visual representation when a system has zero, one, or many solutions. Grade Band: 9-12
398 Fri 9:30-10:30 Salon H (Marriott Downtown)	Function Composition without Confusion: A Geometric Approach with Sketchpad® 5 Scott Steketee	Students have trouble making sense of function composition. By combining a geometric approach with the usual symbolic one, students can define two functions, vary and trace their variables, compose them, and create striking visual representations to clarify this crucial concept. Receive ready-to-use Sketchpad demonstrations and activities. Grade Band: 9-12
401 Fri 9:30-10:30 Franklin Hall 11 (Marriott Downtown)	Exploring the Effectiveness of Web-Based Homework in Developmental Mathematics Courses Ronny Kwan Eu Leong and Nathan Napoleon Alexander	This presentation will describe results of an exploratory study that compared a Web-based homework program's effects and contributions to that of traditional homework practices in a college developmental mathematics course. The speakers will describe connections among students' attitudes, beliefs, and mathematics achievement. Grade Band: Higher Education
402 Fri 9:30-10:30 122 A (CC)	Teaching in a Transdisciplinary Framework: Advocating for L-ELLs Mathematics Success Eliana De Las Rojas	The speaker will present findings from a deliberate programming project addressing L-ELLs' needs. She will analyze a transdisciplinary approach to mathematics instruction and its effectiveness in increasing L-ELLs' academic achievement. Use technology and social networking to state problems as mathematical modeling takes over your practice. Grade Band Audience: Preservice and Inservice, Higher Education
403 Fri 9:30-10:30 117 (CC)	Using MQI Protocol as Videocoding Intervention for Student Teachers Rebecca Mitchell, Katherine Ariemma and Anna Bujalski	This presentation will highlight research using the Mathematical Quality of Instruction (MQI) protocol as a learning tool for four student teachers. These teachers videotaped their lessons and coded one another's teaching using the protocol. The speakers will address, and lead a discussion on, implications for research and teacher education. Grade Band: Preservice and In-Service Session, Higher Education
404.3 Fri 10-11 113 B (CC)	One Giant Leap for Mathkind: TI-Nspire™ Excites Students & Transforms Learning 2 Texas Instruments Exhibitor Workshop	See why TI-Nspire makes student interest skyrocket. TI-Nspire CX technology brings math & science to life with a full-color display, interactive touchpad, photos & images, real-time data collection, and multiple representations on a single screen. The TI-Nspire™ CX Navigator™ system lets you see what every student is thinking and doing at any time! Grade Band: 6 to 12
404.4 Fri 10-11 115 B (CC)	Introduction to Statistics' by GYLO: Tools for Developing Statistical Reasoning GYLO (Get Ya Learn On) Exhibitor Workshop	There is a lack of proven software that teaches and assesses statistical literacy with engaging, real-world contexts. This session presents an intro stats course that integrates lessons, games, and assessments. The course is based on research conducted at Harvard & UT Austin. Attendees will receive free access and the chance to win an iPod or Nook. Grade Band: 9 to 12
405 Fri 10:30-12 108 B (CC)	Integrate Technology, Mathematics, and Other Disciplines Maria Diamantis and Adam Goldberg	Engage in activities that integrate mathematics, technology, language arts, science, art, and social studies. Receive handouts and a bibliography of the materials. Grade Band: PreK-2

413 Fri 10:30-12 Franklin Hall 6/7 (Marriott Downtown)	Putting the "T" in STEM: Enhancing Instruction in Grades 4-5 Marguerite Mary Mason, Rachael West Cofer and Eric William Shippee	In a teacher workshop focusing on content, engineering design, and technology, teachers prepared and implemented design briefs imbedded in science, technology, engineering, and math (STEM) units that emphasized technology. They held study group meetings, a conference, and a share fair. The project produced videos of lessons for dissemination. Grade Band: 3-5
416 Fri 10:30-12 Salon A/B (Marriott Downtown)	Graph, Analyze, Play: Address the G.A.P. and "Excel" in Math! Anna LaForgia, Ginalouise Pflanz and Alyse Jennifer Sciolla	Increase your knowledge of spreadsheet creation and functions while exploring games, graphs, and problem solving. Simultaneously develop your students' working knowledge of technology while addressing both process and content standards. Explore simple, yet powerful ways to incorporate spreadsheets into your current curriculum. Grade Band: 3-5
417 Fri 10:30-12 118 A (CC)	Rock with Scissors and Paper Sara Normington, Lynn G. Patterson and Jennifer Rising	Strengthen students' spatial reasoning and visual thinking with paper folding and cutting. Solve puzzles, create pop-ups, and engage students with activities that build connections between geometry and folk crafts spanning centuries and cultures. Experiment with ipad apps to create equal and congruent shapes. Leave with classroom-ready materials. Grade Band: 3-8
418 Fri 10:30-12 105 A/B (CC)	Teaching Fractions Was Tough, but Not Any More: Come See Philip Halloran	Participants will use student-made paper, pictorial, and virtual manipulatives to develop fraction algorithms, create students' self assessment, and improve mathematical power for twelve mathematical problem types. You will quickly become an expert in teaching operations with fractions and identifying problem types. Grade Band: 3-8
420 Fri 10:30-12 119 B (CC)	Nspire™ Connections between Proportional Reasoning and Algebraic Thinking Gloria R. Beswick and Rhonda Niemi	Understanding multiplicative relationships and reasoning proportionally is essential to students' success in algebra. Learn how to use TI-Nspire technology in hands-on activities designed to develop proportional reasoning at a concrete level and to make the connections to algebraic thinking explicit. Grade Band: 6-8
425 Fri 10:30-12 Franklin Hall 12/13 (Marriott Downtown)	Creating STEM Experiences for Middle School Students: Mathematician's Notebook Scott Eddins and Tammy L. Jones	Need a fresh approach to integrating a notebook into your classroom? See how the Mathematician's Notebook can change the way you teach mathematics as well as how your students learn and experience mathematics. The notebook becomes a dynamic place where language, data, and problem solving operate jointly to form meaning for the STEM student. Grade Band: 6-12
426 Fri 10:30-12 121 C (CC)	I Walk The Line: Modeling Linear Motion with Motion Detectors Neelia J. Jackson and James A. Early	Participants will walk in front of a CBR at a constant rate of speed. Using any two points on the line, they will calculate the slope, enter the calculated equation into the equation editor ($Y=$), and compare the walk's experimental line with a calculated line of best fit. Grade Band: 6-12
