

Columbus State University Columbus Regional Mathematics Collaborative

CRMC News

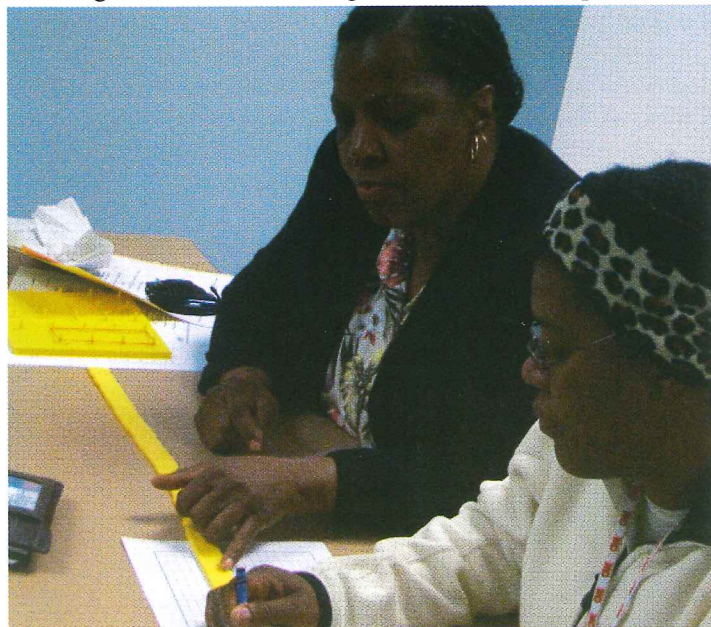
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SPRING 2008

March MATHness

Dr. Christine Thomas, professor of mathematics education at Georgia State University, brought the keynote address to teachers attending CRMC's March MATHness event on March 7. Dr. Thomas shared a vision of mathematics teaching for today's students. She talked with participants about where we have come from and where we are going in implementing the Georgia Performance Standards. She shared information about an investigative geometry project that she had worked on with a middle school teacher in the Atlanta Public Schools as an example of how getting students truly engaged in a task can lead to increased student learning. Dr. Thomas encouraged teachers to share the good things that are going on in their classrooms with others by submitting articles for publication in the National Council of Teachers of Mathematics journals, the Georgia Council of Teachers of Mathematics journals, and other education journals. "It is important that teachers take an active role in sharing their success stories with other teachers and with the public," said Thomas.

"We feel extremely fortunate to have been able to have someone of Dr. Thomas' caliber come and share with us," said Kenneth Jones, CRMC Director. He noted that Dr. Thomas was recently elected to serve on the board of NCTM and stated, "Her experience in working with teachers in Georgia will enable her to provide a



Elementary teachers explore area and perimeter at March MATHness

voice for us on the NCTM board and her position as a board member will enable NCTM's voice to be heard as she interacts with the Georgia DOE in making decisions regarding mathematics education in Georgia."

March MATHness is the new name for CRMC's spring workshop. "We were looking for a new name for Spring Fling which would tie the name to mathematics," said resource teacher, Cynthia Hill. Approximately 75 area teachers, CSU students, and CSU faculty members attended this year's event. Participants enjoyed pizza and salad in the ballroom at CSU's Cunningham Center which was decorated using a basketball theme. Following dinner and Dr. Thomas's keynote address, participants attended grade-level breakout sessions.

Carolyn Randolph, Kendrick High School, led the high school session, where she shared information related to the new Mathematics 1 course. Carolyn has served as one of the state-wide trainers for the new curriculum and was able to share useful information about some aspects of implementation of the new curriculum. Her presentation focused on the effective use of technology, especially the graphing calculator, in teaching the new standards related to probability and statistics.

Laura Perryman and Rosa Patterson, Blackmon Road Middle School, presented the middle grades session. They shared several activities and tasks that they have used in their classrooms to teach proportional reasoning and dilations. One of the activities they shared was a cooperative learning activity that created a giant footprint from a scale drawing.

Karen McDavid, Dimon Elementary School, presented the PK-2 session. She used the children's book *Twelve Snails to One Lizard* as a springboard to a mathematics lesson. The lesson involved developing introductory measurement to measure the length of a log. Karen had built a model of the log that she used when she did the lesson in her classroom. Karen and other teachers at Dimon have been involved in this year's Teacher Quality project, *Building Bridges and Digging Deeper in Elementary Mathematics*. One of the goals of this project was to help teachers learn to use children's literature to introduce mathematics lessons.

CRMC elementary resource teachers, Shannon Lewis and Cynthia Hill, presented the 3-5 session. Shannon used geoboards and square tiles to connect the concepts of perimeter and area to the children's book *My Full Moon is Square*. Cynthia presented some St. Patrick's Day related problems that made connections to patterns of divisibility and to Pascal's triangle.

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Director's Message

Depending on how you look at it, fifty years, five decades, half a century, 600 months, 18,262 days, over 438,300 hours, or over 26,300,000 seconds, can seem like a long time or it can seem like merely yesterday. In 1958, Little Richard was shouting *Good Golly Miss Molly*, Chuck Berry was belting out *Johnny B. Goode*, Jerry Lee Lewis was rocking and rolling to *Great Balls of Fire*, and Connie Francis was singing *Who's Sorry Now*, all in brand new stereophonic sound. *Cat on a Hot Tin Roof*, *Vertigo*, and *Auntie Mame* were playing at the theater. *Dr. Zhivago* was published in the US but banned in the USSR. A postage stamp cost \$0.04, a loaf of bread was \$0.19, and a gallon of gasoline was \$0.24. A number of things arrived on the scene, along with me, for the first time that year, some having made a greater impact in the past 50 years than others. The hula hoop, the remote control, the charge card, the skateboard, Sweet 'N Low, and Cocoa Puffs all appeared for the first time that year. It was also the birth of more important things that have had a more lasting impact like the microchip, NASA, and the extremely important civil rights movement.

