iMATHination
Math, Science and Technology Conference for Middle and High School Educators

iMATHination Conference
January 25 & 26, 2013
Workshop Descriptions

Register at http://www.chicagogearup.org or http://imathination.blogspot.com

- Friday Math Bash Sessions – January 25, 2013

(Math Bash sessions are 45-minute mini-workshops)

Domino Delight

Grades 7, 8, 9, 10, 11, 12 (pre-algebra, algebra, geometry)

This session will present a wide variety of ways that teachers can use traditional dominoes in the classroom. Participants will solve problems and play games. There will be a final surprise that teachers could use in their classrooms immediately!!!

Sharon Newman is a Nationally Board Certified Teacher with a M.Ed. from the University of Illinois at Chicago. She is in her 7th year of teaching, 6 of which have been in Chicago Public Schools. Currently, Sharon is the department chair at Clark High School.

Using Simulations to Enhance Middle School Mathematics

Grades 7, 8, 9 (pre-algebra, algebra, technology)

As technology becomes more and more of a factor in the middle school classroom, how do we maximize our computer usage? Online simulations provide a perfect venue for allowing students to explore concepts, deepen their content knowledge while freeing up the teacher to take on the roll of classroom facilitator. Using Gizmos from ExploreLearning, the largest collection of online simulations, participants will explore concepts ranging from basic number sense, probability, geometry and finally algebra. ExploreLearning provides subject area connections and its ease of use allows teachers to horizontally enrich the curriculum while challenging their students to broaden their understanding of math and science.

Thom O'Brien as taught seventh grade mathematics in Colorado for over 10 years. During his time in the classroom he earned a master's degree in Instructional Mathematics, was on the board of directors for the Colorado Association of Middle Level Educators and was an early adopter of technology in the classroom.

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Algebra Activities to Help Implement the CCSS Mathematical Practices

Grades 7, 8, 9 (algebra)
(Math Bash Session 1 only)

Do your students need hands-on activities to help develop their understanding of algebraic topics and to help actively engage them in learning new material? Are you looking for ways to implement the CCSS Mathematical Practices into your classroom? Ideas will be shared to help you!! Learn how manipulatives, cooperative learning strategies, foldables, and other easy-to-implement strategies can help your students!

Kevin Dykema has taught 8th grade math for 18 years. He also conducts many professional development sessions throughout the U.S. on the use of manipulatives in the math classroom. Kevin believes that manipulatives are a great way for students to develop their conceptual understanding of math.

Math and Literature: Using Trade Books to Engage Math Students

Grades 7, 8, 9 (pre-algebra, algebra, geometry)
(Math Bash Session 2 only)

Discover how you can use trade books to actively engage your students in developing their understanding of mathematical topics. See how using math lessons and manipulatives after reading a trade book can greatly benefit your students. Examples and ideas will be shared that can be used immediately in your classroom.

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NASA's Math in Motion

Grades 7, 8, 9, 10 (pre-algebra, algebra, advanced algebra, science)

The universe doesn't have the answers in the back of the book, and neither does this session. Use formal and informal strategies to make sense of the world around you using mathematical concepts. Analyze the motions of objects in space in order to predict the future, solve mysteries, and maybe even save the world! In this session, participants will investigate mathematical phenomena to identify planets in the night sky, determine whether or not an asteroid is in danger of hitting Earth, and discover a black hole. This session will give participants a preview of the process of mathematical modeling as a tool for incorporating many of the Common Core Standards for Mathematical Practice into the classroom.

Janet Moore is a NASA Educator Ambassador (EA) and a Developmental Mathematics instructor at Illinois State University. As a NASA EA, she brings the excitement of NASA's high energy astrophysics missions into math and science classrooms by providing teachers with information and curriculum materials to use in their classrooms.

Engineering the Internet

Grades 6, 7, 8, 9, 10, 11, 12, Administrators (computer science, engineering)

So, you're not an expert on the Internet? This session is just for you! Engineering the Internet is a module designed for students in grades 6 through 12. During this session, teachers will engage in various hands-on activities that can immediately be used in their classrooms to teach students about the Internet. Teachers can tailor the complexity of this unit to address the specific academic needs of their students. If you're already pretty proficient in using the Internet as a teaching tool in your classroom, you will find this session informative and practical. Student activities explore:

- The history of the events related to the development of the Internet
- The physical parts of the network that comprise the Internet
- The functions of the parts of the Internet
- Ethical issues connected to the development and use of the Internet
- Types of engineers
- Electromagnets

Through the use of hands-on activities, the Internet is explained with a student-friendly approach that supports the acquisition and retention of information. The majority of this unit may be taught in the absence of Internet access as the activities have been designed to utilize ordinary classroom supplies.