427 Fri 10:30-12 113 C (CC)	Use Technology to Differentiate Accelerated, ELL, and At-Risk Learners Kathleen McKinley and Edward F. Williams	Engage students in problem-centered, interactive learning using TI-NSpire. Explore how to customize lessons to meet English language learner (ELL), at-risk, and accelerated learners' needs. Leave with greater understanding of technology-assisted differentiation aligned with the Common Core State Standards, connections, and evidence of conceptual understanding. Grade Band: 9-12
428 Fri 10:30-12 204 A (CC)	A Differentiated, "Cool Problem" Approach to Recursion Prealgebra through Precalculus Raymond Siegrist and Tom Beatini	This presentation will use a variety of techniques to examine recursive sequences. Handheld technology can help promote algebraic thinking and deeper understanding of sequences at different grades. The speakers will develop a view from several perspectives and different algebraic representations by modeling "cool problems" in real-world situations. Grade Band: 9-12
429 Fri 10:30-12 103 C (CC)	A Reason to Reason: Rich Problems and Interactive Tools Tami S. Martin, Craig Cullen and Roger Day	With interactive geometry systems, pose problems, model sports events, use multiple representations, and make conjectures. These processes lead to problems promoting quantitative and abstract reasoning, key ideas in the Common Core State Standards. Bring your laptop with Geogebra or Geometer's Sketchpad, and be ready to discuss content connections. Grade Band: 9-12

432 Fri 10:30-12 Salon E (Marriott Downtown)	Creatively Integrating Technologies Using Color and Pictures: SMART Boards™, TI-NspireCX™ Tom Reardon	Help students understand how mathematical concepts are related: connect graph, table, equation, and words, interactively on a single CX page. Model equations on top of color photos on a CX handheld. Use color to distinguish ideas and make mathematical connections. Get a CD of teaching ideas including more than 100 classroom-ready CX activities. Grade Band: 9-12
444 Fri 11-12 Salon F (Marriott Downtown)	Engaging, Motivating, Whole- and Small-Group Techonolgy Linda A. Mumme and Jennifer B. Leese	You no longer need to fear technology. Interactive whiteboards are fun and easy to use. It's time to let the music move you. Did you know that you can link music and sound effects to your activities? Did you know the interactive whiteboard is great for small groups? Come discover engaging ways to reach all students. Grade Band: PreK-5
446 Fri 11-12 114 (CC)	The Mathematical Emergency Room: Diagnosing Students' Errors Beth Kobett	Come explore students' thinking. Learn diagnostic skills for identifying conceptual and procedural misconceptions. Examine students' work samples using a variety of technology tools. After the diagnoses, they speaker will shared a variety of crucial, Common-Core-friendly teaching strategies. Grade Band Audience: 3 to 5
450 Fri 11-12 125 (CC)	Technology + Singapore Strategies = Number Sense Cassandra Turner and Lauri Susi	Visual reasoning is a powerful tool for making sense of mathematics. Learn successful visual strategies and instructional methods from Singapore that allow students to develop a deeper understanding of number concepts using hands-on manipulatives and software. Walk away with strategies for guiding students' learning that you can use tomorrow. Grade Band Audience: 6 to 8, 3 to 5
451 Fri 11-12 122A	Wondrous Wikis William L. Merrill	Everyone seems to know about Wikipedia, but many forbid students' use of it. Wikis are a wondrous tools for students and teachers to use to help everyone learn. Examines how to use existing wikis, even Wikipedia, and how youy can use student-created wikis to help students learn mathematics. Grade Band Audience: 6 to 8, 3 to 5
454 Fri 11-12 Salon H - Marriott Downtown	Technology to Help Students See and Understand Mathematics Linda Treilman	Interactive white boards, dynamic graphing programs, and websites help the developmental math student understand concepts and skills. Create engaging, interactive lessons and differentiate instruction. Pictures bring the real world into your classroom. Add an individual response system for formative assessment, to allow all students to participate. Grade Band Audience: Higher Education, 6 to 8
455 Fri 11-12 Salon D-Marriott Downtown	Using Technology Problems of the Week to Develop Mathematical Practices Suzanne Alejandre, Marie Hogan and Erin Igo	Are you looking for ideas to help your students make sense of problems, persevere in solving them, and improve their math communication skills? Explore free resources from the Math Forum, including the Technology Problems of the Week, and hear accounts from classroom teachers who have been using these resources effectively in their classrooms. Grade Band Audience: Preservice and Inservice, 6 to 8
456 Fri 11-12 123 (CC)	Crop Circle Algebra: Students Teaching Farmers? Larry Ottman	Using Google Earth, students can find fascinating examples of how farmers have tried to maximize land coverage by center-pivot irrigation circles. See how to use technology, including some computer algebra systems, to explore interesting mathematics from prealgebra through calculus, grounded in real, problem-solving scenarios. Grade Band Audience: 9 to 12, 6 to 8
458 Fri 11-12 Ballrom B	Movie Math Mania: Engaging All Students to Reach the Standards Sheldon J. Erickson	Movies provide real-world problems that engage all students in understanding and applying the math standards. Movies' inherent fun captivates the students in learning as they solve problems inherent to the movie's plot. Get a source of movies and class-ready activities, and find out how get all students learning by making it fun. Grade Band Audience: 9 to 12, 6 to 8

460 Fri 11-12 202A/B	How to Make a Profit in Mathematics Bob Mann	Avoid "you're fired" by finding the price point that maximizes profit. Students create products and use linear, quadratic, and rational functions to analyze cost, sales, price, revenue, and profit. The session will provide activities and ideas that focus on the Common Core State Standards for functions and modeling and that integrate technology. Grade Band Audience: 9 to 12
463 Fri 11-12 Franklin Hall B	What's the Real Probability: Theoretical, Empirical, or Neither? Bill Rosenthal, Steven Cosares and Steve Hinds	With good reason, school mathematics values theoretical probability over the empirical approach. Many students do not agree, also with good reason. Come hear their beliefs and brainstorm how we can improve our teaching of probability by taking them into account. Simulators and the place of probability in statistics are each part of the mix. Grade Band Audience: Higher Education, 9 to 12
466.2 Fri 11:30-12:30 115 B	Strategies for Increasing Students' Reasoning Capabilities and Mathematical Independence Erin R. Moss and Sarah Marie DeLeeuw Exhibitor Workshop	Experience realistic mathematics and problem solving while exploring multiple number models that support the Common Core State Standards. These models move students to a deeper understanding of number and operations. Each participant will receive a free Number Tools® workbook. Grade Band Audience: General Interest/All Audiences
