



January 20 & 21, 2012

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

- Friday Math Bash Sessions –

Robotica Clubs: Engaging students in STEM through Robotics

Grades 6, 7, 8

(Math Bash Session 1 only)

Teachers will learn about GEAR UP after school Robotics activities for 2012. In this session, teachers will find out how to start a club for 6th, 7th, 8th graders using VEX Robotics.

Gaming with Youth: Free and Easy Game-Based Learning

Grades 6, 7, 8

(Math Bash Session 2 only)

Teachers will learn about GEAR UP after school Game Based Learning activities to be offered in 2012. In this session, teachers will find out how to start a club for 6th, 7th, 8th graders using the following technology tools: Microsoft Kodu, Microsoft Kinect and MIT's Scratch.

*The intent of **Robotica Clubs** and **Gaming with Youth** after school programs is to motivate students and foster academic achievement in mathematics and science. GEAR UP teachers interested in implementing these after school activities will be provided with professional development, implementation support, a service stipend and the opportunity to participate in annual local/regional/national competitions.*

Aaron Cortes, director of the Upward Bound Math and Science Program at Chicago Teachers' Center of Northeastern Illinois University, designs, develops, and implements STEM career-oriented and project-based activities for Chicago and suburban students. He also provides professional development in STEM areas to teachers and Chicago

Teachers' Center/NEIU staff. Aaron received his master's degree from the University of Illinois at Chicago in Urban Planning and Policy and has a bachelor's degree in Criminal Justice and Latino Studies from the University of Illinois at Chicago.

Roxana Hadad is Director of Math, Science and Technology at Northeastern Illinois University's Chicago Teacher's Center, where she designs and implements programs for Chicago-area students, parents, and teachers. She is currently pursuing a Ph.D. in Educational Psychology at the University of Illinois at Chicago. She has been named an Adobe Education Leader and a Google Certified Teacher.

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Games Games Games

Grades 6, 7, 8, 9, 10

Come learn, make and take a few exciting games that can be used to teach important math topics in algebra and geometry. Learn ways to make sure your students have the chance to persevere in problem solving. The 5 piece tangram puzzle, Insanity 2, Tower of Hanoi, and puzzle cubes will be presented.

Sharon Rak is a former middle school math teacher from Willow Springs, Illinois. She currently teaches at Roosevelt University and Northeastern Illinois University and works with Chicago Public School (CPS) teachers through the Chicago Teachers' Center. This year she helped develop the Common Core State Standards for Mathematics training for the Illinois State Board of Education.

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Hands-on Geometry

Grades 6, 7, 8, 9, 10

(Math Bash Session 1 only)

Do your students need hands-on activities to help develop their understanding of geometry concepts? Discover the benefits of using manipulatives as well as some ways to use some manipulatives for geometry.

Hands-on Graphing

Grades 6, 7, 8, 9, 10

(Math Bash Session 2 only)

Do your students need a variety of hands-on activities to help develop their understanding of geometry concepts? Discover the benefits of using manipulatives as well as some ways to use them in geometry.

Kevin Dykema has taught 8th grade math for 17 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.

Hands-on Learning of SLOPE: Math and Science Connections with the TI-Nspire CX CAS and the Vernier DataQuest Application

Grades 6, 7, 8, 9, 10, 11, 12, Early College

There is no better way for students to learn the concept of slope than to physically walk it out. With TI-Nspire's new Vernier DataQuest Application this is easier and more pedagogically powerful than ever. Enjoy the wonderful world of color as connections are made between mathematics and science.

Sean Bird has taught in Indianapolis for 15 years using a variety of handheld and presentation technology. He serves as a T³ Instructor (Teachers Teaching with Technology). He has also authored activities for Pearson, NASA, TI-Math, and Math Nspired. He is a frequent presenter at math/science conferences including NCTM, NSTA, T³.

MathMagic

Grades 6, 7, 8, 9

Learn how to use "magic" to support algebra. We will introduce you to some of our best tricks, tested with middle school students in the GEAR UP Summer Academy.