Columbus State University, then Columbus College, was also born in 1958 and this year celebrates its 50th anniversary. Columbus State has come a long way since its early days as a two-year institution in the old Shannon Hosiery Mill on Talbotton Road. CSU has grown from a few thousand square feet of facilities to over 1.7 million square feet. It has grown from serving several dozen students to serving over 7,000. During the past 50 years, CSU has played a vital role in the region by providing an education to thousands of people who wouldn't have had opportunities otherwise. Many of you in the classroom today have at least one of your degrees from CSU or have at least taken courses here.

The Columbus Regional Mathematics Collaborative has been fortunate to be a part of CSU's history for nineteen of those fifty years. During that time, CRMC, growing from a vision of Helen P.



Kenneth Jones

Purks and Mary Lindquist, moved from the trunk of a car to a small closet in Jordan Hall, and later moved to several other locations before eventually ending up in a spacious facility in Jordan Hall where it serves as an integral part of CSU's College of Education. During CRMC's evolution, it has seen five directors—Helen Purks, Susan Pruet, Ann Assad, Kitty Fouche, and now me. The directors have worked with five deans in the College of Education. A number of area teachers have rotated through the office to serve as resource teachers. During that 19 year evolution of CRMC, there has been one constant—CSU

President, Dr. Frank Brown, who became CSU's president a year before the birth of the Collaborative.

Dr. Brown, who is retiring this year, has always been a vital supporter of CRMC and its mission. In the early days, he helped to secure startup funds, which eventually lead to CRMC being able to secure funds from the Urban Mathematics Collaborative. He played a key role in securing space on campus that would be CRMC's first home. Dr. Brown's vision and leadership have impacted CSU in profound ways and will continue to make an impact long after he exits this stage. His leadership and support have also played a critical role in the existence and the survival of the Columbus Regional Mathematics Collaborative. The foundation he helped us lay will help us continue to serve this area's teachers for years to come.

A lot has changed in fifty years. It seems like a long time ago that gas was \$0.24, and most of us can hardly imagine life without the microchip. The skateboard, *Johnny B. Goode*, Sweet 'N Low, and even the hula hoop, are still going strong. CSU is continuing to grow and expand its legacy. I hope that I and the Columbus Regional Mathematics Collaborative can continue to be a part of that legacy. Thank you, Dr. Brown, for the legacy you are leaving for CSU and CRMC. Enjoy a well deserved retirement! Happy 50th Anniversary, Columbus State University, from the staff, former staff, teachers, and school systems associated with the CRMC. We look forward to being a part of helping build your future legacy.

Presenters Needed for GCTM Conference

There are many talented mathematics teachers in this area, doing exciting things in their classrooms and actively engaging their students in mathematics. The Georgia Council of Teachers of Mathematics is looking for presenters for the 2008 Georgia Mathematics Conference, which will be October 15-17 at Rock Eagle. The conference theme this year is **Decision 2008 - Mathematics: The winning ticket**. Proposals are needed for all grade levels but especially for the K-5 level. If you attended the conference last year you know that the elementary sessions are often filled to capacity and teachers had to be turned away due to room capacity. According to program chair Nicole Ice, "We'd love to have more elementary sessions available but there simply aren't enough elementary teachers who submit proposals to present." Help GCTM alleviate this problem and showcase the talent we have in this area by preparing a proposal. Another area of special need for proposals is to demonstrate effective ways of using interactive whiteboard technology to teach mathematics. Additionally, proposals are desired for BYOL (Bring Your Own Laptop) sessions – what could you teach, show, or demonstrate if participants brought their own laptops? The idea is to deliver content in a more interactive, hands-on environment using software that is widely available or that can be downloaded from the Internet. Think about something effective that you have done in your classroom or team up with another teacher and prepare a proposal. You can submit your proposals online by going to www.gctm.org.

Math at the Library

On Saturday mornings you might expect to find middle grades girls sleeping in, watching TV, or participating in weekend sports programs. However, many middle grades girls have been spending one Saturday morning a month at the main branch of the Columbus Public Library on Macon Road, participating in engaging mathematics activities. The girls come from a variety of middle schools throughout the area. CRMC has sponsored six of these Math Mornings this year. Middle grades resource teacher Hope Phillips, volunteer Ruby Tucker, and several teacher volunteers from area schools have worked with the girls to solve puzzles, explore problem solving, engage in algebraic thinking, and learn geometry through origami.



Pearl Jenkins helps students from Phenix City Intermediate and Marshall Middle School build origami boxes

Many of the girls became regulars after attending their first session. The girls come from many different schools; this event has given them opportunities to make new friends and they look forward to the next month's meeting. One parent said her family was out of town for last month's event when her daughter remem-



ECMA teacher, Debbie Davis, works with students from St. Anne Elementary and Clubview Elementary at math morning

bered that it was the Saturday for her Math Morning at the Library. The daughter inquired whether the mother was going to drive all the way back to Columbus so that she could attend. It was too far for the trip this time but the daughter insisted that next month she had to make sure she didn't miss her morning at the library. The mother said, "My daughter has been struggling in math but through participating in this program her attitude towards it has completely changed."

Most of the girls are looking forward to attending CRMC's PRIME Camp for middle grades girls this summer. The camp will provide a week-long and more in-depth experience than the girls have gotten at the library.

Math Mornings at the Library is one of several events the CRMC has hosted in conjunction with the Columbus Public Library during the past couple of years. The library is a fantastic facility and CRMC staff have enjoyed working with the library staff to host these events. We look forward to more events in the future.

Math FUNtastics III

Don't miss Math FUNtastics III on May 17, 9:30a-12:00p, at the main branch of the Columbus Public Library on Macon Road. This is an exciting opportunity for elementary students and their parents to explore together mathematical connections to children's literature. Parents and students will have an opportunity to read several children's stories, then solve a variety of hands-on math problems related to the stories.

