



# New Director Takes CRMC Reins

I am delighted to have the opportunity to serve as director of the Columbus Regional Mathematics Collaborative. I feel honored to step into this role. In the past sixteen years, the Collaborative has grown from a small organization of a few visionary mathematics teachers into a major force for improving mathematics education in our area. This progress has come through the leadership of my predecessors – Helen Purks, Susan Pruet, Ann Assad, and Kitty Fouche. Their vision and leadership brought the Collaborative to this precipice. I hope that I can continue to build on their foundation and help move the Collaborative forward to even greater success.

I have been privileged to witness the growth and development of the Collaborative since soon after its inception in 1989. I saw the Collaborative from the point of view of a classroom teacher at a small rural school in Notasulga, Alabama. I saw it from the point of view of the secondary resource teacher for the Algebra for All project. I viewed it again from a teacher's perspective at Troup High School in LaGrange. Now my view is that of the fifth director of this outstanding organization.

As I have viewed the Collaborative from many perspectives, one constant has been that the strength of the Collaborative has always been the strength of the teacher-leaders in this area. It was a small group of those teacher leaders – Helen Purks, Mary Lindquist, Nancy Mims – and others who birthed the Collaborative sixteen years ago. It has been the dozens of others who embraced their vision who have enabled the Collaborative to become what it is today – a premier provider of leadership and professional development opportunities for area teachers and students.

When the Collaborative started, it primarily served the needs of secondary teachers. Soon it began to expand its services to middle school teachers and then to elementary teachers. Now the mission of the Collaborative also reaches out to the pre-service teachers who are students at Columbus State University. In the beginning the Collaborative was primarily an entity unto itself housed at Columbus State University (then Columbus College) through the generosity of supporters like Dr. Frank Brown. Now, as one of the University's Centers of Excellence, and as a fundamental part of the College of Education, the Collaborative is an integral component of the University.

The Collaborative has come a long way in sixteen years, but there

is much yet to be done. As Georgia's new Performance Standards are implemented in classrooms in our area, teachers will need continued support and leadership. As the challenges of standardized testing of No Child Left Behind create a push by some towards standardized and rote teaching, there is an increasing need for the development of teacher-leaders who understand that thinking, problem solving, processes, and understanding are as important, if not more so, than getting the right answer on an assessment of limited scope.

We've come a long way but there are miles to go before we rest. The essential piece in our continuing struggle to achieve excellence in mathematics education is you. It is your talents, your leadership, your willingness to constantly learn and improve that carries us toward our goal of making sure that all students learn to value and appreciate mathematics. It is your hard work and dedication that will one day make it as unacceptable to say "I never learned to do math" as it is to say "I never learned to read."

For the past sixteen years the Collaborative has been here to support teachers in their quest to become leaders in mathematics education. I am here today as a product of that support. There are many department chairs, principals, and curriculum coordinators in our area who are also products of the Collaborative's past. My goal, as the new director of the Collaborative, is to insure that resources continue to be available to develop teacher leaders in our area. I hope to keep the Collaborative moving forward as a force for developing one of our children's most valuable resource – their teachers. It is the classroom teachers who are on the front lines daily who ultimately make a difference in children's lives. My commitment to you is to make sure the Collaborative is here to support you, your teaching, and your professional development so that you can continue to provide the finest mathematics education to our children.

The Collaborative is here to serve you. As its director, I am here to serve you. Please let me know how I can help you and your students.



## CRMC Staff

### Director

Kenneth Jones  
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### Resource Teachers:

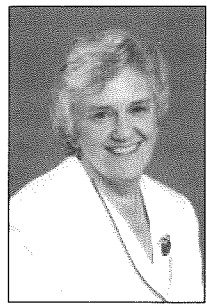
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## MESSAGE FROM THE DIRECTOR OF THE CENTERS OF EXCELLENCE