Kelly Shepard taught middle school mathematics and science for 14 years. She earned a B.S.Ed. and a M.Ed. from Loyola University. Currently, she's a Research Assistant and Ph.D. student at the Illinois Institute of Technology (IIT). Additionally, she teaches undergraduate and graduate courses at IIT and National-Louis University.

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Digital Tools to Support Mathematics

Grades 7, 8, 9, 10, 11, 12, Administrators (general math, technology)

This workshop will present a variety of digital tools that can be incorporated into various areas of math instruction and learning. Web 2.0 tools, interactive websites, as well as, related hand held device 'apps' will be explored. Participants will walk away with a list of ideas for utilizing these resources.

Mary Warren is the Director of the Learning Technology Center 1 Central, a grant-funded agency through the Illinois State Board of Education. The agency services the technology needs both technical and educational for all of suburban Cook County. Mary's area of strength is in providing professional development and support for teachers and students in the area of educational technology. Her goal is to prepare teachers (and students) to be successful in the highly connected world of the 21st century.

Electrify Learning

Grades 7, 8, 9, 10, 11, 12 (physical science, earth science, pre-algebra, algebra, energy literacy, technology)

Reliable electricity, climate change and the need for energy independence are challenges facing everyone. Steps in the quest for solutions, include developing a greater understanding of our current uses of energy and the systems that supply our electricity, and learning about the effects of renewable energy sources and seeing how research into the possibility of electrical storage can be applied to the electrical system. This presentation introduces fun activities that are *easy to use and free!* They include interactive applets that allow students to investigate generation and transmission of electricity. As the student monitors and controls a simulation of a portion of the power grid, s/he must make decisions based on consumers' demands, transmission and generation capabilities, and sources of new generation while balancing costs and CO_2 emissions.

Jana Sebestik has 34 years of experience teaching in middle and high school mathematics classrooms. For the past nine years she has worked with others in the Office for Mathematics, Science and Technology Education (MSTE) at the University of Illinois to develop mathematics and science curriculum materials that are problem-based and technology rich.

George Reese is director of the MSTE Office in the College of Education at the University of Illinois at Urbana-Champaign. He was a teacher of mathematics and English at the Santa Fe Indian School from 1986-1992. He was a member of the Board of Directors of the Illinois Council of Teachers of Mathematics 2009-2011.

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- Saturday Workshop Sessions –

January 26, 2013

(Saturday sessions are 75-minute workshops)

Hawaiian Adventure: Volcanism & Ecosystems

Grades 7, 8, 9, 10, 11, 12, Administrators (earth science, environmental science, technology)

The Geologic Society of America (GSA) offers several educational trips for students and teachers each year. During the summer of 2012, the GSA ran a trip to the big island of Hawaii to give educators hands-on experiences about plate tectonics, hot spot volcanism, and the diverse ecosystems of the island. I had the pleasure of attending this trip and will share what I learned from this experience including stories, photos and samples from Hawaii demonstrating the eco-diversity of the island; materials for teaching volcanism and plate tectonics; demonstrations of what geocaching and earthcaching are and how they can be used to engage students; and discuss upcoming GSA trips and how to apply for them.

Sara Hughes has been teaching chemistry and earth/space science for 5 years at Curie Metropolitan High School. She earned her undergraduate degree in Geology from the University of Illinois at Urbana-Champaign and is currently working on a physical science master's degree at Eastern Illinois University.

5 Easy Steps to EXPLORE, PLAN, and ACT Math Score Success!

Grade 7, 8, 9, 10, 11, 12, Administrators (assessment, pre-algebra, algebra, technology)

This session shows how 4MAT is being used to transform algebra teaching by reflecting the principles of how students learn. Explore the four ways students learn and how to design algebra instruction to address these differences while facilitating finding and using structures to solve problems. To demonstrate, we will walk though several units, including The Language of Algebra, Linear Equations and Exponents.

