# News from the South C's

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**Upcoming Events:**

- Oct 6, 2007, CMC³-South Fall Mini-Conference at Mira Costa College.

- Nov. 1-4, 2007—33rd AMATYC Annual Conference, Minneapolis, Minnesota.

- Nov. 29-Dec.1, 2007, CMC³ 35th Annual Conference, Monterey, CA.

## From the President's Desk

FROM THE PRESIDENT'S DESK:

Ha!  How ironic!  As I sit here preparing my remarks for this column, my Windows Media Player just started playing a random song from my music library… "Math Sucks" by Jimmy Buffet.  ♫*Parents fighting with their children and the Congress can't agree; teachers and their students are all jousting constantly; management and labor keep rattling old sabers; quacking like those Peabody ducks.  Math sucks…math sucks…*♫

Who among us hasn't had the following experience?  You're at a gathering of people you don't know, and someone asks you what you do.  "I teach math," you proudly answer, to which your new acquaintance replies, "Oh, I was never good at math" or "I hate math!"  I actually met someone who didn't say a word but just put her finger down her throat as if to say, "Gag me!"  As math educators we have the added challenge of teaching in a culture that disrespects our subject.  Who knows?...If it weren't a matter of decency, maybe Mattel Corporation's Teen Talk Barbie would have said "Math sucks!" instead of "Math class is tough."  Yes, we have are work cut out for us.

But attitudes can change, and we can be an agent of change.  There are probably as many ways to affect our students' attitudes as there are math teachers.  Personally I use an approach that makes the classroom a fun and safe place to be, though I'm perfectly aware of others who deride those notions.  I haven't done the research, but I would be very surprised if any scientific studies refute the idea that a enjoyable experience in a safe environment promotes a positive attitude.

CMC³-South is your partner in becoming that agent of change.  We have a wonderful lineup of conferences for you to attend this year.  Find out about how the brain learns and the implications on teaching and learning at the annual fall mini-conference on Saturday,

**From the President's Desk**:

Oct. 6, 2007 at MiraCosta College.  Then on February 29 and March 1, 2008, CMC³-South will hold its 23rd annual spring conference at the Doubletree Hotel in Anaheim. Finally, CMC³-South will host a workshop for instructors and administrators interested in implementing standards outlined in the AMATYC Beyond Crossroads document.  The workshop is slated to be held in San Diego next summer, date still to be determined.

 Have a great year!

 Richard Zucker
Irvine Valley College

## Supporting Developmental Education

By Patty George
Cerritos College

        While educators at Cerritos College don't expect to find a silver bullet that can eliminate the need for developmental classes, they are generally optimistic about the efforts that they are making to improve developmental education courses in mathematics at Cerritos College.
        To address the needs of developmental students in mathematics, Cerritos College and California State University, Dominguez Hills have joined forces through a Department of Education, Title V grant, "Opening Academic Gateways to Science and Technical Professions for Hispanic Students."  The goals of the grant are ambitious.  They are to increase rates of completion, retention, graduation, transfer, and placement of students who begin college careers in developmental and introductory mathematics and science courses.
        At Cerritos College, the grant has been used to support systematic and programmatic changes in the way developmental mathematics courses are taught.   The project activities director, Sally Sestini, Chair of the Cerritos College mathematics department, has coordinated a series of professional development workshops, has placed student tutors in the classrooms, and has provided instructors with a variety of manipulative tools, games and written materials that can be used in the developmental mathematics classroom.
        A crucial factor in the way that this program is being implemented is that adjunct faculty members as well as full time faculty members have been included in the grant and in the professional development activities.  Thus, the benefits of this grant are serving those faculty members who work most closely with developmental education students

**Supporting Developmental Education** *Continued from page 2*

at Cerritos College and at other colleges in the southland.

All mathematics faculty members are invited to participate in the professional development workshops. In addition to the stimulating workshops conducted by Mary Clarke, faculty coordinator for the project, and Sally Sestini of Cerritos College, the workshops have included the following dynamic presenters and topics: Terrie Teegarden on Games and Group Activities for the Developmental Mathematics Classroom, Leah Griffith on Engaging Activities for Teaching Pre Algebra and Arithmetic, Elizabeth Barkley on Collaborative Learning and Assessment, Karen Mussack on Operation Box Cars, and Bill Lombard on Activities to Engage all Students in Algebra. All of the workshops have been interactive, with the faculty most frequently learning about the techniques, games and tools while working in small groups with the material.

Another exciting aspect of the grant is that it has allowed the mathematics program to place student tutors in some of the classrooms. The student tutors have a variety of responsibilities. Among them is working with students individually during class time and during designated times outside of class. Having a student tutor present in the class seems to create an atmosphere of support. Students have immediate access to someone who is not responsible for grading them. In addition to this, the tutor gains deeper understanding of the material and greater insight about the rationale behind certain teaching practices.

