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# PCSM NEWSLETTER

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Leaders in Mathematics Education

Fall 2003

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## PENNSYLVANIA COUNCIL OF SUPERVISORS OF MATHEMATICS


### PRESIDENT'S MESSAGE

## From the President

- Carolyn Marchand

PCSM members have a great opportunity to join NCSM, if you are not currently a member, and participate in the 36<sup>th</sup> NCSM Conference, "A Tradition of Leadership", in Philadelphia on Monday, April 19 through Wednesday, April 21, 2004. Some of the strands for the conference include Equity, Community, Culture, Professional Development, Assessment, Technology, and Preparing Future Teachers.

The NCSM Web site, <http://www.ncsmonline.org>, has links to other similar organizations, educational and governmental groups, various reports, and commercial sites which may be interest to you. The NCSM conference precedes the 82<sup>nd</sup> NCTM conference in Philadelphia, April 21-24, 2004. Presiders are needed for NCSM (see green sheet included with the newsletter). NCTM also needs volunteers; forms are available through the PCTM Web site, <http://www.pctm.org/> and one is included with the newsletter. Thank you to all members who volunteer to give of your time at either conference.



PCSM will have a breakfast meeting with limited presentations at the Research for Better Schools conference room during the NCTM Conference. Our next newsletter will provide additional information.

Have a great year!

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### In this Issue:

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- RBS Regional Conference, January 2004 (registration form included)
- IMAGES Institute 2003
- Upcoming Events
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- Join the PA State Team for Math and Science at RBS
- ...and more

**Please check the date on the mailing label. If the date is Mar 03 or earlier, your membership has expired. Save money by renewing for three years. If each of us signs up a new member, our membership will double!**

## From the Editor

- Arlene Dowshen

How exciting that NCSM and NCTM will hold their annual conferences in Philadelphia in April 2004. I hope that everyone will be able to attend. Please volunteer to help at both or one of the conferences; presiders are needed for NCSM and the Philadelphia Local Arrangements Committee is seeking volunteers to work for a number of different committees. Forms for both are included with the newsletter

If you have not already done so, I encourage you to join the PA State Team for Mathematics and Science at RBS (form included). Also consider applying for the Math Problem Solving Pilot Study which is detailed on the pink sheet included with the newsletter.

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## ENC Focus Goes Weekly Online

*ENC* (Eisenhower National Clearinghouse) *Focus* is now available weekly and online at [www.enc.org](http://www.enc.org). The weekly publishing schedule is designed to bring teachers a wide variety of topics and timely coverage of important issues in math and science education. New articles will be featured prominently on the ENC home page with a direct link to the content. All articles will be accessible and under appropriate topic headings on the ENC Web site.

Some of the topics currently available are:

No Child Left Behind  
Lesson Study  
Evaluating Web Resources  
The Math and Science Initiative of the U.S. Dept. of Ed.  
Mathematics and Science for Students with Special Needs  
Data Driven Decision Making  
Success in the Urban Classroom  
Increasing Your Math and Science Content Knowledge  
Mathematics and Science across the Curriculum

Topics scheduled for the coming weeks:

Supporting New Teachers  
Learning Communities

*ENC Focus* editors believe the topics will be of interest to school district professional development staff as well as individual teachers.

### **Mathematics and Science Conference on NCLB**

You are invited to join the Mid-Atlantic Eisenhower Consortium at Research for Better Schools for "Leaving No Child Behind in Mathematics and Science: Resources to Help All Students Reach High Standards of Achievement." The conference will take place at the Marriott Hotel at the Philadelphia Airport on January 12 and 13, 2004. The Call for Proposals is open until September 26.

Registration is \$125 for individuals or \$100 per person for teams. An early bird discount of \$25 is available until November 3. Visit the Web site at <http://www.rbs.org/conference/2004/>. (Registration form included with newsletter)



## **IMAGES (Improving Measurement and Geometry in the Elementary School) 2003 Institute**

by Debra Gingerich  
Communications Coordinator at Research for Better Schools

During the hot and humid days of summer, nearly 70 educators spent three days at the Holiday Inn-Harrisburg East in Harrisburg, PA. But they did not come for the large swimming pool or air-conditioned rooms; they were there to improve their geometry and measurement skills and learn how to better teach them to their students and other teachers.