Serving as interim director of CRMC last year allowed me the opportunity to enjoy the most rewarding experience of my university career. When I joined the faculty in 2003, I was energized by the possibilities for the Math Collaborative. A close look into the organization revealed a dedicated, talented, and effective staff and associates who were quietly making a difference in mathematics education. Lacking the ability to scale the clock tower or do a Paul Revere ride through town, I searched for other methods to broadcast the message that CRMC is special. Few universities provide the level of support offered through this CSU Center of Excellence. Our sweet sixteen birthday is a great time to reflect on the CRMC history of successes, close financial calls, changing locations, fun times, and teacher leaders who depend on the organization for professional development. After 16 years, it is also a time to put on a fresh set of lenses and consider how we should change to maximize our positive impact on mathematics education. It is time to move from being one of CSU's best kept secrets to the status of a CSU jewel that must be polished, publicly displayed, treasured, and nurtured. We need each teacher, CSU student, faculty, staff member, K-16 administrator, and parent to support our efforts by using our services, helping us get the word out, providing feedback, and supporting our fundraising efforts.



Kitty Fouche

My greatest contribution to CRMC was to hire Kenneth Jones as the new Director. Kenneth arrived on July 1 with the energy and vision to lead a great organization to heights that are only limited by resources. As a former high school resource teacher during the early days of the Collaborative and a successful classroom teacher, Kenneth is equipped to take the Collaborative to the next level. It is my pleasure to work with Kenneth as we seek new challenges. My sincere thanks go to those who let me love my job. Carol, Kimberly, Cynthia, Hope, Christie, Ruby, Janet, and Terri - your passion for mathematics and your support for our efforts continue to electrify the group. I am forever grateful.

My suggestion for all who follow CRMC is to put on new running shoes. Kenneth is moving into high gear and he intends to be a serious competitor. It is an exciting time to be in mathematics education. On your mark, get set, and go.

Katheryn K. Fouche  
Executive Director CSU's  
Centers of Excellence

## Math Trivia

Here's a sneaky way to find out someone's age who won't tell you: Ask the person to multiply the first digit of his or her age by 5. Next, tell them to add 3. Now tell them to double this figure. Then, have the person add the second digit of his or her age to the figure and have them tell you their answer. Deduct 6 and you will have their age.

## Middle Grades News

A goal of CRMC is to create teacher leaders in mathematics education. After seeing the participation during our summer workshop, this goal is becoming and, in many cases has become, a reality! A group of enthusiastic teachers worked on activities aligned with the Georgia Performance Standards for grades six through eight.



Hope Phillips, middle grades resource teacher, works with PRIME students.

Through partnership with Dr. Debbie Gober's EDMG 5525 class, we had many excellent teachers working with the girls at PRIME Camp. Our student-to-teacher ratio was, at times, 2:1. Linda Lenhard, from Blackmon Road, worked full time for the fourth year in a row, while Ruby Tucker marked her 15th year as a leader of PRIME Camp! Some of the highlights included working mathematically rich problems, exploring mathematics software, and creating exciting designs with origami. PRIME girls showed off their problem solving fluency and flexibility on a daily basis.

Try the following problem yourself and then let your students work it. During summer workshop and camp, we had fun sharing all the different ways to represent this not-so-poultry problem.

There are four chickens. Together, the large and medium chickens weigh 10.6 kg. Together, the small and large chickens weigh 8.5 kg. Together, the small and medium chickens weigh 6.1 kg. How much do the small, medium, and large chickens weigh all together? How much does each chicken weigh?

## Take The Penny Challenge

Are you willing to give pennies to help make professional development opportunities available to teachers in our area? Most of you are probably familiar with the problem about paying \$0.01 the first day, \$0.02 the second, \$0.04 the third, doubling what you pay each day. Would you be willing to donate a one-day amount to support teachers' professional development?

The Helen P. Purks Scholarship was created to assist teachers in attending professional development events. It honors Helen Purks, one of the Collaborative's founders and it's first director. In the past, these funds have helped teachers attend NCTM national and regional conferences, GCTM conferences, as well as other professional development opportunities. Your help is needed to keep these funds available.

If a number of teachers would make a ninth (\$5.12), tenth (\$10.24) or eleventh day (\$20.48) donation it would help us be able to continue to assist teachers in attending professional development. If anyone has really wealthy friends who would like to donate the thirtieth day, we'll schedule an outstanding mathematics professional development on board a cruise ship to Hawaii.

Please consider a gift to Columbus State University designated for the Helen P. Purks Scholarship. The person you help might be you. Contributions can be mailed to Columbus State University, Office of University Advancement, Richards Hall, 4225 University Avenue, Columbus, GA 31907.