466.3 Fri 11:30-12:30 113 B	One Giant Leap for Mathkind: TI-Nspire™ Excites Students & Transforms Learning³ Texas Instruments Exhibitor Workshop	See why TI-Nspire makes student interest skyrocket. TI-Nspire CX technology brings math & science to life with a full-color display, interactive touchpad, photos & images, real-time data collection, and multiple representations on a single screen. The TI-Nspire™ CX Navigator™ system lets you see what every student is thinking and doing at any time! Grade Band Audience: 9 to 12, 6 to 8
466.4 Fri 11:30-12:30 103 B	"Randomness Rocks!" Pearson Exhibitor Workshop	Ready to teach simulations as described in the COMMON CORE? It's a great way to explore probability, sampling, and statistical significance. At this hands-on workshop you'll learn to use simple materials and a structured approach to make simulations fun and meaningful. (9-12) Grade Band Audience: 9 to 12
467 Fri 12:30-1:30 114	Are We Using New Technology Strategically? Jim Rubillo	Thirty years ago, computers reached the classroom. Have we learned to use technology strategically to teach mathematics? Come reflect on the current state of technology use, and chart a course for better future use. Along the way, see some intriguing situations that demonstrate how technology enhances mathematics learning. Grade Band Audience: General Interest/All Audiences
470 Fri 12:30-1:30 121 B	Gender Issues in Mathematics Education and Technology Judy A. Werner	The speaker will review current research on learning and teaching styles that integrate mathematics content with technology. She will discuss strategies that help all students learn mathematics through technology. Grade Band Audience: General Interest/All Audiences
471 Fri 12:30-1:30 Salon F-Marriott Downtown	Incorporating Technology Tools into Math Lessons to Increase Students' Engagement Ricky Mikelman	Timid about technology? Build your confidence by learning how to add technology effectively into math lessons to increase engagement. Survey the latest research and see how to involve students in higher-level thinking and problem solving. Explore interactive whiteboards to differentiate lessons and as an assessment tool, and visit websites. Grade Band Audience: General Interest/All Audiences
473 Fri 12:30-1:30 Ballroom B	The Museum of Mathematics George W. Hart	The Museum of Mathematics (momath.org), opening in Manhattan in 2012, will offer class trips, special programs, teachers' development, and innovative resources to support and enrich classroom education. Hands-on exhibits will illustrate ideas at various levels, from late elementary through high school. Handouts will be provided. Grade Band Audience: General Interest/All Audiences

<p>474 Fri 12:30-1:30 Terrace Ballroom 2/3</p>	<p>Why Students Hate Word Problems</p>  <p>Dan Meyer</p>	<p>The fault lies not with our students but with the quality of the word problems themselves, restricted for too long by the paper they're printed on. As we start to deliver curricula digitally, we need to reckon seriously with the reasons and effective methods for connecting math to the world outside the math classroom. Dan's website Grade Band Audience: General Interest/All Audiences</p>
<p>481 Fri 12:30-1:30 204 B</p>	<p>Formative, Web-Based Assessment for Differentiated Instruction on Fractions and Decimals Amy Johnson and Kelli Gedart</p>	<p>The speakers will apply strategies of formative, Web-based assessment and differentiated instruction to NCTM Focal Points and Common Core standards. Presented lessons use manipulatives and games that integrate problem solving, appropriate for exceptional education and English as a Second Language. Receive handouts of activities and research. Grade Band Audience: 3 to 5</p>
<p>487 Fri 12:30-1:30 Franklin (MD)</p>	<p>Investigating and Creating Escher Tessellations Using GeoGebra James Duke Chinn and Guy Barmoha</p>	<p>M. C. Escher was the master of transforming polygonal tessellations into nonpolygonal works of art. Go beyond mere transformations and symmetry to discover Escher's secrets. Use free, dynamic, online GeoGebra worksheets to bring these works of art to life for you and your students. Grade Band Audience: 9 to 12, 6 to 8</p>
<p>490 Fri 12:30-1:30 201 B</p>	<p>Technology as a Tool for Orchestrating Mathematical Discourse Jessica Cohen, Gail Burrill and Thomas P. Dick</p>	<p>Orchestrating productive mathematical discourse starts with worthwhile tasks, questions that promote sense making and reasoning, and opportunities for students to share their thinking. Technology can play a powerful role in providing new opportunities for students to share their mathematical approaches, strategies, and solutions. Grade Band Audience: 9 to 12, 6 to 8</p>
<p>493 Fri 12:30-1:30 Franklin Hall 11</p>	<p>Move to Improve: Using GSP Animations in the Geometry Classroom Ruthmae Sears and Dung Tran</p>	<p>The speakers will demonstrate how to use animations for geometry teaching and learning, giving examples of GSP animations and describing the mathematics involved in constructing them. The presentation aims to develop teachers' technological pedagogical content knowledge and mathematical knowledge for teaching geometry. Grade Band Audience: Preservice and Inservice, 9 to 12</p>
<p>494 Fri 12:30-1:30 107 A/B</p>	<p>Project-Based Learning: Balanced Assessment, Building Understanding Jon F. Hasenbank, Jenni McCool and John Schmidt</p>	<p>Learn how to give your students a voice using projects that support learning, allow for authentic technology use, build understanding, and offer more balanced assessment. The speakers will share sample projects and rubrics used in geometry, precalculus, probability, and statistics and discuss how to support students and streamline assessment. Grade Band Audience: Preservice and Inservice, 9 to 12</p>
<p>496 Fri 12:30-1:30 126 B</p>	<p>Actively Engage Tablet Computers, Digital Notebooks, and Course Management Systems Mary E. Staniger</p>	<p>Using technology with one-to-one tablet computers, see how to share partial digital notes ready for students to organize work in a digital notebook, correct papers in a digital format, and create an atmosphere of interactivity in the classroom. Grade Band Audience: Higher Education</p>
<p>497.2 Fri 1-2 113 B</p>	<p>One Giant Leap for Mathkind: TI-Nspire™ Excites Students & Transforms Learning 4 Texas Instruments Exhibitor Workshop</p>	<p>See why TI-Nspire makes student interest skyrocket. TI-Nspire CX technology brings math & science to life with a full-color display, interactive touchpad, photos & images, real-time data collection, and multiple representations on a single screen. The TI-Nspire™ CX Navigator™ system lets you see what every student is thinking and doing at any time! Grade Band Audience: 9 to 12, 6 to 8</p>
<p>497.3 Fri 1-2 I1B (CC)</p>	<p>Pearson Hall High School Math and the Common Core Pearson Exhibitor Workshop</p>	<p>Learn how this blended print and digital curriculum not only engages students but also infuses Common Core Standards and Mathematical Practices throughout each lesson to ensure ALL learners acquire the critical knowledge and skills necessary to succeed in college and in their careers. Grades: 8-12</p>