Reginald Miller is a fifteen year math veteran of using hands-on learning and the TI-graphing calculator. His work has led to the improvement of math achievement of students in elementary and high school by as much as 21 percentage points in a single year. His results have been featured, among others, in the Chicago Sun-Times. Reginald is a professional developer, speaker, and coach. He creates video math tutorials and conducts student workshops.

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Common Core in the Classroom

Grades 9, 10, 11 (Algebra 1, Algebra 2)

This session is designed to help teachers understand the big idea behind the common core, and how to design their lessons so they reach the standards of the common core. Last year, we worked on a team that wrote a common core unit plan for quadratics. This year we will be field testing that unit plan. We look forward to sharing our work with peers. Every participant will recieve a sample of our work. As teachers, we need to think outside of thebox and let go a little bit.

Sharon Newman earned a M.Ed from the University of Illinois in Chicago. Her undergraduate work was in Mathematics/Secondary Education from Illinois State University. She is also a Nationally Board Certified Teacher. Most recently, she began her second year "Designing Instructional Units Alligned to the Common Core State Standards" for the Chicago Teacher's Union Quest Center.

Tanya Meade is in her seventh year of teaching mathematics at Lane Tech College Preparatory High School. In 2010, she earned her National Board Certification. Starting in November 2011, Tanya began working with a team of NBCTs and teacher leaders through the CTU Quest Center on a project funded by the AFT Innovation Fund grant. She has been developing a Common Core State Standard mathematics unit that will be piloted at various Chicago Public Schools. In the summer of 2012, Tanya presented at both the AFT's National Stakeholders Conference on Common Core State Standards and at the Collaborate Chicago Conference. Prior to teaching, Tanya worked in the health care and litigation consulting industry.

Visualizing Problem-Solving Using Model Drawing (Singapore Math)

Grades 7, 8 (fractions, comparative relationships, pre-algebra)

Model Drawing (Singapore Math) is a method of teaching mathematics problem-solving. It is an exciting bridge between mathematics concepts, computation, and deeper understanding of relationships. Model Drawing provides a scaffold for organizing and identifying "knowns" and "unknowns" of mathematics word problems, enabling greater student success. Participants will learn to identify and use the two structures of model drawing: A) part-to-whole, and B) part-to-part. Utilizing these structures, participants will then work through a series of problems to provide proficiency with the Model Drawing method. Student misconceptions will be addressed as well as how to incorporate this exciting tool into the mathematics teacher's toolbox.

Elizabeth Valente holds a M.Ed. in Curriculum and Instruction and a Master's of Science from DePaul in mathematics education. She has over twenty years experience at Otis Elementary teaching sixth graders in all subject areas.

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The Instructional Shifts of Common Core

Grades 7, 8 (geometry, number systems, probability and statistics, assessment)

Embark on a journey through the Common Core State Standards in mathematics as you learn about the fundamental shifts in instruction and gain essential knowledge of high quality math instruction through hands on activities.

Sharon Rak is a former middle school math teacher from Willow Springs, Illinois. She currently teaches at Northeastern Illinois University and works with Chicago Public School (CPS) teachers through the Chicago Teachers' Center. Last year she helped develop the Common Core State Standards for Mathematics training for the Illinois State Board of Education. Sharon has been chosen by the state of Illinois as one of four members to be a part of their EQuIP (Educators Evaluating Quality Instructional Products) team. This team will develop tools and processes to identify quality instructional materials aligned to the Common Core State Standards (CCSS).

Juan Madrigal is a middle grades teacher at De Diego Elementary School in Chicago. This year he is integrating STEM 21st Century Programs from IMSA Fusion and Vex Robotics into his middle school curriculum. He holds a master's degree in mathematics from DePaul University.

Algebra Manipulatives, Real and Virtual: Making the 21st Century Classroom Connection

Grades 7, 8, 9, 10, 11 (algebra, technology)

Do your students need some hands-on activities to help develop their algebraic concepts and to help actively engage them in learning new material? Discover the benefits of using manipulatives, both real and virtual, in your class as a tool to help students better understand math as well as some ways to use a variety of manipulatives. Topics include integer operations, solving equations, polynomial expressions, graphing, and more!