This will be the third year that CRMC has partnered with the Columbus Public Library to sponsor this event. The event was conceived by Dr. Kitty Fouche, mathematics professor at CSU, while she served as interim director of the Collaborative. The event was so well received that CRMC has made it an annual event.

If you have or know children in grades 1-5, please encourage them and their families to attend this event and see that mathematics can be fun! For additional information about Math FUNtastics III, contact CRMC.

Science at the Collaborative

CRMC is proud to welcome Susan Gaither to our staff as a part-time science resource teacher. Susan is working with the Collaborative for a few months to help organize the limited science materials, kits, and supplies that are available for checkout. She is working to sort and re-package some of this material into smaller kits aligned with the science GPS. Susan is an outstanding science teacher who has taught in Muscogee County and for CSU's College of Education. She will assist not only in helping to add some order and structure to the science materials but also to provide some guidance in finding grant funds that would allow CRMC to expand its services to include more science support. In June, Susan will serve as the camp facilitator for the University's Future Teachers Academy. CRMC hopes to find additional funding to be able to continue our work with Susan and to expand our science resources.

Summer Opportunities for Students

There are several opportunities for students of all ages to be involved in mathematics and science at Columbus State University this summer. CRMC's annual PRIME Camp for middle grades girls will be June 16-20 from 9:00-4:00. Girls will have opportunities to explore mathematics through art, architecture, literature, science, games, puzzles, and technology. Girls in the program will be inspired by how math connects to their lives and learn that mathematics is about more than numbers and computation.

PRIME Camp is CRMC's longest running summer camp for students. Hundreds of girls have participated in the program since its inception. The camp provides special support and encouragement to females, who have traditionally been under represented in many fields of mathematics and science. The cost for the camp is \$149.

Middle grades boys will again have the opportunity to participate in POWER Camp the week of June 23-27. The camp was not held last year due to low registration numbers in recent years. We hope that by partnering with Continuing Education through their Activ8 program more families will learn about this opportunity. Boys will have opportunities to explore topics that rely heavily on mathematics—sports statistics, architecture, art and design, rockets, games, puzzles, and technology. Topics will be explored through a variety of hands-on and engaging activities. The camp meets daily from 9:00-4:00 and costs \$149.

Elementary students, ages 8-11, have the opportunity to become Problem Solving Investigators by participating in CRMC's PSI Camp, June 16-20. Students will solve mysteries, explore puzzles, play games, and enjoy a variety of engaging activities as they discover that mathematics is more than just numbers and computation. The camp meets daily from 9:00-12:00. Through the Activ8 program students who participate in the PSI camp may also choose to sign up for another Activ8 camp in the afternoon. Activ8 sessions, including PSI, are \$79.

In order to better accommodate parent work schedules, there are opportunities for students to be dropped off anytime after 7:00 A.M. and picked up as late as 6:00 P.M. During this time students will be involved in activities supervised by staff members of the the Activ8 summer camp program.

CRMC is involved in a new cooperative effort with the CSU College of Science to offer the Academy of Future Teachers for high school students interested in mathematics, science, computer science, and teaching. High school students will have the opportunity to attend a two-week institute of hands-on, inquiry based mathematics, science, and computer science seminars taught by CSU faculty. Participants will have opportunities to explore exciting content such as cryptography, colorful chemistry, DNA fingerprinting, a geology field trip, computer programming, physics explorations, and many others. Following the students' involvement in the two-week academy, they will volunteer to assist for a week in PRIME, POWER, or PSI sponsored by the Collaborative, or in one of the camps sponsored by the Coca-Cola Space Science Center or TSYS Department of Computer Science. The program is designed to expose high school students to the high quality offerings and resources available in mathematics, science, and computer science at CSU, as well as provide opportunities to work with younger students and experience first-hand the joy of teaching. The goal of the program is to encourage more students to enroll in CSU's mathematics, science, and computer science programs and to consider future careers in teaching.

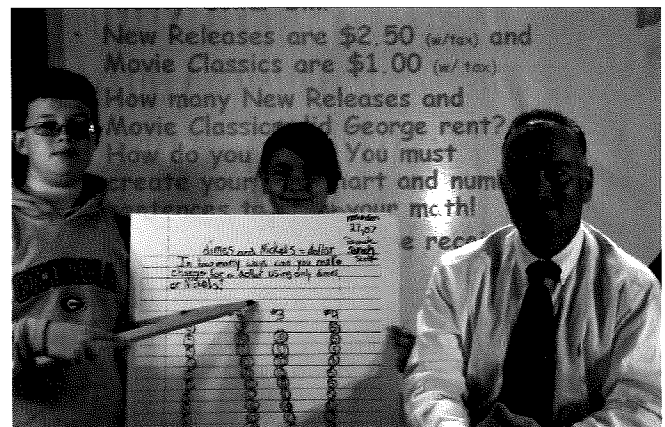
Through a grant awarded to the University, this camp is made available to high school students at no cost. Students who complete the entire program will receive a \$250 stipend. Registration for all of the camps is available online on our website, <http://crmc.colstate.edu> by clicking on registration.

Park Elementary Projects

CRMC has worked closely with Park Elementary School in Harris County this year. CRMC elementary resource teachers met with Park's teachers in early fall to help plan activities for a very successful Family Math Night. Dr. Dan Lomax, Assistant Principal, worked with CRMC Director, Kenneth Jones, to develop a year-long staff development course for Park's teachers that is being taught by CRMC staff. The course focuses on "Best Practices" from the new Georgia Performance Standards. Topics have included using rubrics in assessment, using and designing performance tasks, and making connections between mathematics and children's literature.