With TIMSS, NAEP, and PSSA data revealing that American students lack geometry and measurement skills, the Pennsylvania State Team for Mathematics and Science Education at Research for Better Schools (RBS) has created IMAGES (Improving Measurement and Geometry in the Elementary School) to assist teachers and students in improving their concepts and skills in these areas. For the second year, RBS offered the IMAGES Institute this summer—an intensive training linked to the geometry and measurement expectations of national and state standards.

Held July 16-18, the IMAGES 2003 Institute provided educators with the opportunity to expand their skills and knowledge in five specific content areas: (1) two- and three-dimensional geometry (characteristics and concepts), (2) coordinate geometry, (3) transformational geometry, (4) visualization and spatial reasoning, and (5) measurement. University professors and veteran educators offered interactive presentations to help the participants develop a deeper understanding of geometry and measurement concepts as well as build ideas for designing meaningful instruction for elementary students.

Of these presentations, one teacher commented, “I learned many concepts that were a ‘math mystery’ to me before this.”

The participants were comprised mostly of teams of teachers and administrators from the same schools or districts. These teams were given one homework assignment—a scavenger hunt that took them near and far on Thursday evening to find geometric objects that exist in everyday life. Teams were required to bring in physical items representing a hexagon, cube, triangular prism, parallelepiped, and more. The judging Friday morning showed the creative nature of the participants, from an entry with a chocolate theme to a safety cone borrowed, with permission, from the local Wal-Mart.

“I have received a wealth of information that I may share with my fellow teachers as well as students,” commented one participant after just the first day of presentations. In addition to better preparing these educators to teach geometry to their students, this institute was a training-of-trainers—preparing the participants for leadership roles in assisting other teachers so that together they can raise students' achievement through standards-based instruction. Along with the sessions in the geometry content areas, sessions were provided in assessment and teaching strategies, staff development, and computer and Web materials.

The participants spent the final hours of the institute with their teams, designing an action plan for providing other educators in their schools and districts with the information they had learned during the past few days. Teams presented their plans so all participants could benefit from the many ideas that were generated. In addition, each participant received the IMAGES publication and a training binder with pages of presentation plans, activities, manipulatives, and resources to enhance their classroom teaching.

An electronic mailing list and the IMAGES Web site (<http://images.rbs.org>) will continue to provide follow-up and resources as these educators return to their schools and classrooms to pass on what they have learned to teachers and students alike. With the continued success of this institute and other IMAGES projects, the PA State Team plans to offer another IMAGES Institute next summer. It should provide the same kind of energizing learning experience as this year's did, inspiring one participant to exclaim, "Thanks for making this so interactive and hands-on. It was fun and I learned a lot!"

The Pennsylvania State Team encourages you to join them (form included). To learn more about the IMAGES program, the PA State Team, or about the possibilities for your school or school district, call (215) 568-6150, e-mail [rocca@rs.org](mailto:rocca@rs.org), or visit <http://www.rbs.org/mathsci/states/pa/team.shtml>

### **Toyota TIME Grants for K-12 Teachers**

Toyota's Investment in Mathematics Excellence (TIME) is a grant awarding teachers up to \$10,000 for innovative projects that enhance mathematics education within a school and is sponsored by Toyota Motor Sales, USA, through its partnership with NCTM and its Mathematics Education Trust Board.

Any K-12 teacher with three years experience teaching mathematics may apply. Encourage teachers in your school to apply.

For more information call toll free (888) 573-TIME, email [toyotatime@nctm.org](mailto:toyotatime@nctm.org), or visit <http://www.nctm.org/about/toyota/index.asp>. Application deadline is January 7, 2004.

## **UPCOMING EVENTS**

**School Science and Mathematics Association**  
October 23-25, 2003, Columbus, OH  
Visit [www.ssma.org](http://www.ssma.org).

### **NCTM Academy for Professional Development**

For fall 2003 and 2004 academy workshops visit <http://www.nctm.org/academy>. College credit is available. Topics include algebra, data and probability, geometry, and assessment.

### **AMTE (Association of Mathematics Teacher Educators) 8<sup>th</sup> Annual Conference**

January 22-24, 2004, San Diego, CA  
For more information visit [www.amte.net](http://www.amte.net).

### **Research Council on Mathematics Learning**

February 19-21, 2004, Oklahoma City, OK  
For more information visit [www.unlv.edu/RCML](http://www.unlv.edu/RCML).

### **NCSM 36<sup>th</sup> Annual Meeting**

#### **"Philadelphia: a Tradition of Leadership"**

April 19-21, 2004, Philadelphia, PA  
For more information visit [nesmonline.org](http://nesmonline.org).