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Math Literature and Informational Text: Meaning through Interactive, Hands-on Activities

Grades 7,8, Administrators (geometry)

This workshop is perfect for self-contained teachers and teams of Math and ELA staff who want to add RIGOR to their current classroom by increasing their understanding of the expectations of both ELA and MATH CCSS. Participants will leave with hands-on activities in math, reading and writing to make both Rigor and Understanding come alive.

Sara Reed is a former middle school ELA teacher who recently left the classroom, after 15 years, to spend more time with her two small children. She has two master's degrees, one in education the second in administration and holds a Type 75 license. Currently, she is on faculty at Concordia University and consults for ETA Hands2Mind.

The Mathematical Core of Cross-Cutting Science Concepts

Grades 7,8, 9,10 11,12, Administrators (algebra, geometry, science, technology, teacher collaboration)

This session will highlight the role of mathematics as the language of science through the Integration of the Common Core and Next Generation Science Standards. Activities will focus on modelin inquiry-based, interdisciplinary, problem-centered learning as well as modeling formative assessment and universal design for differentiation. We will be engaged in modeling 21st century skills − especially the 4 Cs − communication, collaboration, critical thinking, and creativity while exploring the application of cross-cutting concepts (e.g., the ratio of surface area to volume and form and function) to understanding everyday phenomena and solving real-world solving problems (such as applications in engineering and nanotechnology). Finally, we will relate the application of mathematics and science concepts to STEM careers.

Karen Lindebrekke is Director of the iBIO Institute EDUCATE Center where she provides teacher professional development in STEM education. She has worked in mathematics and science education for over 20 years, including classroom teaching; professional curriculum and assessment development; and teacher professional development, with a focus on authentic, problem-centered, interdisciplinary, inquiry-based learning.

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Making Structure Come Alive

Grade 7, 8, 9 (algebra)

Quick... What is $8(99^2 - 1) + 3(99^2 - 1) - 11(99^2 - 1)$? Seeing this as 8 of something plus 3 more of the same thing minus 11 of the same thing is a very useful and powerful technique in making our lives (and our students') much easier. In this session, we will focus on CCSS Mathematical Practice 7 by engaging in problems that promote and develop this type of thinking beginning with numbers and working through variable expressions and equations... all in 75 minutes. Hope to see you there!

Matt McLeod has taught 6^{th} – 8^{th} grade math in Chicago Public Schools for 10 years using NSF funded curricula such as CMP, Math in Context and CME Project Algebra 1. His last 4 years in the classroom focused on 8th grade Algebra. Matt recently transitioned to EDC where he develops teacher resources for CME Algebra 1 and illustrative dialogs for the CCSS-M Math Practices.

Digital Citizenship: Helping Kids Thrive in a World of Media and Technology

Grades 7, 8, 9, 10, 11,12, *Administrators (technology integration, digital literacy, digital citizenship)*

Digital citizenship is an essential 21st century skill in which students are safe, respectful, and responsible in their use of digital media to create, communicate, and collaborate. Join Common Sense Media to learn about their free Digital Literacy and Citizenship curriculum. Developed in partnership with the GoodPlay Project at Harvard, the curriculum is research-based, student-centered, aligned to ISTE's NETS-s, and includes parent resources. You will learn about the media landscape in the lives of middle and high-school students. Then, you will be introduced to the curriculum and sample a middle and high-school lesson activity, which includes implementation ideas. Walk away with tools and ideas you can use for teaching digital literacy and citizenship.

Sue Thotz is the Chicago Program Manager for Common Sense Media. Sue provides professional development training and support for educators implementing digital citizenship resources across the Chicago Public School district. In addition to classroom teachers, Sue also works with educators of youth in informal settings such as community-based organizations and cultural institutions through the HIVE network. Prior to Common Sense, Sue's work includes managing education research projects and she has a Master's in Public Health in Community Health Sciences from the University of Illinois at Chicago.

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Triangle Concurrencies with "GeoGebra"

Grades 7, 8, 9, 10, 11, 12 (geometry, technology)

"GeoGebra" is a free downloadable dynamic software program that is much like Geometer's Sketchpad. In this session, we will construct the circumcenters, incenters, centroids, and orthocenters of triangles and integrate these constructions with coordinate graphing to solve real-life application problems. Problems we will solve include finding the location to which a couple should move in order to live equidistant from each of their three grown children, and finding the location at which a fire station should be built so that it is equidistant from the three highways connecting three rural towns.