# Mathematics is FUN & FUNNY

➔ Mathematics is made of 50 percent formulas, 50 percent proofs, and 50 percent imagination.

➔ A statistician is someone who is good with numbers but lacks the personality to be an accountant.

➔ There are three kinds of people in the world; those who can count and those who can't.

➔ There are 10 kinds of people in the world, those who understand binary math, and those who don't.

➔ There really are only two types of people in the world, those that DON'T DO MATH, and those who take care of them.

**Q:** What do you get if you divide the circumference of a jack-o-lantern by its diameter?

**A:** Pumpkin Pi!

**Q:** What does the zero say to the the eight?

**A:** Nice belt!

**Teacher:** How much is half of 8?

**Pupil:** Up and down or across?

**Teacher:** What do you mean?

**Pupil:** Well, up and down makes it 3, but across the middle makes it 0.

## Math problems?

Call 1-800-[(10x)(13i)^2]-[sin(xy)/2.362x].

**Q:** What did the circle say to the tangent line?

**A:** "Stop touching me!"

**Q:** How do we know that the following fractions are in Europe, A/C, X/C and W/C?

**A:** Because their numerators are all over C's.

**Q:** Why was the math book so unhappy?

**A:** It had too many problems!

**Q:** What did one math book say to the other?

**A:** Don't bother me I've got my own problems!

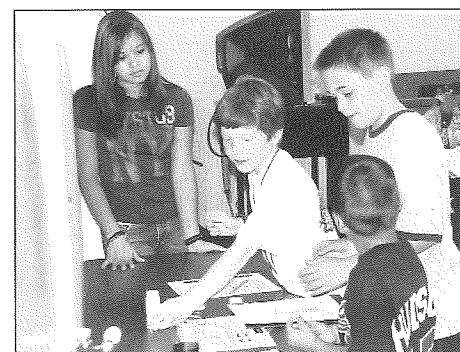
## SMART Success

A SMART success! Science, Math, and Reading Together was enjoyed by all who participated. Campers became "Daily Detectives" who discovered many new and fun ways to explore mathematical and scientific concepts.

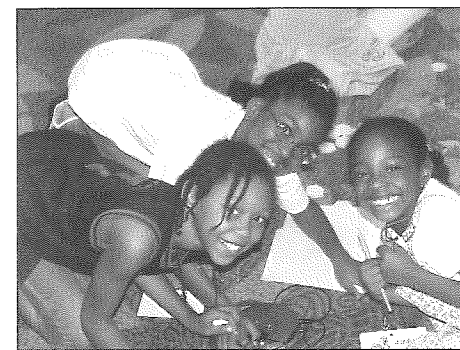
A crime involving a missing bear was solved after many forensic and scientific tests were conducted. Using a classroom learning-station format, students studied the "crime scene," then conducted crime-lab tests on the evidence, analyzed the results, and solved the mystery. These forensic science and math activities absorbed students from the start and kept them intensely involved throughout. The many crime-lab procedures included thread tests, powder tests, chromatography, and fingerprinting.

Campers observed, studied, and drew conclusions about the strange green substance that can be read about in Dr. Seuss' *Bartholomew and the Oobleck*. Campers also "grew" dinosaurs and tracked their changes in size and area over time. The campers enjoyed many games such as Mancala, Wipe-Out, and Native American Gamesticks. More mysteries were solved in the computer lab which emphasized a variety of mathematical skills and problem-solving.

SMART Camp combined fun and excitement with careful experimentation, logical thinking, and real-life connections to science and math.



SMART students examine evidence that will help them solve a mystery.



Math really is fun!



A group of SMART students solve a mystery.