Park Elementary is working on several other mathematics initiatives in addition to their work with CRMC. A group of teachers is working on a two-year Design Team focused on Number Sense and Operations. One of their more unique projects is the Problem of the Day which utilizes their Tiger TV system. School staff and a variety of guest stars, including the superintendent and CRMC staff, have submitted and been videotaped reading problems for the Tiger TV Network. After the problems are broadcast to the classes, students submit answers to their

teachers. The best solutions are submitted to the office. From these exemplary solutions, some are selected to be featured on Tiger TV. According to Dr. Lomax, "Our Problem of the Day segment has really taken off with my office getting 5-10 of the best of the best student work samples every day."



Park Elementary assistant Principal, Dan Lomax and student problem solvers

How to Get Parents and Families to Turn Out for School Mathematics Events

By Paul Giganti, Jr.

(Reprinted with permission from Missouri Council of Teachers of Mathematics Bulletin, November 2007)

Involving parents and families in your school's mathematics events is critical to their student's success, but far from easy. Federal and state programs often require parent participation as a condition of funding, but provide very little guidance about how to achieve this goal. Once again, the successful experiences of other schools and teachers can assist you in making your event a popular success. Here are some suggestions that other schools have found worked well in garnering parent/family participation in mathematics events.

First and foremost, design an event that parents or families want to attend. Ask yourself: does this event seem interesting, exciting, vital, fun, delicious (food), or, in any other way, appeal to parents? If any one of these adjectives applies to your event, that is good; if several do, that is much better. And if you ask yourself the question and none of the adjectives seem to apply, then seriously think about revising your planned event.

Remember that we are talking about a mathematics event. The mere mention of "mathematics" can often scare parents away. Assure them that your event is guaranteed to be a pleasant, even enjoyable, experience (see adjective above). In simple, straightforward language, describe your event and clearly explain to parents what you are asking them to attend, and why.

Will your event fit nicely into the busy lives of parents and families? Think about the time of year (fall is often better than spring) and the timing of the event itself. Generally speaking, avoid dinner and bed times for both family and parent events. This often leaves a narrow window between 6:00 and 8:00 P.M. If your event can be successful in less time, 1.5 hours is more appealing to parents than 2 hours.

Let parents and families know about your upcoming event well in advance. While the "flyer sent home in the backpack" is the classic means, we know this alone is far from ideal. If you really want this to work, make a big deal of the event with your students right before you send them home. Most schools know flyers should be in multiple languages to appeal to the entire school population, but if your students have a good understanding of your event themselves, they are often great translators. If you get the kids excited about an event, they become willing, enthusiastic messengers.

Post flyers around the school a week in advance, announcing the time and date of the event. School newsletters are also a great way to spread the word. Newsletters provide the opportunity to explain an event more thoroughly than a flyer, and yet are another means for a parent to hear about an event. Do not be afraid to use all of these devices to get the word out!

Get the teachers involved in procuring parent participation. While some schools have a resource person who can focus on this task, many do not. A very effective strategy is to have each class be responsible for signing up a quota of parents in advance. Phone calls are often more effective than flyers, but teachers need not make a lot of phone calls if they ask key supportive parents to call families. Often a call from one parent to another parent can be the most effective.

Offer the students an incentive for bringing their families to an event. Offer a pizza party to the class with the highest participation, or tell the students pizza will be served that night! One school even offered students a "get out of one homework assignment" coupon if they brought their families. Be creative; it is amazing how little goes a long way.

And finally, after a successful (or not so successful) parent or family event, take time to debrief with other teachers about what seemed to work best (or least) in getting parents' participation. If you do this, you are much more likely to remember how to do it right for your next mathematics event!

Fun Math Trivia Problems

Hummingbirds fly at speeds up to 71 mph. What is the maximum hummingbird speed in feet per second?

Lightning strikes the earth somewhere over 17 million times a day. What is the average number of lightning strikes per second?

It takes 25 to 30 seconds for blood to circulate through the body. How many times does blood circulate through the body in a day?

At birth you start with around 300 bones, but by adulthood you have around 206. What is the percent decrease in the number of bones in the body between birth and adulthood?

The American opossum's gestation period is 12-13 days; the elephant's is 21.7 months. The elephant's gestation period is how many times greater than the opossum's?

**Columbus Regional
Mathematics Collaborative
at Columbus State University
2008 Summer Workshops**

**June 9-13 (8:30-4:00 on M, T, W; 8:30-1:00 on Thur. & Fri.)
Elizabeth Bradley Turner Center for Continuing Education**

Elementary – Supporting the Standards: Process Standards Open the Door

Engage in rich mathematical activities designed to deepen knowledge of algebra, geometry, and data analysis and probability

Develop skills to effectively implement problem solving, reasoning, representation, connections and communication as integral parts of instruction

Develop your ability to assess student learning using alternative forms of assessment

Middle Grades – Supporting the Standards: Filling the Gaps in Middle School Mathematics

Expand and deepen mathematics content knowledge through problem solving and use of the graphing calculator

Engage in activities and tasks to supplement those in the Georgia Mathematics Frameworks

Develop your ability to assess student learning using alternative forms of assessment

High School – Supporting the Standards through Just-in-time Delivery

Engage in activities to deepen content knowledge in algebra, geometry, and data analysis and probability

Engage in tasks and activities designed for use in the new Math 1 course

Develop your ability to assess student learning using alternative forms of assessment

What you'll get:

- a deeper understanding of the mathematics you teach
- ready to use lessons for implementing the GPS
- ideas for developing additional lessons
- NCTM's Assessment Sampler for your grade level
- new materials and resources
- 3 PLUs (Graduate credit may be arranged through the College of Education)
- connection to a learning network
- a stipend

Cost:

\$200 for teachers from CRMC member systems and \$300 for teachers from non-member systems. Cost includes materials, refreshments, and lunch on M-W.