Dr. Diane Profita Schiller is Professor of Education at Loyola University Chicago. She earned her BA at the University of Illinois, Chicago; her MA at the University of Illinois, Urbana, and her doctorate at University of Illinois, Chicago. For ten years she worked as a middle school teacher in a small, urban school where service learning was an expected part of the curriculum. As a professor, she has included service learning in all of her undergraduate education classes. For 20 years she has led a team of on air educators to produce a call-in cable access television show to help students learn math. Edited excerpts from the show are available at MathFLIX.luc.edu.

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Motivating Students Through Engaging Math Learning Activities

Grades 6, 7, 8, 9

Encourage students to enhance their verbal and written math skills through exploration, collaboration, and discussion. Build student interest through inquiry based activities that motivate students and promote mathematical thinking. Have middle school students experience problems that can be applicable to real life situations.

Edna Bazik, Ph.D., Mathematics Education Program Coordinator, and professor at National Louis University, has presented over 1,000 math sessions/workshops for teachers during more than 4 decades of teaching mathematics in Illinois; Edna has recently received the Distinguished Life Achievement in Mathematics Award from the Illinois Council of Teachers of Mathematics; she has co-authored 11 mathematics education books and 35 professional articles. Edna also serves on the ISBE ROE CCSSM development team and is a presenter of CCSSM trainer or trainers workshops.

Chaidan Upp currently teaches middle school mathematics at The Joseph Sears School in Kenilworth, IL. Chaidan was an awesome middle school math student in Dr. Bazik's class at Hinsdale Middle School. Recently Edna Bazik served as a mentor for Chaidan Upp, an enthusiastic and dedicated middle school math teacher. Chaidan presented at the iMATHination Conference in 2011.

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Sparking a Fire with Real Life Mathematical Investigations

Grades 6, 7, 8, 9, 10, 11, 12

Are you looking for ideas that will trigger students to say “WOW” or “Aha”? Is finding appropriate resources or material that will engage students and foster learning often a problem? If so, this session is just what the doctor ordered! In this session, Mr. Holifield will expose you to a plethora of activities that he has used in a variety of mathematical settings. The activities will engage students as learners and creators. You will get hands-on experience with some of the activities and receive activity descriptions of others that you can incorporate in your existing curriculum. Some of the investigations included are: Compound Interest: Exploring the Pay Day Loan Dilemma, Test Your Memory Residual Activity (Statistics), The Birthday Problem (Algebra in Gaming), and dozens of others.

Lamont Holifield is currently a mathematics instructor at CICS-Ralph Ellison High School. He has taught the full line of mathematics courses offered at his school and is currently teaching Statistics, AP Statistics and Pre-Calculus. He currently serves as a

Mentor Teacher and Debate Team Coach at the school and is a proponent of debate across the content areas. He received his undergraduate and graduate education at Roosevelt University and prides himself as a teacher who endeavors to meet the needs of all students.

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What? Play Golf in Math Class?

Grades 10, 11, 12

Bring your trig skills and see if you're capable of a hole-in-one on your own personal golf hole! Test your skills with trig and Pythagorean Theorem while challenging a fellow math geek! Bring your calculator (no golf clubs needed) and maybe you'll be on your way to earning the next "green jacket". You'll go home with a game that can be customized from beginning measurement to geometry and trigonometry. ***Participants should bring their own calculators.***

Nancy Powell is a former math teacher and department chair at Bloomington High School. With 37 years of experience, she is an author and national presenter on topics in geometry and technology. She has received the Presidential Award of Excellence in Secondary Math Teaching, 1992, and is co-author of the UCSMP Geometry, 3rd Edition textbook. She is a retired instructor for pre-service teachers at the University of Illinois Champaign-Urbana, Illinois Wesleyan University, and Illinois State University. Nancy is a Certified SMART Board trainer and was a finalist for Illinois Teacher of the Year.

- Saturday Workshop Sessions -

101 Favorites

Grades 6, 7, 8

Take a whirlwind tour of over 101 tried and true educational web sites to use with students. Teachers will learn to assist students in working independently and staying actively engaged by becoming familiar with educational software such as Kerpoof Studio, BrainPop (which provides short movies and quizzes that give immediate feedback to demonstrate understanding), and other technological aides. Attendees will take away an online favorites list of over 100 web sites. Participants will use Google to bookmark every site and have it available from any machine with Internet access. ***Participants should bring their own laptops with Wi-Fi and have a Google login.***

Mary Maloney is a National Board Certified Teacher in Career and Technology Education and holds a MS in Education, specializing in integrating technology into the classroom. As a 20-year CPS veteran she is a mentor for NBC candidates and a Chicago Foundation for Education coach sharing ways of using technology in the classroom.