To support interactive learning activities in class, the mathematics department keeps a library of manipulative tools. All instructors have access to the classroom sets of many games and tools that support learning concepts and practicing skills in arithmetic and algebra. Instructors can check out class sets of rulers, dice, pattern blocks, algebra tiles, playing cards, scissors, protractors, compasses, and a large variety of games for use during class times. These tools have become essential to many of the instructors who now teach the developmental mathematics courses at Cerritos College.

While it will be some time before the long term effects of the program can be determined, it is readily apparent that there is a coordinated and dedicated culture of support for developmental mathematics students at Cerritos College. If you are interested in learning more about this program, there is information posted at the California State University, Dominguez Hills Website,
http://www.csudh.edu/classTitleVGateways/index.htm .

CMC$^3$-South Fall Mini Conference
MiraCosta College October 6, 2007 ~ 8:00-3:00

Developmental Mathematics
Reaching our students:  How they learn and how we can improve their success.

 The conference will have three strands:
• How the Brain Learns and Remembers: what we now know about how the brain works and how we can use this information to improve student success.
• Collecting Statistics:  asking the right questions about the past to help determine paths to the future.
• Nationally proven Best Practices at institution, program, and course levels.
Please invite your counselors from all areas of your college to attend and join in discussing this campus-wide challenge!

**To register for the conference, please go to the CMC$^3$ South website:**
**www.cmc3s.org**



**Call For Speakers:**

**Our Spring Conference still needs speakers.  If you are interested in speaking at the 23$^{rd}$ annual conference for CMC3-South, contact Carol Murphy at cmurphy@sdccd.edu as soon as possible.  Please contact her by October 20, 2007.**

**That's Sum Series!**
by Richard Zucker, Irvine Valley College

I have always been fascinated by the fact that the sum of the cubes of the first $n$ natural numbers is the square of the sum of the natural numbers themselves. You've all seen it:

$$\sum_{k=1}^{n} k^3 = \left(\sum_{k=1}^{n} k\right)^2 = \left(\frac{n(n+1)}{2}\right)^2.$$

It's certainly not difficult to use mathematical induction to prove this fact. But induction doesn't give me any insight into why the formula is true.

Bill Leonard showed me a truly wonderful way to derive the result. Bill, by the way, is Emeritus Professor of Mathematics from CSUF and our keynote speaker for the spring conference on March 1. His clever approach uses an $n \times n$ multiplication table. I'll show you the technique on a $4 \times 4$ table and leave it to you to generalize the result.

| × | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 |
| 2 | 2 | 4 | 6 | 8 |
| 3 | 3 | 6 | 9 | 12 |
| 4 | 4 | 8 | 12 | 16 |

Let's use $G_i$ to denote the sum of the numbers in each ⌐-shaped block. Then,

$G_1 = 1 = 1^3$
$G_2 = 2 + 4 + 2 = 8 = 2^3$
$G_3 = 3 + 6 + 9 + 6 + 3 = 27 = 3^3$
$G_4 = 4 + 8 + 12 + 16 + 12 + 8 + 4 = 64 = 4^3$

Let's use $S_i$ to denote the sum of all of the numbers in an $i$ by $i$ multiplication table. The whole table is the sum of the ⌐-shaped blocks that comprise it. Therefore,

$S_4 = G_1 + G_2 + G_3 + G_4$   (Equation 1).

But $S_4$ is also equal to $(1 + 2 + 3 + 4)^2$. That's because the second, third and fourth rows are all multiples of the first row, and we can factor out the common factor, as follows:

$S_4 = (1+2+3+4) + 2(1+2+3+4) + 3(1+2+3+4) + 4(1+2+3+4) = (1+2+3+4)(1+2+3+4) = (1+2+3+4)^2$.

Substituting into Equation 1, and writing it in reverse, gives us

$1^3 + 2^3 + 3^3 + 4^3 = (1 + 2 + 3 + 4)^2$.

## HOW to SUCCEED at MATH
### By Yolanda James

"The beginning of a new year always brings us students who have no idea of how to do their homework or study for Tests, in order to succeed at their courses - especially math, which takes a lot of time and cannot be done at the last minute or in front of the television. So in my algebra courses I include this page on "How to Succeed in Math" in my syllabus materials, and go over it carefully in class. I try to emphasize the need for commitment to this course - buy the book, spend time with it, come to class, participate, do the homework, form study groups, etc. Perhaps some of you might want to borrow my ideas and make them into your own - hopefully your students will benefit from them."

1. <u>Attend class</u> on a regular basis. Chances are, you'll learn something new every day.

2. <u>Read the textbook</u>. You paid a lot for the book, so get your money's worth! Preview it before class, so you know what's coming. Then read it again, more carefully, after class, to connect it to what you learned in class, before you start your homework. Take your time. Take notes.

3. <u>Take careful notes</u> in class, in a notebook for this class. Be organized, so you can follow your own notes after class. Anything that goes on the board, should be in your notes. Add your own helpful comments where you can. Try every practice problem during class.

4. <u>Be engaged</u> in the class. Sit towards the front, pay attention, ask questions. Discuss with your fellow students – teach them and learn from them in the group sessions.