Mail registration form to:

Continuing Education, 4225 University Avenue, Columbus, GA 31907

Call 706-568-2480 or 800-335-2480 or E-mail crmc@colstate.edu for additional information.

Elementary and high school workshops are supported by grants from the *Improving Teacher Quality Program* administered by the University of Georgia.

Columbus Regional Mathematics Collaborative Workshops

June 9-13, 2008

REGISTRATION FORM

Name _____	Certificate Type _____
SSN _____ - _____ - _____ (Required for PLU Credit)	Date of Birth _____
School _____	School System _____
School Address _____	School Phone () _____ - _____
City _____	State _____ Zip _____
Home Address _____	Home Phone () _____ - _____
City _____	State _____ Zip _____
E-mail _____	

All workshops are \$200 for member systems and \$300 for non-member systems. Participants will receive 3 Professional Learning Units (PLUs). (Graduate credit is available through the College of Education.) Additional professional development credit may be awarded for attendance at follow-up activities throughout the academic year. Cost includes materials, breakfast, and lunch on Monday, Tuesday and Wednesday. All workshops will be held in the Elizabeth Bradley Turner Center at Columbus State University. Call (706) 568-2023 for directions.

Please check the workshop you will attend: All workshops begin promptly at 8:30 a.m.

- _____ Supporting the Standards: Process Standards Open the Door (Grades K-5)
- _____ Supporting the Standards: Filling the Gaps in Middle School Mathematics (Grades 6-8)
- _____ Supporting the Standards with Just-in-time Delivery (Grades 9-12)

Please choose one of the following: _____ PLUs _____ Graduate Credit

If you are asking for PLU credit, please complete the following:
I certify this person for participation in the above-named PLU credit program.

Signature of Superintendent or designee _____

Position _____ System _____

Please indicate method of payment:

*Purchase order number _____ Check (payable to CSU) Money Order

MC/Visa: _____ Account # _____ Exp. Date _____

Signature _____

** Required if registration fee is being paid by school/school system; must be submitted with this form. Registration **WILL NOT** be accepted without a purchase order number.*

Registration Deadline is Wednesday, June 4, 2008. Return this form and method of payment to:
Continuing Education, Columbus State University,
4225 University Avenue, Columbus, GA 31907-5645

Students and Teachers Enjoy Mathematics During Break

Students and teachers at Georgetown Elementary didn't stop doing mathematics even during their recent Spring Break. Because Georgetown is on a year-round schedule, students and teachers get a three week break during the spring. One week of the break is usually devoted to remediation for students in various subjects. As part of CRMC's elementary Teacher Quality Project, *Building Bridges and Digging Deeper: Phase Two*, a week-long camp-like experience was offered for students at Georgetown. CRMC elementary resource teachers worked with students and teachers at the school to plan and conduct hands-on activities and explorations that could help develop students' conceptual understanding of topics.

Each day, students in grades 3-5 volunteered to come to school for these extra explorations in mathematics. Students enthusiastically participated in the investigations and games to develop their mathematical thinking. Teachers also worked with some students on remediation skills. The camp had been planned as an add-on to the regular intersession activities at the school. However, due to reductions in funding, Georgetown was not able to offer their normal intersession for students. The involvement of the Collaborative in this camp experience for students proved to be vital in providing extra help and support for conceptual learning to the students who participated.

Teachers had opportunities during the camp to record small groups of students engaged in problem solving. These videos can be used for further study of student thinking.

An Opportunity for Outstanding Math and Science Teachers

As you'll note elsewhere in this newsletter, there are a lot of talented mathematics and science teachers in our area who have already received recognition for their accomplishments. We know that there are many others out there who are doing outstanding things in their classrooms. Please consider nominating one of your colleagues or even yourself for the Presidential Award for Excellence in Mathematics and Science Teaching. The Presidential Awards for Excellence in Mathematics and Science Teaching are among the nation's highest honors for teachers of mathematics and science and recognize highly qualified teachers for their contributions in the classroom and to their profession. Awardees are selected at the state and national level. The national winner receives a \$10,000 award. Teachers with five years experience teaching math or science are eligible. The deadline to apply is May 1, 2008. More information and applications can be obtained from <http://www.paemst.org/>.

The Mathematics Education Trust (MET) of the National Council of Teachers of Mathematics administers a variety of grant programs for teachers and schools. MET puts money directly into the hands of educators who want to improve themselves and the teaching of mathematics. Awards are available to help individual teachers and schools enhance mathematics teaching skills, try new classroom projects, and attend NCTM annual meetings. Deadlines for proposals are May 9, 2008 and November 14, 2008. For grant descriptions and more information, visit www.nctm.org/met.aspx.

Fun and Educational Web Links

Funbrain www.funbrain.com

Provides math learning activities for parents and teachers, including flashcards, games, and a curriculum guide.

Print customized stickers for graphing calculator covers www.84silver.com

Visit this site to access TI's free online GraphiTI design tool. You can order blank stickers at education.ti.com.

Puzzles, Games, Miscellaneous Math Facts www.archimedes-lab.org

Contains a variety of puzzles, brain teasers, magic tricks, and special facts about numbers.

Activities and Resources for high school www.mathbits.com

A collection of activities and resources for Algebra I and II and Geometry. Includes links to Powerpoints you can use in your classes, Geometer's Sketchpad sketches, classroom activities, lists of movies with mathematical connections, a graph paper printer, and many useful links.

Activities for Elementary www.smartkiddies.com

This is a free and complete elementary mathematics learning program. It includes a variety of interactive tasks to assist children to develop skills in mathematics. The site contains a variety of on-line games that allow students to practice skills. Worksheets are also available that can be printed.

Science Videos <http://feeds.feedburner.com/bytesizescience>

Contains brief podcasts that talk about scientific discoveries.