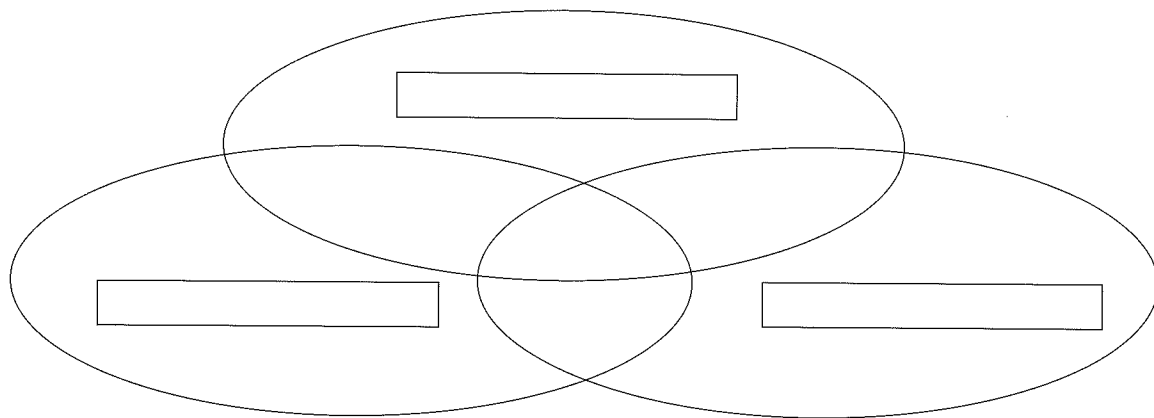
CRMC resource teacher, Cynthia Hill, instructs students on how to evaluate evidence gathered from the crime scene.

# Using Venn Diagrams for Critical Thinking and Problem Solving

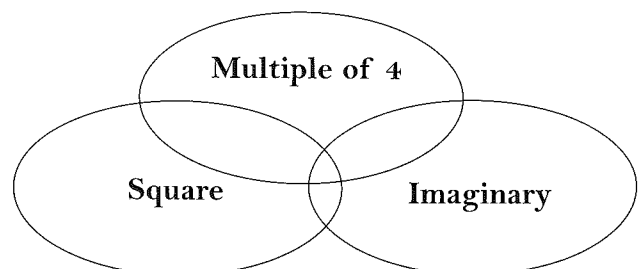
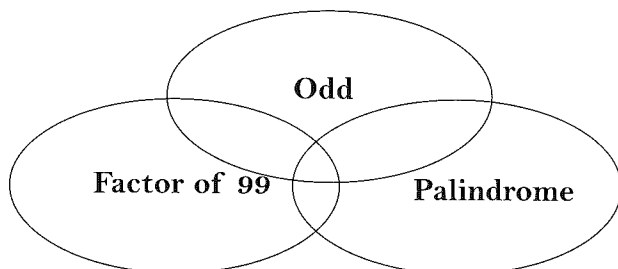
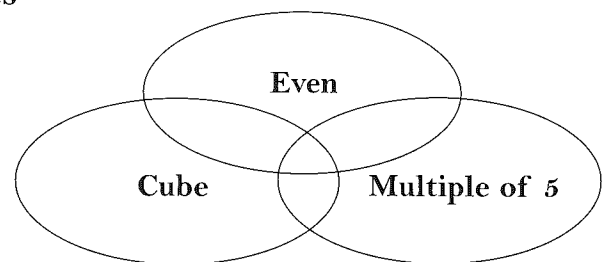
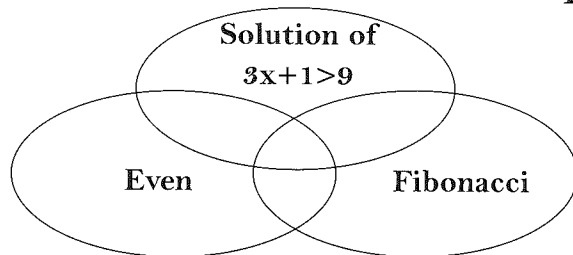
This activity, which can be adjusted to the level of the student and the content being taught, can be used repeatedly to promote critical thinking and problem solving. Teachers can make a transparency of the Venn diagram shown below and fill in titles for each region and use it as a class opener or review or introduce content. Students could also be given the Venn diagram as an assessment item. Students can be asked to provide one element for each region of the diagram. Students should use the symbol for the empty set,  $\emptyset$ , when there are no overlapping elements.

## POSSIBLE CATEGORIES

Even, odd, prime, composite, multiples of \_\_, factors of \_\_, Fibonacci, Factorial, triangular, square, cubic, palindrome, positive, negative, integer, rational, irrational, imaginary, perfect, abundant, deficient, solutions of \_\_, angle measurements of regular polygons, coin amounts, etc.



