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ELC's Newsletter for Secondary Mathematics Teachers
Fall 1999 Vol. 3, No. 1

ISSUES in MATHEMATICS EDUCATION

Pacing Considerations in a Contemporary Mathematics in Context *Classroom*

by Beth Ritsema, Professional Development Coordinator, Core-Plus Mathematics Project

The courses in the *Contemporary Mathematics in Context (CMIC)* curriculum are designed to be presented at a realistic, flexible pace. Some teachers implementing the curriculum, however, express concerns about not completing all the material in a course during the academic year. Beginning *CMIC* teachers often raise the following questions:

➤ *How can I pick up the pace in my classroom?*

➤ *How do I decide what is most important in each unit and in the course?*

➤ *How do I know that students understand the concepts so I have the confidence to move on?*

These questions stem from teachers' concerns for student learning. Since pacing issues can affect student learning, which in turn affects evaluation of both the mathematics program and the classroom teacher, it is worthwhile to think carefully about these issues.

District decisions as well as individual teacher decisions affect the amount of material that can be effectively taught each year. Districts and teachers who are implementing the *CMIC* program have found effective strategies for addressing pacing issues.

KNOWING THE CURRICULUM

Elementary schools, middle schools, and high schools sometimes make curriculum decisions in isolation, without considering the common goals for a K–12 mathematics program. Because a district invests time, energy, and financial resources in implementing *CMIC*, it is advisable to think about the mathematics curriculum from Kindergarten through high school.

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Questions for each district to consider include the following:

- *Are students developing mathe-matical habits of mind and good work habits in earlier grades?*

- *How do mathematical expectations for students align from Kindergarten through high school?*

Middle school backgrounds

If students come to high school knowing how to collaborate with classmates, to investigate complex problems, to explain their mathematical thinking, use graphing calculators, and understand more than arithmetic, they are well prepared to complete the *CMIC* courses in a timely manner.

In cases where the middle school mathematics programs have not prepared students well or when classroom hours for mathematics instruction have been reduced (in some block scheduling formats), completing Course 1 in a single year may *not* be a reasonable goal. The mathematical content in Course 1 was chosen because the authors considered it to be the most important mathematics for students to know by the end of ninth grade. Each course sets high but attainable standards that were tested prior to publication. To provide even greater pacing flexibility, the materials are published in two parts. A second-year class can complete Course 1, Part B, while a new, first-year class begins with Part A. Developing understanding of important mathematics should not be sacrificed to "covering" the content.

Having access to the* Teacher's Guide *for all courses allows teachers to understand the detailed development of mathematical concepts within the curriculum.

Resources of *CMIC*

Because the *CMIC* curriculum is an integrated curriculum, careful study is necessary to determine where concepts and methods are introduced, developed, formalized, and revisited. It would be unrealistic to expect that all teachers would have time to study the four years of the curriculum before beginning to teach Course 1. There are, however, resources to help teachers begin to understand the full curriculum. The *Scope and Sequence* pamphlet identifies the course level and unit in which topics are taught in the three-year curriculum and which major topics are reserved for Course 4. Information about the development of mathematical ideas across mathematical strands and across courses is also contained in the *Teacher's Guide.* Having access to the *Teacher's Guide* for all courses allows teachers to understand the detailed development of mathematical concepts within the curriculum.

MANAGING A NEW PEDAGOGY

The *CMIC* curriculum requires that students make sense out of problem situations and explain their thinking. If one of the major goals of your mathematics program is to develop students' problem-solving abilities, increasing the classroom pace may take away opportunities for students to think deeply about mathematical ideas. Whether deciding to move students along more quickly by asking probing questions, providing hints, or directly instructing students about an idea, each instance should be carefully analyzed in terms of decreased opportunities for problem solving and critical thinking.

Time for collaboration

One factor that some teachers indicate slows their progress is the number of interesting questions that students ask. Decisions regarding whether to follow up on additional questions need to be made in light of the desire to encourage ownership of learning by valuing students' questions, the mathematical value of the questions, and time constraints.

Efficient group work

Of course, groups of students who collaborate efficiently will complete their investigations more quickly than other groups. Organizing and facilitating productive group investigations is an important key in successful pacing of a course. Some districts provide additional professional development for their mathematics teachers in collaborative learning. Information on collaborative group work is provided in the *Implementing the Core-Plus Mathematics Curriculum* booklet included with the *Teacher's Resource Package.* Group self-assessment prompts are provided in the *Teacher's Guide* for use following Checkpoints. Often, students will have good insights into ways to make their own groups function well.

Organizing and facilitating productive group investigations is an important key in successful pacing of a course.

Efficient plans for technology

Another implementation decision that affects pacing is the availability of graphing calculators for students' use. Students frequently need access to graphing calculators to complete homework. Some districts provide students with an "at-home" graphing calculator along with the textbook. Other districts make multiple calculators available for overnight check-out from a classroom teacher or from the school librarian. Business or industry contacts may be willing to adopt a classroom and provide technology resources. In some cases, districts request that students purchase their own calculators and may provide financial assistance with rent-to-own programs. By having access to technology at all times, students become more efficient with technology. They are then able to complete more work during the class session as well as more homework.