500 Fri 1-2:30 119 B	Algebra: The Missing Variable in Elementary School Mathematics Kimberly J. Bender, Victoria Bohidar and Kathryn Munson	Algebraic thinking begins in kindergarten and progresses throughout elementary school. Explore ways to encourage algebraic thinking through engaging, hands-on activities. The speaker will discuss Ideas for using technology while exploring algebra, including Web sites, PowerPoint, and apps for the iTouch. Grade Band: PreK-5
502 Fri 1-2:30 Franklin Hall 9/10	Dynamic Computer Simulations for Promoting Conceptual Discussions of Spatial Measurement Lorraine M. Males and Nicholas J. Gilbertson	Explore the benefits of using dynamic computer simulations to encourage reasoning and sense-making in length and area measurement. Work with simulations that highlight important conceptual ideas. Focus on how simulations help promote discussion that can lead to a robust understanding of measurement. Grade Band Audience: PreK to 5
505 Fri 1-2:30 Franklin Hall 12/13	Connecting the Power of Technology and Children's Literature with Mathematics Betty B. Long and Deborah A. Crocker	Try a variety of activities that incorporate children's literature and a hands-on introduction to the TI-15 and TI-73 calculators. Mathematical content will include measurement and data, operations and algebraic thinking, and more. Handouts will be provided. Grade Band Audience: 3 to 5
508 Fri 1-2:30 201 A	Math + Technology = Art Integration! Sallie Harper, Kimberly Triplett and Tory Shirley	You don't have to be an artist to have fun in this workshop! Engage in hands-on activities for grades 3–5 students integrating math, technology, and art activities. Create fascinating art projects using inexpensive materials. Grade Band Audience: 3 to 5
510 Fri 1-2:30 Salon G - Marriott Downtown	The Math Curse: Fractions? Teaching-Learning with TI Technology, SMART Board™ Christine Ruda	Fractions? No problem. Discover how the SMART Board, calculators, manipulatives, and literature build conceptual understanding, making fractions meaningful and fun! Hands-on activities, appropriate for all learners, will integrate features of TI technology and the SMART Board. Ready-to-use lessons will address NCTM and Common Core Standards. Grade Band Audience: 3 to 5
517 Fri 1-2:30 118 C (CC)	NASA Smart Skies: Connecting Math/Technology Through Air Traffic Control Gregory Condon and Rebecca Green	Apply proportional reasoning and distance-rate-time relationships to explore flight problems through an experiment, a graphing tool, and an air traffic control simulator. Use multiple representations to connect equations, their graphs, and real-world scenarios. All materials are free online. Grade Band Audience: 6 to 8
518 Fri 1-2:30 Franklin Hall I	Think outside the Box: Multiple, Linked Representations and Boxplots S. Asli Ozgun-Koca and Thomas G. Edwards	Boxplots are representations for organizing and displaying data that might be easy to create, but not so easy to understand, interpret, or match with other representations of the same data. Through linked representations, participants will use graphing calculators to interpret boxplots and make connections among different representations of data. Grade Band Audience: 6 to 8
519 Fri 1-2:30 Saloin A/B	Using Free NCTM Resources to Promote an Understanding of Proportion Patrick Vennebush	Solve a mystery with proportional reasoning. Use clues from the Highway Robbery lesson on Illuminations (illuminations.nctm.org) to nab a criminal. Investigate online tools, all available free from NCTM, that develop students' conceptual understanding of proportions. Grade Band Audience: 9 to 12, 6 to 8
520 Fri 1-2:30 201 C	Statistics in Common Core State Standards: Analyzing Experiments Using Simulation Josh Tabor	Does seat location affect grades? Can high-tech swimsuits make you swim faster? Is it harder to shoot free throws with distractions? Using real data, hands-on simulations, and technology, learn how to determine if the results of randomized experiments are significant, and how this connects to the CCSS for statistics. Grade Band Audience: 9 to 12

521 Fri 1-2:30 122 B	The Buoy Project John H. Gieske	The Buoy Project, a capstone assessment for a non-Advanced Placement calculus course, is an engineering puzzle requiring applications of the definite integral, Archimedes' principle, collaborative teamwork, creative design, formal report writing, drawing, and Powerpoint presentations before guest faculty. Grade Band Audience: 9 to 12
522 Fri 1-2:30 105 A/B	The Law of Cosines, without/ before the Cosines, Part 2 Ellen Ford and Bill Rosenthal	This presentation continues one at NCTM's 2011 annual meeting on teaching trigonometry in geometry without trigonometric notation. Last year's attendees will pick up where they left off; those who did not will develop the ideas from scratch. The two groups will work together at the end. Laptops with GeoGebra installed are encouraged. Grade Band Audience: 9 to 12
525 Fri 1-2:30 Salon 1/3- Marriott Downtown	Fundamental Theorem of Calculus: Integration and Differentiation, Connections Using Technology Mike Koehler	Working through a series of paper-and-pencil and technology-based classroom activities, experience hands-on investigations designed to help students improve their conceptual understanding of the FTC. Activities will focus on connections between integrally defined functions and those functions' derivatives. Grade Band Audience: Preservice and Inservice, 9 to 12
527 Fri 1-2:30 126 A	Using Games and Technology to Connect Tables, Graphs, and Equations Judy Lynne Brown	Many patterns emerge in games, such as each piece's first move relative to the minimum total number of moves needed to win each game. Investigate and play several games and use the TI-Inspire graphing calculator and Fathom data and dtstatistics software to make connections among tables, graphs, and equations. Grade Band Audience: Preservice and Inservice, 9 to 12
531 Fri 2-3 Salon H-Marriott Downtown	Think-Pair-Think-Share, Not Think-Pair-Share Nancy K. Schoolcraft and Hyunyi Jung	This presentation will share information on how teachers develop technological, pedagogical, and content knowledge (TPACK) a teacher education program using handheld technology. Preservice teachers' mathematical TPCK develops through well-prepared activities in linear programming, solving polynomial equations, solving a rational function, and visualizing conic sections. Grade Band Audience: General Interest/All Audiences
532 Fri 2-3 Terrace Ballroom I	Solving America's Innovation Problem Linda P. Rosen	Change the Equation is dedicated to deepening students' learning in science, technology, engineering, and mathematics (STEM). To help measure state performance and dig deeper into the nation's education challenges, it created Vital Signs reports on the condition of STEM learning nationwide. These reports are an important first guidepost. Grade Band Audience: General Interest/All Audiences