CRMC Completes NCTM E-Learning Series

A number of teachers have taken advantage of this year's NCTM E-Learning Workshop series at the Collaborative. This series of workshops, sponsored by the National Council of Teachers of Mathematics, provided opportunities for teachers around the United States and even worldwide to interact and participate in activities tied to NCTM's *Principles and Standards for School Mathematics*. The workshops, which were led by classroom teachers and NCTM staff members, were divided into PK-2, 3-5, 6-8, and 9-12 sessions. CRMC hosted one grade band session for each of the content strands that was offered.

During the *Reasoning with Data and Probability* sessions, teachers explored methods of data collection, statistical analysis, evaluation, and understanding and application of probability. Participants in *Implementing the Algebra Standard* gained an overview of the algebra standards and explored patterns, representations, modeling, and analysis of change. *Geometric Thinking* participants explored activities to promote student understanding of shapes, spatial relationship, transformations, and visualization and looked at making connections among geometric properties and theorems. In each of the workshops, participants had the opportunity to interact with other sites and to participate in activities utilizing a variety of formats. Of particular benefit to participants was the exposure to a variety of lessons, activities, and web-based applets from the NCTM Illuminations site and from the National Library of Virtual Manipulatives.

Approximately 35 area teachers, CSU students and faculty, and CRMC staff members participated in at least one of the twelve workshops offered this year. Once NCTM releases the new schedule of workshops, usually in late August, CRMC will schedule another E-workshop series for next year.

Congratulations

The Columbus Regional Mathematics Collaborative congratulates those teachers and administrators who have received recent awards and recognition. We always like to see the hardworking teachers and administrators we work with being recognized for their contributions.

Dr. Julio Gonzalez, Principal at Faith Middle School at Ft. Benning, was recently named the top middle/high school principal for the United States Department of Defense Schools. Dr. Gonzalez has been very supportive of the Math Collaborative and always encourages his teachers to participate in CRMC programs. Faith Middle School was one of the school sites for CRMC's *Building Bridges from Instruction to Assessment* project during the 2006-07 school year.

Troup High School mathematics teacher, Amelia Harmon, was selected as a finalist for Troup County teacher of the year for this year. Amelia taught special education for many years before becoming a mathematics teacher. Her experience in special education and her enthusiasm for mathematics have helped her quickly become a very successful mathematics teacher. She teaches 9th grade mathematics courses in Troup High's Freshman Academy.

Two local science teachers, Teresa Hedger of Veterans Memorial Middle School and Ronette Oller of Fort Middle School, were among 200 U.S. teachers selected to be Amgen-National Science Teachers Association Fellows in the NSTA New Science Teacher Academy. They will participate in a year-long professional development program. The NSTA New Science Teacher Academy, co-founded by the Amgen Foundation, was established to help promote quality science teaching in the U.S. by mentoring early-career science teachers.

During their fellowship, the participants will participate in web-based professional development activities, attend the NSTA National Conference on Science Education in Boston, participate in a Research Dissemination Conference or Professional Development Institute, and receive online mentoring from professionals who teach in the same discipline.

Dr. Jim Arnold, Principal at Shaw High School, was recognized as one of the 2008 Georgia High School Distinguished Principals by The Georgia Association of Secondary School Principals (GASSP). Dr. Arnold and teachers from Shaw High School worked with CRMC in our 2005-06 Teacher Quality Project, *Algebraic Thinking: Calculations of the Mind*.

Lisa Lishak, mathematics teacher at Loachapoka High School in Lee County, was selected as a recipient of a grant from the Mathematics Education Trust (MET) of the National Council of Teachers of Mathematics. Lisa was one of two teachers nationally to receive a grant for Connecting Mathematics to Other Subject Areas.

Mathematics teacher, Shurmair Broadwater, was named Teacher of the Year at Spencer High School. Shurmair is the mathematics department chair at Spencer.

The CRMC staff tries to make note of teachers and administrators in mathematics who receive recognition. However, there are probably many of whom we were not aware. Anytime you have mathematics teachers at your school who receive special recognition for their accomplishments, please contact us and let us know. Congratulations to all of the outstanding teachers and administrators in our area who are helping students learn better and more mathematics for all.

Macon County Mathematics/Science Workshop

Macon County science and mathematics teachers came to Columbus on February 27 and 28 for a five-hour math/science workshop conducted by CRMC.

Twenty teachers from grades 3-8 attended the workshop each day. The teachers explored connections between mathematics and science as they participated in a variety of hands-on activities that they could take back to their classrooms.

The teachers in grades 3-5 used the scientific method as they conducted experiments to determine the best brand of paper towels. They tested various brands and collected data to determine how strong each brand was when wet. They also learned about pH as they used red cabbage juice to determine which common household substances were acids and bases. They read the book, *My Full Moon is Square* and investigated concepts of area and perimeter. They also made observations on a model to determine phases of the moon and built a scale model of the solar system. The book, *If You Hopped Like a Frog*, provided a springboard to several activities involving ratio and proportion.

Middle grades teachers explored travel to distant planets, calculating distances, rate of speed, and time using scientific notation. They explored data about high and low temperatures for a year, constructed a "wave" or sine graph, and labeled the parts of the wave. Using Celsius and Fahrenheit thermometers, they collected data from cups with water at a variety of temperatures, graphed the data and derived the linear equation for converting between the two measurements. They also made connections between probability concepts and biology by examining inheritance characteristics in Punnett squares.

This workshop was the teachers' fourth trip to Columbus this year. Earlier in the year, they participated in workshops at CSU's Coca-Cola Space Science Center, Oxbow Meadows Environmental Learning Center and Center for Quality Teaching and Learning. These workshops are part of a three year Math/Science Partnership grant written by Macon County. Some of these same teachers visited the centers last year to participate in workshops. Next year there will be a third set of workshops. According to one of the teachers, "This is the best and most useful workshop we have attended yet!" CRMC staff would be happy to share these activities with other faculties. Schools may not have the time to commit to a five hour workshop, but if any of the ideas mentioned above sound particularly interesting to you, contact the Collaborative to arrange for a group of your teachers to come to CRMC or to have CRMC staff come to your school.