## Examples

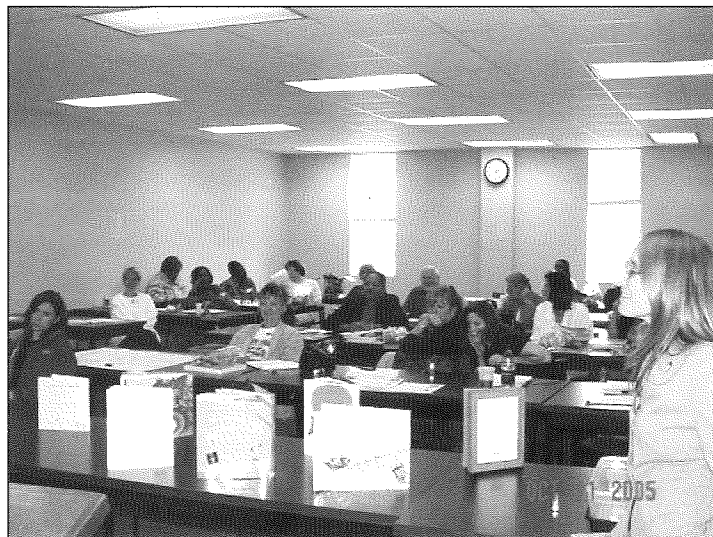


# Collaborative Hosts Joint Workshop For Teachers

On October 11, the Collaborative sponsored its fall joint workshop for area teachers. The workshop is an essential part of the Collaborative's Algebraic Thinking projects funded by IMPROVING TEACHER QUALITY Higher Education grants through the University of Georgia. Although the workshop was designed primarily for teachers involved in the grant projects, attendance was open to all teachers from member systems. Approximately 40 teachers attended the workshop.

During the morning session, facilitated by Kenneth Jones, elementary, middle, and high school teachers worked together on a problem dealing with algebraic thinking. Teachers had the opportunity to first work on the problem in grade level groups and then to share solutions and strategies across grade levels. Teachers said they enjoyed seeing how the problem could be approached by students at a variety of levels. Although the problem could be solved by writing and solving a system of linear equations, many of the more creative approaches to solving the problem provided insight into various types of algebraic thinking.

Following the initial session, teachers worked in grade level



**Dr. Dierdre Greer works with elementary teachers on making algebraic connections using children's literature.**

Dierdre Greer, CSU's College of Education, worked with elementary teachers on using children's literature to teach algebraic thinking. Participants examined a variety of children's books that have links to mathematics and used manipulatives and problems to explore ways of developing students' algebraic thinking.

Joy Black, the University of West Georgia, worked with the middle grades teachers on posing and solving open-ended and mathematically rich problems. Participants explored a wide assortment of problems using manipulatives and a variety of problem solving strategies. Middle grades teachers concluded the day by building function machines that they could use in their classrooms.

Kathy Westbrook, new to the CSU College of Education, worked with the high school teachers on using graphing calculators to

enhance algebraic thinking. Participants worked with patterns and explored the list and graphing capabilities of the TI-84. Teachers used the calculators to explore real-world data dealing with the heat index as well as the spread of AIDS.

The workshop received high marks on evaluations. The next joint workshop will be Thursday, February 9, 2006.



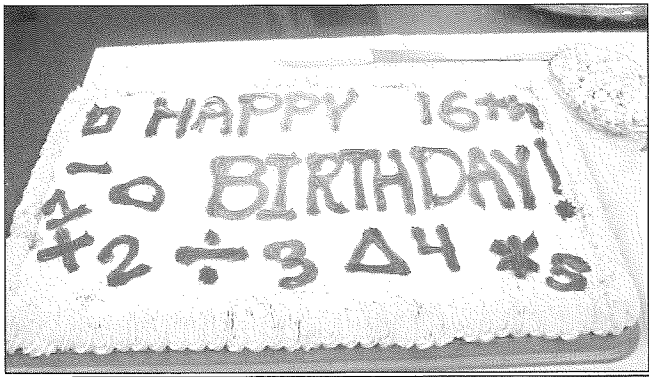
**Joy Black presents a problem using pattern blocks to middle grades teachers.**

break-out sessions. The high school and middle school teachers examined various types of problems and worked to identify the types and characteristics of algebraic thinking exemplified in various solution strategies. The high school session was led by Kenneth and the middle school session was led by CRMC resource teacher, Hope Phillips. During the elementary break-out session, resource teachers Cynthia Hill and Kimberly Voltz worked with participants on using some seasonal children's literature to teach math concepts. Teachers made jack-o-lantern pumpkin glyphs.