534 Fri 2-3 201 B	Where Are Your Students? Using Technology to Teach Virtually Janet B. Andreasen and Wendy Pantoja	Are you teaching in a state virtual school? Have you thought about it? Have you wanted to include virtual school ideas in your brick-and-mortar classroom? This session will examine useful technology for teaching in grades K-12 virtual schools. Hardware and software applications will be included. Grade Band Audience: General Interest/All Audiences
539 Fri 2-3 Franklin Hall 11	Leveraging One-on-One Computing: Time to Know Math Implementation and Outcomes Damian J. Bebell	In 2010, four New York City public elementary schools implemented Time to Know, a digital platform that uses one-on-one computing to improve students' learning opportunities. Drawing from an independent, before-and-after comparison study, the speaker will examine the program's effects on teaching, learning, and students' engagement and achievement. Grade Band Audience: 3 to 5
540 Fri 2-3 Franklin Hall B	Bears and Baseball: Developing Statistical and Technological Literacy Micah S. Stohlmann	What do panda bears, baseball, and Joe Mauer have to do with statistics? Come see how to use children's books to teach statistics. Receive a copy of Bears and Baseball along with ideas for engaging students in learning important statistical concepts. Grade Band Audience: 6 to 8, 3 to 5

548 Fri 2-3 Salon F-Marriott Downtown	A SMARTer Way to Teach Math: Use SMART Notebook™ Math Jill Lyttle and Michelle Meehan	Get an interactive look at the new SMART Notebook math software. You will not only to observe, but also use the many new features relating to algebra, geometry, and other concepts. Get ideas about lesson creation, classroom instruction, and students' engagement from middle school classroom teachers. Grade Band Audience: 6 to 8, 9 to 12
549 Fri 2-3 122 A (CC)	Mathematical Curves in the Real World: Fun(ctional) Learning Scott D. Oliver	The speaker will present conic sections, spirals, catenaries, cycloids, fractals, and so on in many different ways, humorous and real. you will see hands-on activities, computer and calculator applications, free online videos, more. The talk will focus on mathematics-science connections. Learn why there aren't any parabolic trajectories on earth. Grade Band Audience: 9 to 12, 6 to 8
555 Fri 2-3 120 C (CC)	Teaching Geometry Proofs to a Digital Generation Irina Lyublinskaya	Teaching reasoning and proofs in high school geometry is one of the challenges that teachers face today. Can technology help with this task? Learn about a set of problems that uses symbolic geometry software that can help develop students' proofs skills. Grade Band Audience: 9 to 12
556 Fri 2-3 Terrace Ballroom 4 (CC)	What Algebra Is Left to Learn in the CAS Classroom? Loring Coes	Calculators can now do most operations that once formed the algebra curriculum. Plenty is left to learn, however, much of it that only people can do. Take a look at how to use the new power and how to clarify what we still need to learn and do ourselves. Grade Band Audience: 9 to 12
557 Fri 2-3 107 A/B (CC)	Use of Tablet Personal Computers (PCs) in Mathematics Education Carla Romney, Fabian Torres-Ardila and Juan Pedro Paniagua	Tablet PCs suit mathematics instruction well, because they allow one to write equations by hand with a stylus. Learn how to use tablet PCs hands-on, to create interactive precalculus and calculus classes. Grade Band Audience: Higher Education, 9 to 12
558 Fri 2-3 Franklin Hall 5	Professional Development That Empowers Teachers: Lesson Study Online M. Hope Yursa, Jason Silverman and Cheryl Fricchione	Lesson study is a proven, powerful tool for valuing and enhancing teachers' professional growth that usually requires whole school buy-in. Learn about the speakers' successful support of professional learning in a virtual environment. Meet teachers from different schools who participate in lesson-study activities to enhance students' learning. Grade Band Audience: Higher Education, Preservice and Inservice
558.1 Fri 2:30-3:30 113 B	One Giant Leap for Mathkind: TI-Nspire™ Excites Students & Transforms Learning Texas Instruments Exhibitor Workshop	See why TI-Nspire makes student interest skyrocket. TI-Nspire CX technology brings math & science to life with a full-color display, interactive touchpad, photos & images, real-time data collection, and multiple representations on a single screen. The TI-Nspire™ CX Navigator™ system lets you see what every student is thinking and doing at any time! Grade Band Audience: 9 to 12, 6 to 8
558.2 Fri 2:30-3:30 118 B	CME Project – Get to the Core Pearson Exhibitor Workshop	Somewhere between an approach that is traditional and one that is progressive lives another way to teach math – CME Project. This NSF funded high school mathematics program takes a problem-based, student-centered approach while balancing Common Core instructional elements and infusing Mathematical Practices through Habits of Mind. (8-12) Grade Band: 9 to 12 http://cmeproject.edc.org/
567 Fri 3-4:30 Salon A/B- Marriott Downtown	Developing Core Content and Practices with NCTM's Free E-Examples David Barnes	Make your classroom come alive while developing proficiency with algebraic reasoning, communication, and geometry with NCTM's E-examples. Incorporating the newly-revised online games and interactive applets, NCTM's e-examples give you online resources for you to demonstrate key topics in your classrooms and for students to explore on their own. Grade Band: 3-5
571 Fri 3-4:30 120 A/B	Native American Beadwork: Mathematical Connections Integrating Technology and Culture Jim Barta and Tod Shockey	Native American beadwork illustrates hands-on application of mathematics, including number and operations, geometry, data analysis, measurement, and algebra. Create your own beadwork and learn activities using technology to help students apply what they learn. Grade Band: 3-5

578 Fri 3-4:30 204 A (CC)	Using Technology Tools to Connect with Struggling Learners Connie S. Schrock	All classrooms have students who struggle with mathematics. Learn about strategies and online tools that engage students with essential mathematics and let them have fun at the same time. The speaker will use the tools to solve problems, develop conceptual understanding, and move to activities using the skill and matching performance assessments. Preservice and In-Service Gallery Workshop Grade Band Audience: Preservice and Inservice, 6 to 8 Attribute: New Teacher Strand Presentation
579 Fri 3-4:30 118 A (CC)	Algebra's Next Top Model Jim R. Town	Why let science teachers have all the fun? Come learn how to incorporate hands-on, student-centered modeling labs into your Algebra I course. Use battery-powered toy cars and projectiles to collect data and promote your discussion of slope, intercepts, intersecting lines, and parabolic motion. Grade Band Audience: 9 to 12, 6 to 8
580 Fri 3-4:30 111 A/B (CC)	Flatland to the Hypercube: Introducing Students to the Fourth Dimension Deana L. Deichert	Take a journey through the dimensions, and engage in classroom activities that will help their students to think about a world outside of the third dimension. Using soap bubbles and technology, participants will construct and solve problems using the shadow of a four-dimensional hypercube. Grade Band Audience: 9 to 12, 6 to 8
