



**State of New Jersey**  
COMMISSION ON HIGHER EDUCATION  
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September 28, 2010

### **Attention NJ GEAR UP Target School Math Supervisors, Coaches, and Teachers!**

#### **MORE THAN 20 NEW MATH WORKSHOPS TO CHOOSE FROM!**

As you know, many of your students have been enjoying the benefits of the partnership between your school and NJ GEAR UP for the past several years. The program provides academic support and college preparation activities to prepare students for higher education.

NJ GEAR UP also provides professional development opportunities for teachers. Last year, we sponsored several math workshops offered by the Department of Mathematics and DIMACS (Center for Discrete Mathematics and Theoretical Computer Science) at Rutgers University. We are expanding this partnership to provide over twenty workshops for middle and high school math educators to learn new educational strategies, collaborate with their peers, and create effective classrooms and schools. All workshops are connected to New Jersey's Core Curriculum Content Standards in mathematics and to the newly adopted Common Core Standards.

These workshops will be provided to you ***FREE*** of charge as a result of your role as a middle or high school teacher in a NJ GEAR UP target school and your previous participation in one of our events. A comprehensive list of these opportunities is attached.

NJ GEAR UP will:

- Cover the cost of registration fees for a maximum of **two** workshops for the year
- Cover the cost for travel and parking expenses (\$30.00 flat fee) for each workshop
- Provide professional development hours

We are asking you to:

- Obtain school/district approval for attendance before you register
- Complete a brief online workshop evaluation form after each workshop

NJ GEAR UP will process all travel expense reimbursements as soon as we receive the completed evaluation form. If you do not complete the form, you will forfeit the travel expense reimbursement and may be asked to cover the registration fee. If you need to cancel your registration, please notify Kilpatry Cuesta at [kilpatrycuesta@comcast.net](mailto:kilpatrycuesta@comcast.net) within two weeks of the scheduled workshop.

If you are interested in attending a professional development workshop(s), please complete the attached registration form and fax to (609) 292-7225 **no later than Friday, November 12, 2010**. Once registered,

all supervisors, coaches, and teachers will receive confirmation, room location, and directions from the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS) at Rutgers University. Space is limited so please complete the registration form as soon as possible.

We hope that you will support this initiative and encourage other GEAR UP target school teachers to take advantage of this opportunity. Please feel free to contact me at (609) 292-6190 or Kilpatry Cuesta at (609) 638-4401 or kilpatrycuesta@comcast.net if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Michelle Johnson". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Michelle Johnson, M.A.  
Director, NJ GEAR UP State Project

NJ GEAR UP Target Schools Eligible to Participate:

**Camden:** Coopers Poynt ES, R.T. Cream ES, East Camden MS, Brimm Medical Arts HS, Camden HS, Creative & Performing Arts HS, Woodrow Wilson HS

**Jersey City:** PS #24 ES, PS #38 ES, PS #40 ES, PS #41 ES, Henry Snyder HS, Lincoln HS

**Newark:** Hawkins Street ES, Ridge Street ES, Barringer HS, East Side HS

**Paterson:** PS #2 ES, PS #6 ES, PS #10 ES, East Side HS, J. F. Kennedy HS

**Trenton:** Dr. Martin Luther King School (academic year 2010-2011), Joyce Kilmer ES, Grace Dunn MS, Hedgepeth-Williams MS, Trenton Central HS, including West campus

Enclosures

## **2010-2011 MIDDLE SCHOOL WORKSHOPS FOR MATH TEACHERS**

The Rutgers Department of Mathematics and  
DIMACS (Center for Discrete Mathematics and Theoretical Computer Science)  
Rutgers University, Busch Campus -New Brunswick, NJ  
Sponsored by NJ GEAR UP State Project

**Cost: \$195.00 per workshop (Workshop fee will be covered by NJ GEAR UP)**

**Location: Rutgers University, Busch Campus -New Brunswick, NJ**

**Time: 8:30 a.m.-3:00 p.m.**

**5 Professional Development Hours Earned Per Workshop**

### **1) November 18: Fractions: Skill Proficiency and Understanding-Not Necessarily an Oxymoron!**

**Audience: Grade 3-6 Mathematics Teachers, Mathematics Supervisors**

After a brief comparison of the “fraction standards” between the “old” and “new” standards, participants will become actively involved in hands-on, discovery-based activities that build skill proficiency based on conceptual development. Activities will include work with fraction tiles, Communicators® and fraction templates, and easily implemented take-away demonstrations, lessons and games as well as Smartboards and PowerPoint.