Macon county teachers make measurements to build a scale model of the solar system

Out and About with CRMC

The cold of the winter months did not keep CRMC staff from conducting a variety of programs for area schools and school systems. Hope Phillips, Shannon Lewis, Cynthia Hill, Kimberly Voltz, and Ruby Tucker were busy during January and February leading activities at Family Math Nights at several schools—Forrest Road Elementary, Double Churches Elementary, and Midland Academy in Muscogee County and New Mountain Hill Elementary in Harris County.

On February 21, Kenneth Jones presented a parent workshop at Wesley Heights Elementary as part of their lunch and learn series. He shared a variety of activities and games that parents could use at home to help students improve their math skills. Approximately 25 parents attended the session, enthusiastically participated in the games and workshops and enjoyed lunch, courtesy of the school.

Staff members Linda Hayes and Kenneth Jones participated in the Muscogee County Idea Fair at Arnold Middle School on March 26. Linda shared several activities that could be used to develop linear, rational, exponential, and quadratic functions with teachers. Kenneth shared information about CRMC's upcoming summer workshops and camps.

On February 28, Kenneth traveled to Manchester Middle

School in Meriwether County to present a workshop to elementary teachers. His presentation on number sense, algebraic thinking and problem solving, was one session of a ten-week course in which the Meriwether County teachers are participating.

CRMC staff participated in Dimon Magnet Academy's annual Math/Science Day on March 7. Kenneth assisted fourth graders as they learned about tessellations. Students explored using translations on a rectangle to create shapes that tessellate similar to those created by artist, M.C. Escher. Students created a variety of tessellating fish, animals, and people as they explored this connection of mathematics to art. Kimberly worked with third graders to explore probability concepts and basic facts while playing the game *Wipeout*. Hope worked with second graders and used *Wipeout* to explore basic probability and graphing. Cynthia read the book *Tally O'Mally* to first graders and then played a game to race to 100 tally marks. Shannon did an activity called *Race for a Flat* using base ten blocks.

If you are interested in having CRMC staff involved in events at your school, remember to book early. An increasing emphasis on improving mathematics in the school has increased requests for CRMC assistance. The CRMC staff is always glad to work with schools to accommodate requests but in order to get first choice of dates and times you need to schedule events early.

CRMC Receives New Grants

In March, CRMC received word that two of its Teacher Quality grant proposals have been funded for next year. CRMC will receive funds to support *Process Standards Open the Door*, a project to help elementary teachers develop additional content knowledge in mathematics and improve pedagogy for teaching mathematics in the elementary classroom. The goals of *Process Standards Open the Door* are to deepen teachers' content knowledge in algebra, geometry, and data analysis and probability; to promote the use of the process standards of problem solving, reasoning, representation, connections and communication as integral parts of instruction; and to develop teachers' abilities to assess student learning using alternative forms of assessment. The project will begin with a summer workshop June 9-13 at the Elizabeth Bradley Turner Center for Continuing Education.

Teachers in the workshop will have numerous opportunities to explore mathematics content and pedagogy through participation in a variety of tasks that require them to solve problems, explain mathematical reasoning, represent ideas in multiple ways, make connections both within mathematics and to other topics, and communicate their mathematical thinking to others. Teachers will receive a copy of the NCTM *Navigations* publications connected to algebra, geometry, and data analysis and probability which will be used during the workshop. Each book includes practical, teacher-tested activities and a supplemental CD-ROM that features applets for students' use and resources for classroom use.

The project will provide follow-up support during the school year to teachers involved in the project. There will be two all-day follow-up workshops during the year for teachers who attend the summer workshop and for teachers from schools chosen as sites for focused school study groups. From among schools represented at the summer workshop, three schools will be selected to serve as sites for school study groups that will focus on exploring student work and examining student thinking using a set of common grade level assessments given to students. One of CRMC's elementary resource teachers will be assigned to each site and will meet with teachers bi-monthly and share assessment tasks for each grade level. At these meetings, teachers will have the opportunity to work through the tasks themselves and to examine their own thinking about the problems. Once teachers at a grade level have implemented a task, the resource teacher will return to the school and meet with teachers to explore student work. In examining student work, teachers will explore appropriate uses of rubrics for differentiating performance quality, look for examples of student misunderstandings, explore students' abilities to communicate problem solving strategies, demonstrate multiple representations, make mathematical connections, and use mathematical reasoning.

CRMC also received funds to support high school teachers who are implementing the new GPS Math 1 curriculum through *Supporting the Standards with Just-in-time Delivery*. Goals of the project are to deepen teachers' content knowledge in algebra, geometry, and data analysis and probability; develop a cadre of teacher leaders to support the change process required to effectively implement Mathematics 1; and develop teachers' abilities to assess student learning using alternative forms of assessment. This project also begins with a workshop for teachers, June 9-13. The workshop will focus on helping teachers develop the new mathematics content knowledge and pedagogies needed to be successful in teaching the new high school mathematics curriculum. Because the new curriculum requires many teachers to use pedagogies, activities, and tasks that may be new to them, they need opportunities to work through tasks, participate in collaborative discussions regarding ways to effectively implement these tasks in the classroom, and examine methods of evaluating student performance on the tasks.

In addition to looking in-depth at some of the tasks included in the high school mathematics framework, teachers will work through

activities in *Patty Paper Geometry*, *Probability Simulations*, and *Exploring Mathematics with the Transformation Graphing Application*. Participants will receive copies of each of these publications which will be useful in teaching the new Math 1 course.