Joy Reeves is a Nationally Certified Teacher who has taught in CPS for 27 years. She is currently the Science Lead Teacher at Claremont Academy. From 2002-2004 Joy worked as the Educator on Loan to the Museum of Science and Industry. She also writes on-line curriculum for the University of Chicago's Web Docent and UVOIR programs.

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4MAT 4 Algebra: A Whole New Way of Learning Algebra

Grade 9

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. To demonstrate, we will walk through several units, including The Language of Algebra, Linear Equations and Exponents.

Michael McCarthy is CEO of About Learning, a company specializing in how and why people learn. Michael works with organizations throughout the world in creating more dynamic approaches to learning. About Learning's goal is to broaden people's view of learning so that more students will succeed and find meaning in learning.

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Crime Unit

Grades 7, 8, 9

How does crime affect the lives of children? The 7th graders at Carnegie Elementary School began a journey to answer this very question. They quickly found out that they needed to know how to write researchable questions. Then they discovered that they needed a bit of math to help them understand the many effects of crime on their lives. Learning how to create and use bar graphs, circle graphs, and histograms were but the first steps in their journey. They learned how to interpret and use measures of central tendency as well. In this session, participants will engage in learning situations similar to those of our 7th grade students. Additionally, we will share our team-teaching techniques and ways to modify our crime unit to fit the needs of students with Individualized Education Plans (IEPs). **Participants should bring their own iPads.**

Kelly Shepard teaches middle school math at Carnegie Elementary School and is an adjunct professor in the mathematics education department at National Louis University. From Loyola University of Chicago she earned a B.S.Ed and an M.Ed. At the Illinois Institute of Technology, she is a Ph.D. candidate in science education.

Vanessa Shackelford is a Special Education teacher at Carnegie Elementary School where she uses the team teach method to support her special needs students who have learning, cognitive, developmental and autistic disabilities. She is a 2008 Chicago Teaching Fellow who holds a Master of Arts in Teaching from National Louis University.

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Fractions Don't Have to Be Frustrating!

Grades 6, 7, 8

Fractions can be a very frustrating concept for many students. Discover the benefits of using manipulatives and come see how using them can help your students better understand fraction concepts, including equivalence, ordering, addition, and subtraction.

Kevin Dykema has taught 8th grade math for 17 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.

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Getting Ready for Common Core in Grades

Grades 6, 7, 8

In this session, participants will get the latest available information about Common Core State Standards for Mathematics and experience what they will look like in the classroom. Participants will learn engaging hands-on activities and tasks that support grade level critical areas and the Mathematical Practice Standards.

Sharon Rak is a former middle school math teacher from Willow Springs, Illinois. She currently teaches at Roosevelt University and Northeastern Illinois University and works with Chicago Public School (CPS) teachers through the Chicago Teachers' Center. This year she helped develop the Common Core State Standards for Mathematics training for the Illinois State Board of Education.

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Helping Students Succeed in Algebra Through the Use of Manipulatives

Grades 6, 7, 8, 9

Do your students struggle with algebraic concepts? See how your students can benefit from a visual approach to algebra and learn how hands-on activities can help promote their understanding of algebraic concepts. Topics include integer operations, solving equations, polynomial expressions, graphing, and more!

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Implementing the Common Core Mathematics Content and Practice Standards at the High School Level

Grades 9, 10, 11, 12, Administrators

This session will focus on both the Practice and Content Common Core Standards for Mathematics at the high school level. Participants will experience mathematics lessons that exemplify the intersection of these two types of standards. Hands-on lessons and assessments will be highlighted and analyzed with the corresponding Mathematics Practice and Content Standards.

Claran Einfeldt is the President and Founder of C Math 2, Inc., one of the nation's most successful mathematics consulting companies. Her love of learning mathematics includes a master's degree in Mathematics and her passion for teaching mathematics includes the course work for a doctorate in Mathematics Education. With extensive practical experience at the local, state, and national level, she is widely recognized for her expertise in the area of cutting edge mathematics curriculum, assessment, and instruction.