581 Fri 3-4:30 Ballroom A (CC)	Integrating Manipulatives and Technology: TI-Nspire™ for Middle School Teachers Delbra Robinson	Connect your experience using pattern blocks to teach integrated, middle school algebra and geometry concepts in real-world context with the color feature and functionality of the TI-Nspire computer software and handheld. Have great fun doing it! This session will focus on how students learn and why they choose to retain what they learn. Grade Band Audience: 9 to 12, 6 to 8
582 Fri 3-4:30 108 B (CC)	Real-World Math with Mathalicious Karim Kai Ani	Want to make math more engaging, relevant, and effective, and cover multiple standards at once? The speaker will discuss how to use real-world topics from the iPad to basketball to help students master concepts deeper and more quickly. We'll give you tips—even full lessons—that you can use tomorrow. Enough with fake math: let's make it real. Grade Band Audience: 9 to 12, 6 to 8
585 Fri 3-4:30 Salon K/L- Marriott Downtown	Connecting with Conics Richard Parr and Anne Papakonstantinou	Learn how to make teaching the conic sections to students fun and engaging for them. Through hands-on activities and technology use, explore how to use the conic sections to make connections among mathematics concepts in algebra, geometry, and trigonometry. Grade Band Audience: 9 to 12
586 Fri 3-4:30 Salon G-Marriott Downtown	Developing Reasoning Tasks with GeoGebra Mark G. Causapin, Ronny Kwan Eu Leong and Kai Chung Tam	This presentation will focus on modeling linear algebra and calculus concepts with GeoGebra. Learn the tricks on developing instructional activities and task differentiation. Experience hands-on activities that investigate mathematical concepts. A personal laptop is suggested. Grade Band Audience: 9 to 12
587 Fri 3-4:30 Franklin Hall 6/7- Marriott Downtown	Fun with Functions: Helping Students Make Sense of Transformations Elizabeth M. Gasque and Judith Hicks	Use hands-on activities and the TI-Nspire CX to make transformations come alive for students. Explore multiple representations of functions that are typically transformed—linear, quadratic, absolute value, and others—and discover ways to help students reason about and make sense of transformations. Grade Band Audience: 9 to 12
588 Fri 3-4:30 121 C (CC)	One-to-One Netbooks in Mathematics: Try It Roger Day, Chad Shepherd and Jake Krause	The speakers have issued 24/7 netbooks to ninth graders for two years. They will simulate Algebra I classroom scenarios involving netbook apps to share their netbook integration, monitoring software, course management tools. Some netbooks may be on site, but to take part in the workshop fully, bring a laptop with a wireless connection. Grade Band Audience: 9 to 12

589 Fri 3-4:30 105 A/B (CC)	Technology's Necessity in the Math Classroom Ray Klein	Some math teachers think that technology has possible uses in their classroom different from what NCTM espouses. The speaker will share classroom activities he has used that show how to use technology effectively, how and when you should use it, and in some instances, how you must use it to promote students' learning. Grade Band Audience: Preservice and Inservice
592 Fri 3:30-4:30 Ballroom B (CC)	I Tweet, Therefore I Learn Max Singerman Ray	Heard all the hype about Twitter? Wondering how it helps math teachers improve their practice? Thinking about developing your own personal learning network? Skeptical that anything can be communicated in 140 characters? The speaker will share stories and tips on using Twitter to build a community to support your professional development. Grade Band Audience: General Interest/All Audiences
597 Fri 3:30-4:30 123 (CC)	Building Conceptual Understanding and Computational Fluency with the iPod Touch Leslee Francis Pelton and Timothy W. Pelton	Touchscreen mobile devices are a promising teaching technology. The speakers will share a collection of iOS apps that incorporate visual models or virtual manipulatives to help build conceptual understanding as well as develop estimation skills and computational fluency and then share lessons learned from using these apps in elementary school classrooms. Grade Band Audience: 3 to 5, PreK to 2
598 Fri 3:30-4:30 Salon H-Marriott Downtown	Interactive Whiteboards (IWB): Increasing Engagement and Achievement in Mathematics Larry W. Zimmerman and Heather Monks	Marzano's recent study with Promethean boards in math classes showed an average of 16 percent improvement in students' achievement when used effectively. Discover how to leverage your IWB to make such gains. Learn quick, easy strategies for building math lessons and activities using your Promethean board. Receive a CD with IWB activities and templates. Grade Band Audience: PreK to 2, 3 to 5
608 Fri 3:30-4:30 113 A (CC)	Providing English Language Learners Access to Cognitively Demanding Mathematics Tasks Susie W. Hakansson	We want to develop all students' mathematical proficiency, particularly ELLs, so we design instruction that addresses the challenges ELLs face and integrates and combines mathematics, academic and mathematical language, and handheld technology. Grade Band Audience: 9 to 12, 6 to 8 Attribute: Equity Strand Presentation
610 Fri 3:30-4:30 Salon D-Marriott Downtown	Using Technology to Increase Conceptual Understanding in Algebra and Geometry Annie Fetter	Many algebra and geometry topics are difficult to address conceptually and tend to be taught procedurally. Explore interactive applets that let students "notice and wonder," talk about mathematical situations, and develop conceptual understandings of triangle properties, linear equations, systems of equations, and trinomial factoring. Grade Band Audience: 9 to 12, 6 to 8
612 Fri 3:30-4:30 125 (CC)	Teaching Sampling Distributions in the Statistics Classroom Douglas J. Tyson and Michael A.V. Costello	Students in statistics routinely have difficulty with the concept of sampling distributions. This session will show how to increase students' understanding of the concept. The speakers will share activities for teaching sampling distributions of several different statistics, using various levels of technology. Grade Band Audience: 9 to 12
613 Fri 3:30-4:30 121 B (CC)	Using a Web Page to Enhance and Support Mathematics Instruction Shawn Hanrahan	This presentation will explore a class Web page currently used to enhance instruction in an Algebra 2 classroom. Discussion will focus on the including various elements in the Web page—mathematical model demonstrations and games, online instructional support, classroom assignments, class notes, and relevant reading passages. Grade Band Audience: 9 to 12