A key component of *Supporting the Standards with Just-in-time Delivery* is the development of a regional cadre of Mathematics 1 teacher leaders. Participating schools will each recommend one Math 1 teacher to serve as the Just-In-Time liaison for that school. These teacher liaisons will meet as a group with project staff for six hours during the summer and for one day prior to the start of school to plan and develop strategies to assist in school site implementation of Mathematics 1 during the academic year. The group will meet again five times during the year. At each session, participants will explore and share launching tasks, instructional tasks, and assessment tasks appropriate for the upcoming Mathematics 1 unit. The cadre of leaders will return to their respective schools and share this information at their schools through both formal study groups and informal interaction with other Mathematics 1 teachers at their schools. There will also be two all-day follow-up workshops during the year which will provide opportunities for all Mathematics 1 teachers involved in the project to meet together.

Each of these projects was funded through the Improving Teacher Quality Program administered by the University of Georgia. Improving Teacher Quality grants are part of the "No Child Left Behind" Title II Part A Higher Education Grants Program of the U.S. Department of Education. Teacher Quality funds provide the majority of the funding for salaries for CRMC staff, materials and supplies for workshop participants, stipends for participants, and funds for substitutes so teachers can attend follow-up events.

CRMC's middle grades Teacher Quality grant proposal was not funded this year. Effective management of other CRMC funds for the past few years will enable the Collaborative to still offer its middle grades workshop this summer. The middle grades workshop, *Filling the Gaps in Middle School Mathematics*, will also be June 9-13, and will focus on filling gaps in teachers' knowledge and understanding of data analysis, algebra, and geometry. Helping teachers learn to use the graphing calculator to develop conceptual understanding in students will be a special focus of the workshop. Participants will explore activities and tasks in *Navigating through Geometry*, *Navigating through Probability*, and *Navigating through Data Analysis in Grades 6-8*.

Having all three workshops simultaneously provides opportunities for teachers across the grade levels to interact and explore some topics together. This year's common topic will be effectively using alternative forms of assessment. The Georgia Performance Standards place a great deal of emphasis on the process standards in addition to the content standards. Because the process standards are not easily assessed using traditional test items they require alternative forms of assessment. Participants in all three workshops will use the NCTM *Mathematics Assessment Sampler* for their particular grade band and will have opportunities to share content and assessment ideas across grade levels.

Teachers in each of the workshops may earn 3 PLUs through CSU's Department of Continuing Education. Graduate credit is also available for students enrolled in CSU's College of Education. Participants are also eligible for a \$200 stipend for attending the workshop. Workshop information and registration forms were recently mailed to all CRMC member schools. Information and forms are available in the center of this newsletter. The cost of the workshops is \$200 for member systems and \$300 for non-member systems. The registration costs serve as local matching funds to the grants and allow CRMC to provide refreshments, meals, and additional support not provided in the grants. CSU faculty members, Dr. Debbie Gober, Dr. Deirdre Greer, Ms. Gayle Herrington, Ms. Karen Waters, and Dr. Cindy Henning will assist CRMC staff with the workshop and with follow-up activities during the year.

Columbus Regional Mathematics Collaborative

Web Links

Mr. Beneli's Web site: <http://edweb.tusd.k12.az.us/ibeneli/index.html>

Offers a variety of interactive flash applets that can be used by students or by teachers. A great resource if you have the ability to project computer output in the classroom or if you have an interactive whiteboard.

NASA Space Place <http://spaceplace.nasa.gov>

Offers hands-on projects, interactive games, animations, pictures, and amazing facts about math, science, and technology for students. Most of the activities and games are for elementary students; some of the activities and lessons could be modified for middle and high school students. Downloadable posters and images would be useful for all grade levels.

Online practice worksheet creator <http://www.noetic-learning.com/>

Automatically generates practice problems that students can complete online for a variety of content including addition, subtraction, multiplication, division, money, fractions, and number sense. Online worksheets can be posted to your website for student access. Additional features are available if you pay to become a member of the site.

Problems of the Week and links to Mathematics Resources

<http://www.potw.co.za/>

Contains links to various sites that offer problems of the week. Sites are grouped by elementary, middle school, high school, and advanced. (The site fails to mention the CSU Problem of the Week site but does include a link to Dr. Rock's White House site.) Also contains links to sites that provide information about news links and applications of mathematics. Advanced high school teachers might be especially interested in the link to Plus magazine.

MIT online courseware for high school

<http://ocw.mit.edu/OcwWeb/hs/home/home/index.htm>

Free resources from the Massachusetts Institute of Technology (MIT) aim to improve science, technology, engineering and mathematics instruction at the high school level. The site features more than 2,600 video and audio clips, animations, lecture notes, and assignments taken from actual MIT courses. Resources are organized to match the Advanced Placement physics, biology, and calculus curricula. Demonstrations, simulations, and animations give educators engaging ways to present STEM concepts.

Innovation <http://www.youinnovate21.net/>

Aimed at getting middle school students excited about science, technology, engineering, and mathematics (STEM) with the goal of inspiring and preparing them to become 21st century innovators. Features standards-based content, interactive games, a career simulator, and activities designed to encourage students to pursue STEM fields and careers.

Cooperative Learning

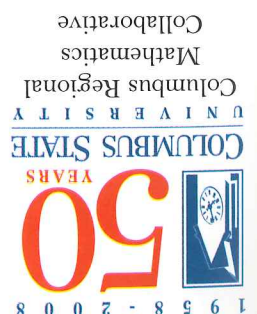
<http://www.kaganonline.com/Newsletter/index.html>

This site has an online newsletter of cooperative learning information and activities

Fact Monster www.factmonster.com

Helps students learn about numbers, formulas, fractions, measurement, and money. The site has a math flashcards activity to help students with learning basic facts. Several interactive games relate to problem solving and recall of basic math knowledge.

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