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Intensified Algebra - Supporting Struggling Students

Grade 9

Planning effective lessons for struggling 9th graders in a double period can be challenging. This begins with using high-quality instructional materials to facilitating discourse through exploration to creating effective debriefing sessions. Learn more about the Intensified Algebra Project which is in its 3rd year of implementation and a protocol for developing effective lessons - Thinking Through a Mathematical Activity.

Regeta Slaughter is currently a clinical lecturer in the Mathematics Education Department at the University of Illinois at Chicago. She teaches methods classes for K-8 preservice teachers, the 2-course sequence of courses in the Algebra Initiative Project, a collaboration with CPS and 2 other universities, and supervises secondary math student teachers. Regeta also supports teachers implementing the Intensified Algebra Project. Prior to these positions, Regeta taught high school mathematics and was Director of Mathematics for CPS schools.

Timothy Stoelinga currently works in the Learning Sciences Research Institute at UIC as a Senior Program Associate with the Intensified Algebra Project. His duties include supporting teachers and schools in CPS and the South and West Cook Mathematics Initiatives, as well as one of the authors on the Intensified Algebra Project. Formerly, Tim served as a CPS High School Math Coach and was Director of Mathematics for Boulder, Colorado Public Schools.

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iPad Apps for Technology Integration in Math and Science

Grades 6, 7, 8, 9, Administrators

The New Illinois Learning Standards Incorporating the Common Core challenge and demand much from students, as well as classroom teachers. They are rigorous and require changes in instruction to ensure our digital natives are ready for college and careers. With the right apps, the iPad can be a useful tool to facilitate the rigor of the standards. This session will include a review of ready-for-classroom use apps to support math and science instruction. There will be a discussion on how the iPad can be used to enhance instruction within and outside of the

classroom. Mathematical and scientific iPad usage, is really all about the Apps! **Participants should bring their own iPad to this session along with your Apple ID and password.**

Lisa Hopson is a member of the Improvement, Support and Innovation Services at West 40 ISC # 2 which services districts in West Cook County under the Statewide System of Support. In addition, to supporting districts and their schools in improvement efforts using the Rising Star tool, she serves as an instructor for a variety of courses on using technology to support instruction for the digital generation.

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I'm Done. What Do I Do Now?: Providing Extensions for High-Ability Students in Mixed Ability Classrooms

Grades 6, 7, 8

Students who grasp mathematical concepts with ease are often given more problems to solve as the response to their speed. These students quickly learn to slow their pace and hide their abilities. This session will provide quick and easy extension activities that can be delivered through simple stations or centers and thus ensuring that all students have continuous learning. These challenges are designed to build higher level thinking which include different types of brain benders and not just more of the same.

Michele Kane is an Associate Professor in the College of Education at Northeastern Illinois University. She coordinates the Gifted Education master's program and is President of the Illinois Association for Gifted Children.

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Making Math Meaningful Through Inquiry Based Projects and Strategic Problem Solving

Grades 6, 7, 8, 9

Find out how students can deepen their understanding of the Common Core State Standards Mathematical Practices by persevering through inquiry based projects and math application problems. Learn some math vocabulary strategies that students can use when solving extended response problems. Explore how students can self-reflect through journaling and learn the benefits of using and maintaining a portfolio. Discover cross-curricular connections and link what they can do in careers and professions. Additional assessment rubrics and math websites will also be shared.

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than 4 decades of teaching mathematics in Illinois; Edna has recently received the Distinguished Life Achievement in Mathematics Award from the Illinois Council of Teachers of Mathematics; she has co-authored 11 mathematics education books and 35 professional articles. Edna also serves on the ISBE ROE CCSSM development team and is a presenter of CCSSM trainer or trainers workshops.

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NASA's Pi in the Sky

Grades 6, 7, 8, 9, 10, 11, 12

How big? How far? The most basic questions about objects in space are also sometimes the most challenging to answer. Ratios and radians are powerful tools used to investigate distant objects in space in order to answer those basic and challenging questions. In this session, you will use hands-on activities to explore angles, sizes, and distances of nearby objects, finding mathematical relationships among those measurements. After building a conceptual understanding of radians and pi, you will then use angles to investigate objects in our Solar System and beyond. You will never look at the Moon the same way again! Free NASA materials will be available.