### **NCTM Research Pre-session**

April 19-21, 2004, Philadelphia, PA  
For more information visit [www.nctm.org](http://www.nctm.org).

### **NCTM 82<sup>nd</sup> Annual Meeting**

#### **"Defining Mathematics for All"**

April 21-24, 2004, Philadelphia, PA  
For more information visit [www.nctm.org](http://www.nctm.org).

### **ICME-10 (Tenth International Congress on Mathematical Education)**

July 4-11, 2004, Copenhagen, Denmark  
For more information visit <http://www.icme-10.dk/>. For information about travel grants through NSF visit <http://www.nctm.org/icme10/>.  
Deadline is September 30, 2003.

## ELECTRONIC RESOURCES

**"Math and Science Get Own Research Center"** by Michelle Galley, *Education Week*, September 3, 2003 (<http://www.edweek.org/ew/ewstory.cfm?slug=01nichd.h23> - free registration required).

The federal government is trying to do for math and science what it has done for reading: sponsor a systematic program of research to result in improvements in curriculum and instruction, particularly for struggling students.

***Looking Inside the Classroom: A Study of K-12 Mathematics and Science Education in the United States.*** Available for download at <http://www.horizon-research.com/insidetheclassroom>. Horizon Research, Inc. has released a new report describing the status of mathematics and science instruction in grades K-12 in the United States. Print versions can also be ordered at the Web site.

**Papers and Presentations from the First Annual Lesson Study Conference in 2002** are now available online at [http://www.rbs.org/lesson\\_study/conference/2002/index.shtml](http://www.rbs.org/lesson_study/conference/2002/index.shtml).

Some of the papers/presentations included are:  
An Overview of Lesson Study in Japan  
Why Lesson Study?

Reflections on Implementing Lesson Study in the U.S.

Planning and Writing a Research Lesson

The Role of Knowledgeable Others

Learning from Experience

The Impact of Lesson Study

Lesson plans on the following topics are presented: subtraction, multiplication, investigating fractions, plane figures, and more.

**Essay Contest: Biographies of Contemporary Women in Mathematics** sponsored by AWM (Association of Women in Mathematics). Visit <http://www.awm-math.org/biographies/contest.html>.

**Connecting Mathematics and Literature - "Hogwarts Express"** by Judy Ann Brown  
Measurement, proportion, probability, graphing, and more were explored through the adventures of Harry Potter and his friends. (<http://home.ptd.net/~judyann/nctm2003/>)

**"Large Scale Study Finds Poor Math, Science Instruction"** by David J. Hoff, *Education Week*, September 3, 2003 (<http://www.edweek.org/ew/ewstory.cfm?slug=01research.h23> - free registration required). This article discusses *Looking Inside the Classroom: A Study of K-12 Mathematics and Science Education in the U.S.*

**Subscribe to Riptides** a monthly mathematics and science education e-newsletter from Research for Better Schools (RBS). Past issues are archived at <http://lists.rbs.org/archives/riptides.html>. To subscribe send an e-mail to [listserv@lists.rbs.org](mailto:listserv@lists.rbs.org) with the following line only in the body of the message: subscribe riptides FirstName LastName.

**"Reform Mathematics vs. The Basics: Understanding the Conflict and Dealing with It"** (<http://mathematicallysane.com/analysis/reformvsbasics.asp>), a 1999 presentation posted by Mathematically Sane.

**The Teacher Education Materials Project** (<http://www.te-mat.org>), a database for K-12 mathematics and science professional development providers which has reviews of print products for professional developers.

**Math Reference Tables and an English/Spanish Math Dictionary**  
<http://www.math2.org> (math reference tables)  
<http://www.math2.org/math/spanish/eng-spa.htm> (English-Spanish math dictionary)



## **Online Mentoring Project -The Math Forum @ Drexel**

by Lisa Lavelle, Problem of the Week Manager  
( [http://mathforum.org/proposals/online\\_mentoring/](http://mathforum.org/proposals/online_mentoring/))

The goal of the NSF-funded Online Mentoring Project is to create a dynamic online environment for pre-service teachers to mentor students in grades 3-12 using the Math Forum's Problems of the Week (PoW). This is a unique opportunity for pre-service teachers to focus on how students think about math before they face the complexities of the classroom.

A beta version of the "Online Mentoring Guide" (OMG) is now available for use and is free to higher education faculty interested in using it with their students. Mathematics and science educators are also invited to collaborate with the Math Forum by reviewing and contributing to a revision of the OMG and by contributing mentoring resources to the Guide (e.g., research articles and Web resources).