Cheryl Kneubuhler currently teaches mathematics education courses at Ball State University in Muncie, IN. She has been a professional developer for the Teaching Integrated Math & Science Project at the University of Illinois at Chicago, and a math specialist and professional developer for the Chicago Math & Science Initiative. Additionally, she has taught math education courses at Loyola University Chicago, at the University of Illinois at Chicago, and she is a former high school math teacher.

Use Common Core Math Problem Solving to Build Critical Thinking

Grades 7, 8, 9 (pre-algebra, algebra, geometry)

In this session we will engage participants in solving problems using number sense, algebra and geometry for middle school students. We will use hands-on math activities and creative application projects to collect data from real-world contexts. These activities teach students to perservere, encourage collaboration in math communities and foster students' ability to explain their thinking verbally and in writing.

Edna Bazik, ***Ph.D.,*** is a Mathematics Consultant, the Math Education Program Coordinator at National Louis University, and Co-Author of 12 math education books. She is a member of NCTM, NCSM, ICTM, Math Assessment Advisory Committee of Illinois State Board of Education, and is the NCSM Central I Region Team Leader. Edna has served on Math Illinois State Achievement Tests as author of grades 6-8 ISAT math assessments and the ISBE validation committee and LM Committee. Edna has received the ICTM Distinguished Lifetime Achievement Award, the ICTM Max Beberman Award and the ICTM Lola May Award. She is also an Illinois State University College of Education Hall of Fame member.

Katie ONeill is a middle school mathematics teacher in Chicago Public Schools. She is the current treasurer of Chicago Elementary Teachers Math Club (CETMC).

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Solving a Supernova Mystery with Flipbook Mathematics

Grades 7, 8, 9, 10, 11, 12 (pre-algebra, algebra, advanced algebra, pre-calculus, technology, science)

Mathematics is the language of the universe. Use the process of mathematical modeling to describe phenomena in the world and to solve the mysteries of the universe. In this session, participants will start with the simple scenario of analyzing motion in a flipbook to practice the process of mathematical modeling. Then, applying similar strategies to real-world data, participants will solve the more complex task of aging a supernova and solving a centuries-old mystery. Finally, participants will discuss mathematical modeling as a tool for incorporating ALL eight of the Common Core Standards for Mathematical Practice into the classroom. Free NASA materials!

Janet Moore is a NASA Educator Ambassador (EA) and a Developmental Mathematics instructor at Illinois State University. As a NASA EA, she brings the excitement of NASA's high energy astrophysics missions into math and science classrooms by providing teachers with information and curriculum materials to use in their classrooms.

Embracing the Common Core Standards in Mathematics Whole-Heartedly - What Has Changed and Why?

Grades 10, 11, 12 (advanced algebra, pre-calculus, trigonometry, geometry, assessment)

Are you at a loss for how to integrate yet a new set of standards, the Common Core? If so, this session is for you. The Common Core State Standards (CCSS) for Mathematics improve on current state standards and provide a consistent framework for teaching and learning practices. Participants will be provided a straightforward description of the five essential paradigm shifts, practical guidance for forming and sustaining collaborative teams and dozens of tools, and resources to help teams analyze and interpret the standards. Additionally, participants will identify resources that aid in assessing student progress toward meeting the new standards.

Lamont Holifield is currently the Math/Science Department Chair at CICS-Ralph Ellison High School. He is an active member of the Metropolitan Math Club of Chicago, NCTM and ASTD. Currently, he teaches Algebra II, Statistics (Regular and AP) and Pre-Calculus. He has a passion for seeing students excel and is an avid proponent of the new Common Core Standards. He loves to facilitate the integration of reading, writing and debate in the mathematics and science disciplines. He has been a presenter at iMATHination for the past two years.

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Make and Break Secret Codes with Mathematics

Grades 7, 8, 9 (middle grades math, cryptography, afterschool enrichment)

Cryptography is a subject that is becoming increasingly important in everyday life. We apply it when we shop online, use ATM machines, and watch cable TV. The Cryptoclub Project has developed games, treasure hunts, and other informal activities that engage students in playful applications of cryptography, while reinforcing and extending their understanding of mathematics. During the workshop, we will focus on multiplicative ciphers and the interesting mathematical questions that arise when using them, and we will take a brief look at some of the mathematics that is involved in studying other ciphers.