### **2) November 30: Geometry: Reinforce and Extend Connections to Number Sense, Patterns, and Algebra**

**Audience: Grade 6-10 Mathematics Teachers, Mathematics Supervisors**

Do your students see the connections between geometric concepts and number sense, patterns, and algebra? This workshop will explore a variety of key topics in geometry, with an emphasis on problem solving and connections. Within the context of New Jersey’s Core Curriculum Content Standards in mathematics and the expectations on NJ ASK and HSPA, participants will explore polygons, coordinate geometry, slope, perimeter, area, volume, similarity, and the Pythagorean Theorem. Activities will include the use of special grid paper, geoboards, and other manipulatives. Extended constructed-response questions will also be included. This fun workshop will provide many activities ready for immediate use in the classroom.

### **3) December 8: Picture This-Focus on Data Analysis & The New National Standards**

**Audience: Grade 6-10 Mathematics Teachers, Mathematics Supervisors**

How will the new National Math Standards help guide the teaching and learning of Statistics and Probability? This workshop will provide teachers with a bank of more visually based lessons - with an added focus on helping students make an effective transition from the concrete/visual (modeling by drawing diagrams, pictures, etc.) to the abstract (expressions, equations, etc.). The primary emphasis will be on the PAW process. That is, P is for Pictures (the visual part), A is for Arithmetic or Algebra (the abstract part), and W is for words (the descriptive part). Sample lessons will highlight the process that will help students attain a higher level of achievement on our newly anticipated NJASK Assessments. Bring a graphing calculator since technology – including software – will be integrated into the lessons.

### **4) December 10, 2010 (I) and January 28, 2011 (II): Topics and Strategies to Improve Students’**

**Performance on the NJ ASK (Workshop I and II may be taken independently)**

**Audience: Grade 7-8 Mathematics and Special Education Teachers, Mathematics Supervisors**

Participants will learn about and experience the types of classroom activities and instructional strategies that support effective learning and problem-solving and ultimately lead to improved test scores. Questions similar to those that appear on the NJ ASK 7 and 8 will be addressed in the workshop. Participants will leave with valuable materials and resources that they can use in their classrooms immediately. Workshop I will explore the key ideas of estimation, mental math, geometry and measurement. Workshop II will explore the key ideas of discrete mathematics and algebraic thinking.

## **2010-2010 MIDDLE SCHOOL WORKSHOPS FOR MATH TEACHERS CON'T**

### **5) December 15: Special Needs Students Need Standards-Based Math Too!**

**Audience: Grade 3-8 Mathematics Teachers, Mathematics Supervisors**

Special education, summer school, after school, and intervention programs often only provide more of the same worksheets and rules as ways to foster understanding and success in mathematics. Learn about discovery-based, hands-on, highly sequenced, alternative strategies that lead to traditional understanding and applications of essential concepts taught in grades 3-8. Focus will be on selected topics from arithmetic operations with whole numbers and fractions.

### **6) January 7: Picture This – Focus on Fractions & The New National Standards**

**Audience: Grade 6-10 Mathematics Teachers, Mathematics Supervisors, and Special Education Teachers**

How will the new National Math Standards help guide the teaching and learning of fractions? This workshop will provide teachers with a bank of more visually based lessons - with an added focus on helping special needs students make an effective transition from the concrete/visual (modeling by drawing diagrams, pictures, etc.) to the abstract (numerical expressions, etc.). The primary emphasis will be on the PAW process. That is, P is for Pictures (the visual part), A is for Arithmetic or Algebra (the abstract part), and W is for words (the descriptive part). Sample lessons will highlight the process that will help students attain a higher level of achievement on our newly anticipated NJASK Assessments.

### **7) January 20 and March 31 (repeat): Activities to Connect the New Common Core Number Sense, Operations, and Algebra Standards with NJ's Math Standards**

**Audience: Grade 5-6 Teachers, Mathematics Supervisors**

This hands-on workshop will provide teachers with detailed information about the content that students are expected to learn, including increased emphasis on fractions, and about how they can convey that content to their students. All materials will be provided so that teachers can do the activities in their own 5th and 6th grade classrooms the day after the workshop!