The afternoon sessions were led by faculty members from Columbus State University and the University of West Georgia.



**High school teachers explore real-world data using the TI-84 during their break-out session**

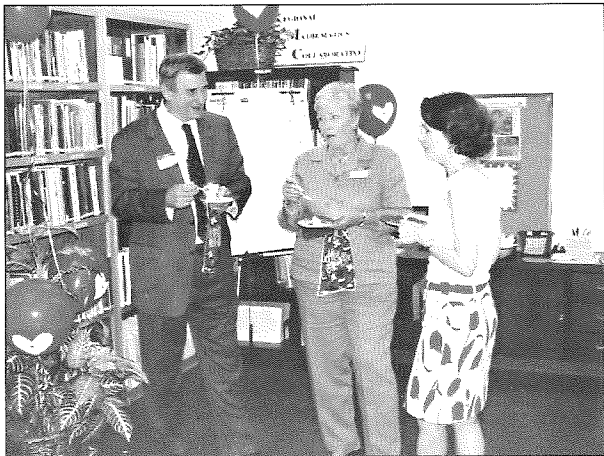


# Happy Sweet 16 CRMC

The Columbus Regional Mathematics Collaborative Staff poses for a birthday picture during their recent Sweet 16 party. Shown are Kenneth Jones (Director), Cynthia Hill (Elementary Resource Teacher), Carol Harvey (Elementary Resource Teacher), Janet Knight (Administrative Assistant), Chiquita Brock (Student Assistant), Hope Phillips (Middle Grades Resource Teacher), Terri Abrams (Staff Assistant) and Ruby Tucker (Volunteer Resource Teacher).



Ruby Tucker visits with Judy McCord, a retired teacher from Drake Middle School in Auburn. Judy and Ruby were instrumental in the development of the original PRIME Camps for girls.



Hope Phillips talks with Dr. and Mrs. Paul Ohme, Director of CEISMC at Georgia Institute of Technology. Dr. Ohme and CEISMC worked on a project with the Collaborative several years ago and Mrs. Ohme had experience with the Collaborative when she was an administrator at Ft. Benning Schools.



Two CSU students try and find another expression for sixteen.

# New Resources

A number of new resources are now available at the Collaborative. Come by and check these out.

**Shake and Learn Mathematics – Pre K-Elementary.** This dynamic resource will have your students singing and dancing as they learn math concepts. Based on brain research, this program teaches math concepts through movement, rap, and songs. The kit contains the words to the songs, a CD with the music, instructions for the movements, and activities to reinforce the concepts taught. A DVD is also available with students singing and dancing to the songs.

**Mathematics Assessment Sampler--Grades 3-5.** This book from NCTM focuses on classroom assessment in grades 3-5. It contains multiple choice, short-response, and extended-response questions designed to help teachers evaluate students' knowledge related to NCTM Standards. The book also contains practical examples and samples of student work.

The following software products were used in our summer camps. The students found them to be challenging and enjoyable. We have ten-user lab packs that you may preview.

**Numbers Undercover (Software:Sunburst)-Primary.** This software provides a blend of mystery and mathematics designed to captivate and motivate early learners. It introduces students to math and problem-solving skills such as measurement, time, money, and number patterns.

**Numbers Recovered (Software:Sunburst)-Primary.** Students help Max, the Numbers Detective, recover stolen numbers as they complete engaging activities designed to reinforce and strengthen skills in equivalent representations, comparisons, place value, and graphing.

**Zap! Around Town (Software:Sunburst)-Primary.** Students develop direction and map skills using this program. It encourages students to learn the four main directions as well as locating places on a map using letter and number coordinates.