Janet Moore is a Developmental Mathematics instructor at Illinois State University and a NASA Educator Ambassador, representing NASA's high energy astrophysics missions by helping to create and disseminate educational materials to classroom teachers.

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Strategies for Enhancing Conceptual Understanding in the Mathematics Class

Grades 9, 10, 11, 12

Are you at your wit's end in implementing strategies that will aid your students in enhancing their conceptual understanding? Are you tired of the worksheet/ formulaic/memorization approach to teaching mathematics? Are you looking for ideas which will lead your students to ask and answer the higher end questions? If so, this workshop is for you. In this workshop, we will examine strategies for integrating literature, debate, writing and critique into the mathematics classroom. We will explore and examine how these strategies enable students to persevere and leave the mathematics classroom with a thorough understanding of the how's and why's of mathematics.

Lamont Holifield is currently a mathematics instructor at CICS-Ralph Ellison High School. He has taught the full line of mathematics courses offered at his school and is currently teaching Statistics, AP Statistics and Pre-Calculus. He currently serves as a Mentor Teacher and

Debate Team Coach at the school and is a proponent of debate across the content areas. He received his undergraduate and graduate education at Roosevelt University and prides himself as a teacher who endeavors to meet the needs of all students.

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Teaching Cryptography: The Mathematics of Secret Codes

Grades 6, 7, 8

In this workshop, participants will engage in activities from the Cryptoclub After School curriculum, which uses cryptography as a motivating setting for applying middle grade mathematics topics such as negative numbers, division with remainder, decimals and percents, prime numbers, common factors, multiplicative inverses, and modular (clock) arithmetic. Cryptography is a subject that is becoming increasingly important in everyday life, with applications all around us. 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 After School Project. She has worked in curriculum development for over 20 years and is co-author of a K-5 mathematics curriculum and a middle grade cryptography text.

Bonnie Saunders is Clinical Associative Professor of Mathematics at the University of Illinois at Chicago. Besides the Cryptoclub After school Project, her interests include mathematics for future teachers. She is Director of the Chicago Symposium Series, a forum for university faculty devoted to improving teaching and learning of mathematics and science.

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Technology, Assessment, Inquiry, Data Collection: TI-Nspire™ CX CAS and Navigator™

Grades 8, 9, 10, 11, 12

Experience hands-on activities with the best handheld learning tool for classroom management, discovery, and data collection. From timath.com, mathnspired.com, and NASA, engaging activities that leverage CAS and the latest improvements will be explored. See innovative ways the TI-Nspire Navigator can be used for formative assessment.

Sean Bird has taught in Indianapolis for 15 years using a variety of handheld and presentation technology. He serves as a T³ Instructor (Teachers Teaching with Technology). He has also authored activities for Pearson, NASA, TI-Math, and Math Nspired. He is a frequent presenter at math/science conferences including NCTM, NSTA, T³.

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Transform Your Classroom and Construct Learning with Geometry Golf

Grades 6, 7, 8, 9, 10

Use miniature golf to engage students in creativity, transformational geometry, length and angles measurement, estimation, and physics. Reflect points with Miras, Reflectas, or compasses and show how transformations make it possible to find out where to aim the ball to bank it off of one or more walls to make that highly sought after hole-in-one. Learn how to construct holes-in-one on miniature golf holes with and without technology, and make a miniature golf hole to take back to the classroom. Participants will have the ability to download the Power Point, Smart Notebook files, protractor golf, and other resources to use in their classrooms. You'll see how this activity models the 8 math practices of the Common Core State Standards for Mathematics and be applicable to solving other real-world problems.

Nancy Powell is a former math teacher and department chair at Bloomington High School. With 37 years of experience, she is an author and national presenter on topics in geometry and technology. She has received the Presidential Award of Excellence in Secondary Math Teaching, 1992, and is co-author of the UCSMP Geometry, 3rd Edition textbook. She is a retired instructor for pre-service teachers at the University of Illinois Champaign-Urbana, Illinois Wesleyan University, and Illinois State University. Nancy is a Certified SMART Board trainer and was a finalist for Illinois Teacher of the Year.

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