615 Fri 3:30-4:30 202 A/B (CC)	Bringing Algebra, Functions, and Mathematical Practices to Life through Technology Rose Mary Zbiek	Core Math Tools offer a convenient way to bring technology into students' experiences inside and outside the classroom. This session will offer examples of specific ways to use the online tools to address Common Core State Standards for Mathematics for algebra, functions, and mathematical practices through small tasks and major projects. Grade Band Audience: Preservice and Inservice, 9 to 12

617 Fri 3:30-4:30 Salon F-Marriott Downtown	Virtual Technology Training Kathryn G. Shafer and Angela M. Greene	The speakers will showcase a graduate-level, online technology course that used both synchronous and asynchronous components. In-service grades 4–12 teachers completed, created, and peer-reviewed technology-integrated lessons that used Geogebra, TinkerPlots, Virtual Manipulatives, Applets, SketchUp, and SMART Notebook. Grade Band Audience: Higher Education
619 Fri 3:30-4:30 115 C (CC)	LessonSketch: An Online, Practice-Based Environment for Learning to Teach Mathematics Pat Herbst	Teachers and teacher educators use this software to plan, narrate, and explore lessons using cartoon-based animations and image sequences. LessonSketch supports discussions about teaching by enabling users not only to watch, annotate, discuss, and tag lessons but also to create new lessons using provided rich media and information resources. Grade Band Audience: Preservice and Inservice
620.1 Fri 4-5 113 B (CC)	One Giant Leap for Mathkind: TI-Nspire™ Excites Students & Transforms Learning Texas Instruments Exhibitor Workshop	See why TI-Nspire makes student interest skyrocket. TI-Nspire CX technology brings math & science to life with a full-color display, interactive touchpad, photos & images, real-time data collection, and multiple representations on a single screen. The TI-Nspire™ CX Navigator™ system lets you see what every student is thinking and doing at any time! Grade Band Audience: 9 to 12, 6 to 8
620.2 Fri 4-5 103 B (CC)	Using Technology to Support Teacher Effectiveness (Higher Ed) Pearson Exhibitor Workshop	Description to come Grade Band Audience: Higher Education
622 Sat 8-9 Terrace Ballroom 4 (CC)	APPs Boom: Using Math APPs to Teach and Learn Math Gary G. Bitter and Rusen A. Meylani	The APPs boom has started to embrace the world of education. This presentation will identify math APPs that you can use to enhance mathematics teaching and learning. Discussion will include the pros and cons related to the math APP topics. A handout will give an up-to-date list of math APPs available either for free or for a fee. Grade Band Audience: General Interest/All Audiences
629 Sat 8-9 108 A (CC)	Selecting Inquiry-Based Mathematical Tasks Supported by Technology Eula E. Monroe, Nancy Wentworth and Damon L. Bahr	Teachers who ascribe to inquiry-based mathematics instruction typically seek to use technology to support students' mathematical inquiry. This session illustrates basic criteria for helping preservice and in-service elementary school teachers select inquiry-based mathematical tasks supported by effective, efficient use of electronic technologies. Grade Band Audience: 3 to 5, Preservice and Inservice
632 Sat 8-9 119 A (CC)	Math "Kinect"ions in Middle Grades Keri Johnson, Sarah Woolley and Robin Angotti	Engaging students in math in the middle grades can be especially difficult challenge. Video games, however, can be a powerful motivating tool for students. This session will show how to use a Kinect or other controllerless video game to explore math concepts as well as other interdisciplinary learning for middle school students. Grade Band Audience: 9 to 12, 6 to 8
637 Sat 8-9 113 A (CC)	Exciting Math for Your Fourth-Year Course: Social Decision Making Eric W. Hart	Social decision making is a vital part of life in a modern democratic society. The math involved is interesting and relevant content for a fourth-year course for students not taking calculus. See a survey of ranked-choice voting, apportionment, fair division, and game theory, with examples, activities, old and new strategies, and free software. Grade Band Audience: Higher Education, 9 to 12
638 Sat 8-9 123 (CC)	Standards-Based Electronic Portfolios in Mathematics Teacher Education William O. Lacefield	Candidates in mathematics teacher education programs benefit from opportunities to document and reflect on their personal and professional transformations. This presentation will focus on electronic portfolio templates based on NCTM Principles and Standards, state standards, and institutional conceptual frameworks. Grade Band Audience: Preservice and Inservice, Higher Education

641 Sat 8:30-10 126 A (CC)	Mathematics and Science Connections through Online Activities Deborah A. McAllister, Susan M. Bothman and Peggy S. Moyer	Examine connections between mathematics and science while studying the solar system, using activities available online. Explore activities that meet standards for mathematics and science inquiry in kindergarten through grade 5. Make connections to relevant mathematics contained in children's literature. Grade Band Audience: 3 to 5, PreK to 2
642 Sat 8:30-10 122 B (CC)	There's an App for That Jennifer M. Rising and Peggy L. McLean	The iPad has become the hottest new teaching tool available. Try some of the best, new apps for early grades math that develop number sense, practice computation, and explore spatial concepts. You don't have any iPads? Come hear about funding opportunities and try the iPads with the apps preloaded at each table. Grade Band Audience: 3 to 5, PreK to 2
643 Sat 8:30-10 121 A/B	Assessing Hands-On Data Analysis Using Microsoft® Excel Monica Hocter	Investigate using Microsoft Excel to assess graphing after exploring a hands-on approach to data analysis in differentiated lessons. Learn how best to use manipulatives and Microsoft Excel in diverse classroom environments through differentiating groups, stations, or independent projects. Grade Band Audience: Preservice and Inservice, 3 to 5
(CC)649 Sat 8:30-10 124	Coordinate Plane Transformations: Have You Got the Right Image? Margaret A. Bambrick and Ruth Casey	The speakers will use the TI-Nspire Navigator to show strategies to engage students in generalizing the pattern of sets of ordered pairs under various transformations. They will investigate using the technology to assess students' learning. After exploring a geometric figure's image, participants will create a picture using transformations. Grade Band Audience: 9 to 12, 6 to 8
652 Sat 8:30-10 115 A (CC)	The Median-Median Line: Connecting Data, Geometry, and Algebra Alyson E. Lischka	Explore the conceptual development of the median-median line, an alternative to a least-squares regression line, through an interactive task that use equations of lines, the distance formula, and centroids. Discuss incorporating Excel, Sketchpad, and calculators into differentiation strategies. Grade Band Audience: 6 to 8, 9 to 12
660 Sat 9:30-10:30 115 C (CC)	The Power of Individual Assessment: Why, How, and Finding Time! Lisa Wilson Carboni and Jenni Scoggin	The speakers will share experiences of using individual interviews to gain deep knowledge of students' mathematical understandings. They will show how Google Docs helped planning and record-keeping and share examples of developed interview protocols. They will work with you to think about how to fit this valuable practice into your busy classroom. Grade Band Audience: 3 to 5