Janet Beissinger is Research Associate Professor in Learning Sciences and Mathematics at the University of Illinois at Chicago and Director of the NSF-funded Cryptoclub Afterschool Project.

Bonnie Saunders is Clinical Associative Professor of Mathematics at University of Illinois at Chicago and Co-PI of the NSF-funded Cryptoclub Afterschool Project.

Transform Your Geometry Classroom by USING Transformational Geometry and Technology

Grades 8, 9, 10, 11, 12 (geometry, technology)

The Common Core State Standards for Mathematics advocate a Transformational Geometry approach to the learning and teaching of Geometry in the secondary curriculum. It is important for students to learn not only how to do Transformational Geometry, but also how to use Transformational Geometry to connect various topics in the mathematics curriculum. This hands-on session will utilize the dynamic geometry application on the TI-Nspire CX calculator to show how Transformational Geometry can be presented in the geometry classroom and how this topic can then help students connect various topics in their learning of mathematics.

Ray Klein is a retired high school math teacher (30 years at Glenbard West H.S. in Glen Ellyn, IL) and a T^3 National Instructor. He currently teaches pre-service courses at Northern Illinois University while also consulting with school districts nationwide on the use of technology to better help students learn mathematics.

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The Flipped Math Classroom

Grades 7, 8, 9, Administrators (algebra, technology, multi-media)

Participants will have an opportunity to experience the "flipped classroom" for Common Core Standards for algebra. After they view a video lecture on one of the algebra Common Core Standards, they will use high quality instructional activities, motivational practice activities and compete in math games based on the algebra standard. Participants will also receive material to try a flipped classroom for 8th grade standards for the Pythagorean Theorem and for 7th grade common core standards for statistics and probability.

Diane Schiller currently teaches math education at Loyola University Chicago. She began her career as a middle school teacher in Chicago and developed Countdown, a call-in format math television show.

Problem Solving in Light of the Common Core State Standards Era

Grades 7, 8, 9 (pre-algebra, algebra, advanced algebra, assessment)

During a time when many of our states have adopted the Common Core State Standards, it is imperative that our students have a solid understanding of math and more specifically a firm grasp of problem solving skills. We will explore a 5 Step Plan for Problem Solving, Problems of the Day/Week, student/teacher friendly grading rubrics, and long term projects that will help your students develop a strong understanding of the Standards for Mathematical Practice. With these problem solving skills, we will explore ways to differentiate with guided templates to meet the needs of all students. We will also address the need for incorporating all mathematical strands into daily practice within the classroom.

Chaidan Upp graduated from DePauw University with her Bachelors in Education Studies and received her Master's in Education with middle school endorsements in mathematics, social science, and English Language Arts from Loyola University Chicago. Chaidan is currently teaching math and language arts and is an adjunct professor at National Louis University.

Jessica D'Amour graduated from Indiana University with a bachelor's in telecommunication. She received her Master's in Education with middle school endorsements in mathematics and social science from Loyola University Chicago. Jessica is currently a seventh grade math teacher.

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H_2O_2 – Friend or Foe?

Grades 11, 12 (chemistry, data collectiona & analysis, advanced algebra, calculus, technology)

Hydrogen Peroxide (H_2O_2) is a very interesting substance. It's chemical structure is just one atom different from water yet its molecules have a wide variety of applications ranging from rocket propellant to antimicrobial agent to odor management in wastewater treatment systems. In this workshop we will use a gas pressure sensor to determine the real reaction time needed to reach a "safe" level of hydrogen peroxide in a contact lens disinfection system. This is a unique AP Chemistry lab adapted for the TI-Nspire. *No chemistry knowledge is required, but an interest in mathematical modeling and connections to real-world problem solving is highly recommended!*

Ray Lesniewski teaches Honors and AP Chemistry at Jones College Prep in the heart of downtown Chicago. He encourages his students to become chemically literate and to find the connections between their everyday experiences and the particle world of atoms, molecules and ions.

Hands On Design: Carbots!