### **8) January 22: Math & Technology: Data Analysis for the Younger Grades: Making Connections to the Curriculum**

**Audience: Grade 6-8 Mathematics Teachers, Mathematics Supervisors**

Data Analysis is constantly used to represent the processing of information in today's society. Using realistic problems to engage the middle school student with the integration of other content areas helps to make a natural, meaningful connection. This hands-on workshop will provide participants with activities to meet the new state standards and bring data analysis to life for students.

### **9) January 24: Math & Technology: Perfect Together-Integrating the New Standards Using Technology**

**Audience: Grade 6-8 Mathematics Teachers and Supervisors**

There is more to technology than video games. When students are challenged to use mathematics in meaningful ways, they develop their reasoning and problem-solving skills and come to realize the potential usefulness of mathematics in their lives. Integrating technology and mathematics in the classroom is important when trying to provide students with learning experience that promotes 21st century learning. This hands-on, interactive workshop will provide participants with activities to use immediately in their classrooms. This workshop is geared to the standards for middle school students in the new core curriculum standards.

### **10) February 24 and April 7 (repeat): Activities to Connect the New Common Core Measurement, Data, and Geometry Standards with NJ's Math Standards**

**Audience: Grade 5-6 Mathematics Teachers, Mathematics Supervisors**

A variety of hands-on activities that will stimulate and motivate your students to learn the roles of measurement, data, geometry and fractions in everyday mathematics will be the focus during this must-see session! Teachers will be provided with detailed information about the content their students are expected to learn as well as materials to use in their classrooms the next day.

## **2010-2011 HIGH SCHOOL WORKSHOPS FOR MATH TEACHERS**

The Rutgers Department of Mathematics and  
DIMACS (Center for Discrete Mathematics and Theoretical Computer Science)  
Rutgers University, Busch Campus -New Brunswick, NJ  
Sponsored by NJ GEAR UP State Project

**Cost: \$195.00 per workshop (Workshop fee will be covered by NJ GEAR UP)**

**Location: Rutgers University, Busch Campus -New Brunswick, NJ**

**Time: 8:30 a.m.-3:00 p.m.**

**5 Professional Development Hours Earned Per Workshop**

### **1) November 19: Strategies to Prepare Special Education Students for the Math HSPA**

**Audience: Grade 8-12 Mathematics Teachers, High School Special Education Teachers, Mathematics Supervisors**

Special education teachers sometimes are faced with enormous challenges when it comes to preparing their special needs students for the mathematics portion of the HSPA. This workshop presents ideas to help your students boost their performance on the HSPA. Participants will learn strategies to make students comfortable with the vocabulary on the tests and increase their critical thinking skills through the use of open-ended questions. Activities will include differentiated instruction, cooperative games, and using a variety of manipulatives. Participants will take home a packet of activities as well as sample lessons that can be implemented immediately in their own classrooms.

### **2) November 30: Geometry: Reinforce and Extend Connections to Number Sense, Patterns, and Algebra**

**Audience: Grade 6-10 Mathematics Teachers, Mathematics Supervisors**

Do your students see the connections between geometric concepts and number sense, patterns, and algebra? This workshop will explore a variety of key topics in geometry, with an emphasis on problem solving and connections. Within the context of New Jersey's Core Curriculum Content Standards in mathematics and the expectations on NJ ASK and HSPA, participants will explore polygons, coordinate geometry, slope, perimeter, area, volume, similarity, and the Pythagorean Theorem. Activities will include the use of special grid paper, geoboards, and other manipulatives. Extended constructed-response questions will also be included. This fun workshop will provide many activities ready for immediate use in the classroom

### **3) December 6: Achieving Success in Meeting the Common Core State Standards in Algebra**

**Audience: Grade 9-12 Mathematics Teachers, High School Special Education Teachers**

New Jersey Algebra teachers are challenged with meeting standards described in the Common Core State Standards and New Jersey Algebra I Core Content Standards. This workshop will share numerous activities that will help the students visualize and build understanding for many of the goals delineated in these two documents. When you integrate manipulatives, technology, and real world applications in the learning, students begin to think differently about algebra. Both Algebra tiles and graphing calculators will be incorporated into activities throughout the workshop.