661 Sat 9:30-10:30 122 A (CC)	Using Technology to Demonstrate Understanding Debbie Duvall	We encourage students to demonstrate their understanding of mathematical concepts in a variety of ways. Today, with easy access to document cameras, digital cameras, and the internet, students' options for sharing their ideas are expanding. This session will provide examples of using a variety of technologies in mathematics classrooms. Grade Band Audience: 6 to 8, 3 to 5
662 Sat 9:30-10:30 107 A/B (CC)	Fostering Algebraic Thinking by Making Variables Vary with Geometer's Sketchpad® Charlie Hennessy	The speaker will discuss techniques that lead prealgebra and Algebra I students from concrete to abstract thinking. Geometer's Sketchpad 5 allows students to set and control values on a dynamic number line or in a coordinate plane. When students can see the immediate effects of changes in these values, their understanding of variable deepens. Grade Band Audience: 6 to 8
665 Sat 9:30-10:30 113 A (CC)	Free Tools: Financial Education, Math, and Problem Solving Valerie Klein	Financial ideas can be complicated to model and difficult to understand. Given the role fine print plays in video game rentals, credit card agreements, car loans, and more, students must learn about financial ideas early and often. The speaker will share technology that allows students to explore at the overlap of math and financial concepts. Grade Band Audience: 9 to 12, 6 to 8

666 Sat 9:30-10:30 120 C (CC)	Interactive Technology Resources for Teaching Statistics in the Common Core Rebecca Nichols	The speakers will show how to enhance statistics understanding and offer technology resources to strengthen statistics teaching in the Common Core State Standards. Explore problem solving; formulating questions; and collecting, analyzing, and drawing conclusions from data with hands-on activities, technology, and real data that interest students. Grade Band Audience: 9 to 12, 6 to 8
667 Sat 9:30-10:30 119 A (CC)	Residual Understandings: Making Statistical and Mathematical Connections with Technology Susan A. Peters and Rose Mary Zbiek	Engage with concept-building tasks that promote learning consistent with NCTM's recommendations for secondary school mathematics. Discussion will focus on pedagogical use of technology and connections between mathematics and statistics, including least-squares regression, determination coefficient, and a surprising middle school topic. Grade Band Audience: 9 to 12
669 Sat 9:30-10:30 117 (CC)	Reengaging Girls in Challenging Mathematics: Technology Integration and Instructional Shifts Melissa Hosten	The speaker will describe a project that reversed high school girls', especially Latinas', disengagement following precalculus. Learn how integrating dynamic technology coupled with instructional shifts reengages girls in challenging mathematics. The presentation will also show the effect of involving parents. Grade Band: 9-12
681 Sat 10:30-12 124 (CC)	Wii Play, We Learn Nathan A. Fogg	Come learn new strategies to create more interest and excitement in your classroom by using the Wii gaming system. Use the Wii to collect data and explore probability, measures of center, graphing (including box-and-whisker plots and circle graphs), and other areas of mathematics. Gaming experience is not required. Grade Band: 6-12
682 Sat 10:30-12 122 C (CC)	Inspire Statistics Students with NASA Data and 2012 Technology Monica Trevathan and Natalee Lloyd	Introduce application problems developed by the National Aeronautics and Space Administration (NASA) to help statistics students develop and reinforce knowledge and skills necessary to succeed in college. Work hands-on with applications using TI-Nspire technology, and take the learning and excitement back to the classroom. Grade Band: 9-12
684 Sat 10:30-12 105 A/B (CC)	Picture This Ann Polson	Come create an art project on your graphing calculator. This calculator activity integrates and deepens students' understanding of concepts in geometry, spatial reasoning, algebraic functions, and creative writing while sketching an art project using the equations of various functions learned in Algebra I to precalculus. Grade Band: 9-12
685 Sat 10:30-12 116 (CC)	Which Center Is the Best? Karen E. Hyers and Kristin L. Johnson	Where should three towns build a hospital? How large a circular fountain can you place in a garden? Use three styles of constructions—paper folding, compass-straightedge, and dynamic software—to explore concurrency points. Then, solve triangle problems to find the best point. The variety of tools and methods appeals to multiple learning styles. Grade Band: 9-12
687 Sat 11-12 Terrace Ballroom 2/3 (CC)	A Technological Whack on the Side of the Head Larry Campbell	This humorous, thought-provoking session will offer ongoing perspective on technology use at all school levels. Come reflect on some "mental locks" we all encounter. How does technology change or refine what we do, at any level? What is appropriate use? What's always the best question to ask? How does NCTM's position guide us? Grade Band: All Audiences
695 Sat 11-12 115 C (CC)	Don't Toss Out Four-Function Calculators: Explore Concept Meaning Instead William R. Speer	Use four-function calculators to explore patterns, relations, and functions not usually viewed through calculators. Learn atypical ways of using technology to examine concepts, focusing on reasoning and sense making. Activities will include repeated decimal patterning, conjecturing, hypothesizing, and discovering "keyboard geometry" patterns. Grade Band: 6-8

698 Sat 11-12 120 C (CC)	Mathematical Superlatives: Modeling Optimization with the TI-Nspire™ John Y. Dusenberry	Find the largest box, the quickest path, the smallest area. Optimization is a classic calculus topic that students can master through interaction with TI-Nspire action-consequence documents. The speaker will demonstrate activities usable in both calculus and precalculus classrooms and provide complete lesson handouts. Grade Band: 9-12
700 Sat 11-12 109 A/B (CC)	Using Core Math Tools to Implement the CCSSM Geometry Standards W. Gary Martin	This interactive session will explore features of Core Math Tools, a suite of Java-based mathematical software tools for teachers and students. The tools support implementation of the CCSSM standards for mathematical practice and geometry content. Core Math Tools is freely available from NCTM at http://www.nctm.org/coremathtools/ Grade Band: 9-12
701 Sat 11-12 103 A (CC)	Using Technology in Students' Mathematical Modeling Projects Philip Todd	Coming up with good topics for students' mathematical projects is hard. Technology can help extend the range of problems students can tackle, by using Geometry Expressions to create explicit mathematical models and computer algebra systems to solve them. The speaker will describe summer projects of grades 10–11 students over the last five years. Grade Band: 9-12