**Equation Tile Teasers (Software:Sunburst)-Grades 6-9.** Students develop logical thinking and pre-algebra skills with three challenging problem-solving activities. Students must select numbers 0-9 to make a set of equations true. It is easy to choose numbers to make one equation true, but it is much more challenging to use each number only once to make all equations true.

**Math Arena (Software:Sunburst)-Grades 4-7.** A variety of games and activities allow students to focus on problem-solving, estimation, prediction, number relationships, and computational skills. There are twenty different games and challenges included. Some will provide a good challenge to older students as well.

**Math Arena Advanced (Software:Sunburst)-Grades 7-10.** Students will find the practice fast and fun as they work with 20 challenges that build skills in numbers and operations, geometry and visual thinking, estimation and probability, data analysis and representation, problem solving and algebraic concepts.

## Part-Time Employment

CRMC is looking for outstanding teachers to help with implementation of Collaborative projects. Potential applicants need at least five years of successful teaching experience, strong mathematics backgrounds, and familiarity and experience with standards-based teaching. Applicants need to be available during the school day to work with teachers in schools.

### Job Descriptions:

**Elementary Resource Teacher** – needed to work part-time approximately 50 hours per month through at least December. Duties include presenting model lessons in classrooms, assisting teachers with lesson planning, presenting after school workshop sessions with teachers, working with school administrators to identify professional development needs of schools.

**Secondary Resource Teacher** – needed to work approximately 50 hours per month through June 2006. In addition to the duties described for the elementary resource teacher, this person needs to have strong knowledge and experience in teaching with technology, especially graphing calculators.

If you are interested in either one of these opportunities, please contact Kenneth Jones at 706-568-2480 or 800-335-2480 or [jones\\_kenneth@colstate.edu](mailto:jones_kenneth@colstate.edu)

## Upcoming Events

**February 7, 2006** Columbus State University  
Columbus Regional Science & Engineering Fair 8:30 a.m. - 3:30 p.m.

**February 28, 2006**  
Columbus State University Spring Fling  
5:00 p.m. - 8:30 p.m. Location TBA

**February 9, 2006**  
Algebraic Thinking Joint Teacher Workshop 5:30 p.m.-7:30 p.m.

## Math Trivia

Tell someone to secretly input their age into a calculator and multiply it by 3367. Now, tell them to multiply it by 3. Next, tell them to write down their answer on a piece of paper and to clear all the information on the calculator so far. Now, use that number on the piece of paper and divide it by 10101.  
**RESULT: The person's age!**

## GCTM At Rock Eagle

The 46th annual Georgia Mathematics Conference was held at Rock Eagle October 20-22, 2005. The conference theme was designed to help mathematics teachers "survive and thrive" in an environment of change. Changes emphasized were the new Georgia Performance Standards (GPS) and technology. Because technology is changing both in what we teach and how we teach, several sessions were designed to encourage the use of computers and calculators at all grade levels.

Presenters hailed from throughout the country as well as our own area. Speakers from Columbus State University, who all used

mathematically rich problems to teach the GPS, were Dr. Deborah Gober, Interim Chair of the Department of Teacher Education, Dr. Kitty Fouche, Director of the Centers of Excellence, and Dr. Cindy Henning, Assistant Professor in the Department of Mathematics. Lynn Perkins, a former CRMC secondary resource teacher, held a session on collaboration entitled "Not Just for Those Team Teaching." Martha Ennis, a teacher at Blackmon Road Middle School, presented "Accelerated Math for all Classes."

Mark your calendar for October 2006 and plan to be at Rock Eagle. Also, think about being a presenter at this conference.

## Project SMART (Support, Mentoring and Resources for Teachers)

A Project SMART meeting was held on October 27 in the Cunningham Center. Suzanne Evans, Instructional Technology Specialist with the Center for Quality Teaching and Learning at Columbus State University, spoke about the Georgia Performance Standards (GPS) for mathematics.

A follow-up meeting focusing on the GPS will be held on Thursday, November 17, 5:00-6:30 p.m., in the Turner Center. If you wish to learn more about Project SMART or wish to attend the November meeting, e-mail Debbie Gober at [gober\\_deborah@col-state.edu](mailto:gober_deborah@col-state.edu).

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The Columbus Regional  
Mathematics Collaborative

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