### **4) December 9: How to Prepare Students for the Algebra End of Course Assessment While Improving Algebra Instruction**

**Audience: Algebra 1 Teachers**

Preparing students for the Algebra End of Course Assessment can make the algebra classroom exciting, engaging, and effective. By knowing which questions to ask and how to ask them, we can get students to meet the ADP standards, know what math is good for, realize the power of its application, and enjoy the experience!

## **2010-2011 HIGH SCHOOL WORKSHOPS FOR MATH TEACHERS CON'T**

### **5) December 13: Achieving Success in Meeting the Common Core State Standards in Functions**

#### **Audience: Grade 9-12 Mathematics Teachers, High School Special Education Teachers**

New Jersey Algebra teachers are challenged with meeting standards described in the Common Core State Standards and New Jersey Algebra I Core Content Standards. This workshop will engage the participants in numerous activities that will help their students develop the concept of function and its connection to expressions, equations, modeling, and coordinates. The activities will explore linear, quadratic and exponential models. The graphing calculators will be integrated into many of the activities during the workshop.

### **6) January 6: Developing a Concrete Model for Algebraic Concepts with Algebra Tiles**

#### **Audience: Grade 9-12 Mathematics Teachers, High School Special Education Teachers**

Are your students struggling with algebra? Are your students thinking algebraically or memorizing sets of rules and not really understanding why they work? Have you tried using algebra tiles to help you reach some of the goals in the New Jersey Algebra I Core Content Standards and the Common Core State Standards? This workshop will model how algebra tiles can be used to develop the ideas of number operations, equality, equivalence, representation and modeling, solving equations, and even solving inequalities. The tiles also provide students with a visual model for working with the distributive property, monomials, binomials, and polynomials. Algebra tiles can help many of the struggling algebra students, who just try to memorize rules associated with variables, integers, and equation solving, to see and develop the rules through investigative activities with algebra tiles.

### **7) January 7: Picture This – Focus on Fractions & The New National Standards**

#### **Audience: Grade 6-10 Mathematics Teachers, Mathematics Supervisors, Special Education Teachers**

How will the new National Math Standards help guide the teaching and learning of fractions? This workshop will provide teachers with a bank of more visually based lessons - with an added focus on helping special needs students make an effective transition from the concrete/visual (modeling by drawing diagrams, pictures, etc.) to the abstract (numerical expressions, etc.). The primary emphasis will be on the PAW process. That is, P is for Pictures (the visual part), A is for Arithmetic or Algebra (the abstract part), and W is for words (the descriptive part). Sample lessons will highlight the process that will help students attain a higher level of achievement on our newly anticipated NJASK Assessments.

### **8) January 20: Teaching for Financial Literacy in Math Class / Satisfying the New Financial Literacy Requirement in Math Class**

#### **Audience: Grade 9-12 Mathematics Teachers, Mathematics Supervisors**

Most high school students lack the basic financial skills crucial to success in life, yet everyone takes math and everyone is interested in money. Now New Jersey is requiring 2.5 credits in financial literacy for high school graduation. This workshop will show teachers how to satisfy that new requirement, tap that money interest, and help kids become mathematically and financially savvy by infusing money applications into NCTM standards-based lessons from pre-algebra through pre-calculus. Some of the applications that will be covered include: linear regression and the cost of owning a car; systems of equations and mortgage payments; measures of central tendency and buying stock; spreadsheets and credit card debt; sequences and future value; series and annuities; and percents and taxes.

### **9) February 7: Achieving Success in Meeting the Common Core State Standards in Geometry**

#### **Audience: Grade 9-12 Mathematics Teachers, High School Special Education Teachers**

New Jersey Algebra teachers are challenged with meeting standards described in the Common Core State Standards and New Jersey Geometry Core Content Standards. This workshop will share numerous activities that will engage the students in developing congruence, similarity, right triangles, and expressing geometric properties with equations. Throughout all activities participants will be challenged to focus on how students are using reasoning, making sense and developing an informal proof. Numerous geometric models will be integrated into all activities so students can visually see the geometry taking place right in front of their eyes.