Grades 7, 8, 9, 10 (algebra, computer science, technology)

In this session, participants will learn how a GEAR UP middle school summer program incorporated practices of the inquiry and design processes, as students programmed and designed their own car robots (or CarBots) using Texas Instrument graphing calculators. Participants will learn about resources that can be used for classroom instruction as well as for an after-school club. The session will also include a discussion on alignment with Common Core State Standards for Mathematical Practice including reasoning abstractly and quantitatively, attending to precision, modeling with mathematics and making sense of problems and persevering in solving them.

Matthew Crye is a Nationally Board Certified Math Teacher and has taught in Chicago Public Schools for the past eight years. He currently teaches at Social Justice High School, a neighborhood public school in Little Village that was built in response to community demands for a new high school.

Roxana Hadad is Director of Math, Science and Technology at the Chicago Teachers' Center at Northeastern Illinois University.

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Reclaiming Lost Ground: Research-Based Interventions for Underprepared Algebra Students

Grades 7, 8, Administrators (algebra)

Today, all students must succeed in algebra, including those who are underprepared. These students may need more time in algebra, but time alone is not sufficient. Learn about comprehensive, research-guided strategies and resources from mathematics learning, literacy, social psychology, and special education to help underprepared students.

James Lynn is the Executive Director of High School Development at the University of Illinois at Chicago. Prior to his position at UIC, he taught secondary mathematics and served as a department chairperson for 15 years in Chicago Public Schools including Northside College Preparatory High School and Foreman High School.

What's Fair?: Math and Society

Grades 7, 8, 9, 10, 11,12, Administrators (pre-algebra, algebra, advanced algebra, geometry, discrete math, teacher collaboration)

Experience the highlights of a three-week unit on how mathematics can help us understand social issues involving fair division and equal opportunity. Participants will explore: FAIR DIVISION - problems with division in the real world, and how mathematics can help deal with them; GAME THEORY - the mathematics of how our decisions affect others and their decisions affect us; EQUAL CHANCES & DISTRIBUTION OF RESOURCES - participants use mathematics to help them develop their own model of a fair society.

Steve Starr has taught high school mathematics at Lake View High School in Chicago for 20 years and was department chair for the last 13. His focus has been in creating engaging, student centered curricula in all high school math subjects. Along the way he has motivated many students to join the AP Calculus program.

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Eating Volumes - Delicious Lessons in Calculus

Grades 10, 11, 12 (calculus, technology)

Visualization and hands-on activities can put meaning into formulas in any math class, but especially in calculus. Participants will explore finding volumes of solids with known cross-sections using 3 activities: Geometer's Sketchpad (GSP), model-building, and of course food! In addition, participants will leave with 3 labs to use with students when teaching volumes of solids of revolution: Disks with Cupcakes; Washers with Donuts; and Cylindrical Shells with Angel Food Cake. If participants have access to a laptop with GSP on it, they should bring it to this workshop**.**

Nancy Powell recently retired from full-time teaching. She taught 8th grade through AP Calculus. She's a Nationally Board Certified Teacher, a recipient of the Presidential Award of Excellence in Math Teaching, Golden Apple Scholar, Certified SMART Board Trainer, Regional Technology Teacher of the Year, and conducts workshops across the country.

Revolutionary Math and Memory Techniques

Grades 7, 8, 9, 10, 11,12, Administrators, Parent Advocates (general math)

In this session, participants will learn an exciting system created for solving complex math problems by using a series of patterns and short-cuts that demystify how numbers work. Participants will be able to tackle complex math problems, expand their memory capacity and understand how to store information for short and long-term recal – all in a fun, cool, high energy session!

Mike Byster is the creator of Brainetics™ and has a single mission: to get kids excited about math and learning. Formerly a successful trader at the Chicago Mercantile Exchange, Mike's life changed when his cousin, a local math teacher, asked him to teach her class some of his patterns and to speak to them about his love of numbers. After working with the kids in regular, gifted and special education, he decided to devote himself to teaching his program full-time. Mike began to see the role self-esteem and conficence play in learning math. When students feel good about their ability and are having fun learning, they are more likely to want to continue. In the last decade, he's given thousands of presentations in schools, with requests from all across the country, and around the world – and he does this all as a volunteer. Mike is a member of the National Council of Mathematics Teachers.

iMATHination is funded in part by a GEAR UP grant from the U. S. Department of Education.