5. <u>Form study groups</u> and get together regularly outside of class, for moral support, help with the homework and reviewing for tests. Have several phone numbers to call for help.

6. Each concept builds on previous knowledge, so <u>do homework assignments right away</u> – do not fall behind! Practice builds skills and confidence, so repetition is important – do many problems, and do difficult problems more than once. Take your time – write down each step, so someone else could follow your work easily. Remember that learning Math takes more time than other subjects – at least two hours of homework for each hour of class.

7. Applications problems are more difficult – <u>do them slowly</u>! Read the problem, analyze it carefully, label the unknowns, write each step, do the algebra, then determine the answer to the question. Check your answer for sensibility, and write a complete answer. <u>Talk to yourself</u>.

8.  If you miss a class, or need more help with a particular concept, first <u>re-read the text slowly</u> and carefully.   If that's not enough, ask your study group friends, see your instructor in his/her office, watch the appropriate video in the Library, or go to the tutorial center for tutoring.  Continue working until you understand each concept well.

9.  To study for a test, give yourself plenty of time, over several days before the Test.  Re-read your text and notes, study the new concepts (explain them to yourself out loud), and <u>practice many problems of each type that might be on the test</u>.  Study with your friends, to make it more fun and to practice explaining the concepts and problems.  Do the Chapter Review.  Then test yourself on the Practice Test, with a time limit.  Score the test, then do more problems of the kind you missed on the Practice, until you feel comfortable.  Help your study-buddies.

10.  Before each Test, get a good night's sleep.  Eat breakfast/lunch.  Review your notes before class.  Stay calm – bring something to chew on during the Test, if you get nervous (ie. gum,  M&M's, Lifesavers).  Look over the whole Test, to pace yourself.  Read directions carefully.  Write down any equations/formulas you might need.  Work neatly, in an organized fashion, and answer questions completely.  Skip problems you do not know (come back to them later), and do not spend too much time on any one problem.  When you're finished, go back over the Test, making sure you've answered all the problems and your answers make sense.  Check any problems that can be checked.  Turn in your work, <u>knowing that you've done your Best</u>!!!

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### For the Students of CMC³-South
Bob Crise, Crafton Hills College

We wish to congratulate Los Angeles City College for finishing 1st among the CMC³-South's colleges that participated in AMATYC's Student Mathematics League; also we wish to congratulate the top three students from our area.
**First Place:**          *Tedrick Leung*, Los Angeles City College
(Tedrick was also the top student in AMATYC's Student Math League)
**Second Place:**         *Alexandre Boulgakov*, Santa Monica College.
**Third Place:**          *Chan Ieong Kuan*, Santa Monica College.

If you would like to bring students to CMC³-South Twenty Third Annual Spring Conference, CMC³-South has ten student waivers (two per college) available to the first ten students who apply by emailing Bob Crise at [rcrise@craftonhills.edu](mailto:rcrise@craftonhills.edu).  Colleges may bring more than two students to the conference, but the students will be required to pay to cover the cost of lunch.

# B I T S  A N D  B Y T E S

by   Sister  Rita M Basta, BVM

Here are some excellent math resources as you start the academic year.

*Are you interested in math education?*

• The National Library of Virtual Manipulatives is a free collection of digital activities, games, tutorials and more. Use http://nlvm.usu.edu/en/nav/vlibrary.html   in your pre-service teacher courses.
If you are an AMATYC member, subscribe to MATHEDCC. Got to www.amatyc.org and click on 'Member Resources.'

*Do you want your students to be successful and interested in math?*

• The National Science Foundation has classroom resources on their website. Some are geared specifically to girls. Check out: http://www.nsf.gov/news/classroom/education.jsp
• Students can create geometric constructions with points, vectors, segments, functions and more. This free math software that ingrates geometry, algebra and calculus is found at: www.geogebra.org.
• The Futures Channel: Mathematics and Science Movies and Lesson Plans offers teachers a variety of free online movie slips and related lesson plans about real-world applications of math and science. This is the URL: http://www.thefutureschannel.com/
• Metric week ( 10/8/07-10/12/07) is around the corner. Be sure to look at the following URL's:www.nctm.org/metric-week.aspx  and www.essex1.com/people/speer/metric.html
Easy to use and easy to understand math words can be found at: http://www.mathwords.com/  This is a comprehensive listing of formulas and definitions.

*Would you like to add to your own professional development?*

• NCTM offers some new and useful sites: Visit their 'Tips for Teachers' section at: www.nctm.org/resources/content.aspx?id=9584 and their 'Research Briefs and Research Clips' at www.nctm.org/researchbriefs.aspx  This site links classroom practices to research findings.
The Association of Mathematics Teacher Educators has developed an 'Index of Doctoral Programs' to provide information from institutions about their doctoral programs in mathematics education. The resource is available at  www.amte.net

BITS or BYTES are welcome for next Newsletter. Please email:  rita.basta@csun.edu

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