The OMG is a curriculum tool that currently exists in the WebCT platform. It provides a self-guided instructional system allowing pre-service teachers to learn how to mentor students in the Math Forum's PoW environment. It also creates a dynamic interactive space where pre-service teachers first try to solve a problem and explain their solution, and then serve as a mentor for some of their colleagues who have presented solutions. The Guide then moves to a broader discussion of mentoring, encouraging the pre-service teacher to enter into the discussion. Pre-service teachers conclude their instruction by mentoring PoW submissions.

The Math Forum's Problems of the Week (PoW) are designed to provide creative, non-routine challenges for students in grades 3 through 12. There are currently four PoW services:

- \* Math Fundamentals: <http://mathforum.org/funpow/>
- \* Pre-algebra: <http://mathforum.org/prealgpow/>
- \* Algebra: <http://mathforum.org/algpow/>
- \* Geometry: <http://mathforum.org/geopow/>

Each PoW service has a new active problem every two weeks, as well as a complete archive of past problems. Students have two weeks to submit a solution to the current problem. They have four additional days to revise their solutions.

The focus of the PoW project is mathematical problem solving and communication. Mentors reply to students' submissions with the goal of getting the students to revise their work. Mentors focus on the mathematical thinking first, trying to help students achieve a sound solution path, but they also comment on the students' communication. In fact, students whose math is correct will almost always receive suggestions as to how they might make their explanation stronger.

Students' submissions are scored using a rubric that rates them a novice, apprentice, practitioner, or expert in six different categories (three in problem solving and three in communication).

### **How to Get Involved**

- \* The OMG is designed to function as an online interactive text and will fit within an existing math education, science education or educational methods course.
- \* The OMG is highly flexible and designed to parallel the work students do in class. It can be used in as few as three weeks or all semester long.
- \* Because the OMG is an asynchronous unit, all discussions and interactions among students and between students and a faculty member can be conducted online. This will allow the faculty member to decide how much or how little class time will be devoted to the work with the OMG.

For more information about working with the Online Mentoring Project team, please contact:

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***Riptides*, September 2003, "Online Learning"**  
(<http://lists.rbs.org/archives/riptides.html>)  
Monthly mathematics and science education  
news from Research for Better Schools (RBS)

The Internet offers an ever-growing supply of resources that can help educators and student increase their learning and achievement. With the Internet, students in rural communities may have access to specialized courses that they cannot find in their local schools. Teachers can find a large variety of lesson plans and coursework supplements. There are also a number of class projects and investigations that can be accessed through the Internet. This issue of *Riptides* focuses on activities that students and teachers can engage in online. It lists a sampling of online courses for educators and students, self-directed online lessons for students, and online class activities. Look to articles in the upcoming issue of *RBS Currents*, (for more information visit <http://www.rbs.org/currents/about.html>) focusing on educational technology, to gain even more ideas on how to use the Internet and other forms of technology to help increase student learning.

Following is the table of contents of the current issue of *Riptides* (available at the Web site listed above - click on search and type in "Online Learning") and a few excerpts.

## Table of Contents

Online Courses for Students  
Online Lessons for Students  
Online Class Activities  
Online Courses and Workshops for Educators  
Available from RBS: TIMSS Videos  
Free from RBS: PIRLS Publications

Online Courses and Workshops for Educators

### Improving Algebra Teaching with TIMSS Research

Intel and Lesson Lab have teamed together to produce the online course "Improving Algebra Teaching with TIMSS Research." this course allows the participant to study the teaching strategies in countries known for high student achievement. There is only a \$40 fee for materials to take the course, plus an additional \$60 fee to receive university credit.  
<http://www.intel.com/education/math/>

### Institute of Computer Technology

The Institute of Computer Technology offers online instructional technology training courses designed for K-12 teachers, with graduate-level academic credit in partnership with California Polytechnic State University. Some subjects that the courses cover are using computers as instructional and student learning tools, integrating technology with mathematics, integrating technology with science, and Web page development.  
<http://www.ict.org/onlinehome.html>

### Now available from RBS: TIMSS Public Release Videos

RBS is distributing a four-CD set entitled "Teaching Mathematics in Seven Countries: TIMSS Video Study." It includes videos from 8<sup>th</sup> grade math classes in seven countries. The CDs are available for \$35.00 at <http://www.rbs.org/catalog/pubs/pd57.shtml>.  
(See page 5 to subscribe to *Riptides*.)