TIPS AND STRATEGIES FROM *CMIC* TEACHERS

Experienced *CMIC* teachers have developed a variety of specific strategies to assist them in pacing courses, units, and daily investigations. Some of these strategies are listed below:

- In Course 1, assess students' understanding of material from their middle school mathematics program to avoid repetition.

- With other teachers in your department, create a schedule for completing units for the year. Collaborate so that all teachers of the same course continue at about the same pace.

- Know the objectives for each lesson so that you do not get sidetracked. Know whether a concept or skill is being introduced or whether mastery is expected.

- Students should not need to write complete answers to every activity in an investigation. Some activities are for scratch work and discussion. Complete write-ups should be made for Checkpoint questions, in students' Math Toolkits, and for MORE tasks.

- Selectively facilitate mini-checkpoints before the main Checkpoint to consolidate the learning and allow students to move efficiently through the remainder of the investigation. (This may also help bring a lagging group up to speed.)

- If an investigation is not completed during the class period, students may begin the next activity at home and discuss results with their group at the beginning of the following class period.

- Assessment of student understanding by listening to group work may prompt instructional decisions such as omitting an upcoming activity because students already understand the concept or facilitating a whole-class discussion to clarify student thinking.

- Assign On Your Own tasks for outside class work.

- Assign MORE tasks selectively as students are working through the lesson.

- Resist the temptation to go over all the assigned MORE tasks in class. Reserve class time for the important Organizing tasks. If students have chosen different tasks, students who have chosen the same task could present their solutions for the entire class.

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BELOW ARE SOME SPECIFIC SUGGESTIONS FROM CPMP TEACHERS:

- "Become very familiar with the new curriculum."
  – Cathy Helmboldt, Sparta High School

- "Trust the curriculum. You *can* move on. The important topics will come back again. It took me a while to figure this out. In fact, it was my students who finally enlightened me. They said, 'Dr. Triezenberg, you don't need to tell us things after we do the investigation.' I was losing valuable time by 'reteaching' concepts."
  – Don Triezenberg, Holland Christian High School

- "Emphasize group roles daily. Otherwise, students quit using them and subsequently quit working together."

- "Sit back and let your students do the thinking. I am constantly amazed at what students can do and figure out when I let them work."
  – Karen Fonkert, Orchard View High School

- "When assigning an investigation, give time limits. Say, for example: 'You have 12 minutes to do Problems 1 through 5,' or 'Two more minutes on this Checkpoint.' Students really push it when they have a limit."

- "Make sure that you do every problem yourself before assigning it. Don't feel like you need to assign every MORE task and don't go over every homework problem you assign. Make yourself available before school for questions."
  – Jennifer Diekevers, Caledonia High School

- "Don't change your groups too often. Give your groups time to gel. Members from groups that finish more quickly can be used as resources for the other groups."

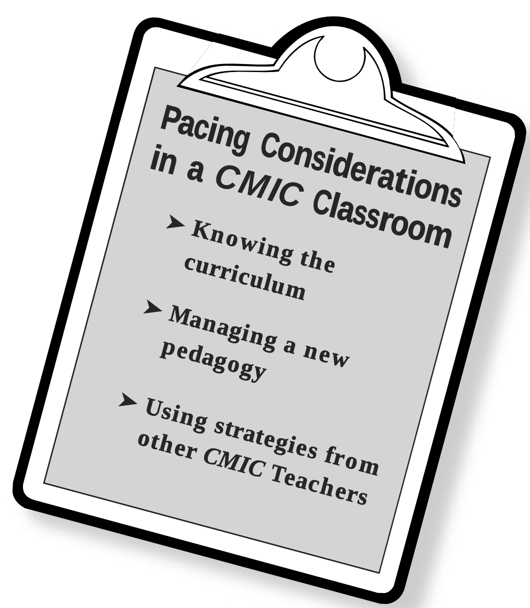
- "Don't wait for every group to complete an investigation every time."
  – Bob O'Connor, Lakeview High School

- "Some topics can be chunked. One group could do #1, another group could do #2, and so on."

- "Using overheads or the Checkpoint at the beginning of the hour to wrap up things I observed students doing the previous day has helped get students quickly back into the investigation. It has also helped clarify some of the misconceptions students have."
  – Mark Tompson, Kent City High School

Teaching the second, third, and fourth courses in *CMIC* helps teachers understand the development of concepts and methods, the retention of concepts by students across courses, and the varying level of mathematical understandings gained by students at any given time. These understandings give teachers the confidence to make many specific teaching decisions that affect pacing.

Helping students develop mathematical habits of mind requires students to have many opportunities to wrestle with problems, justify their reasoning, and explain their thinking. Understanding how concepts are developed and how skills are mastered during the *CMIC* three-year core program of study, using some of the strategies above, and making judicious choices in facilitating collaborative work will enable teachers to help students learn important mathematics in sense-making ways so that students can, in turn, make sense out of new situations and solve new problems.

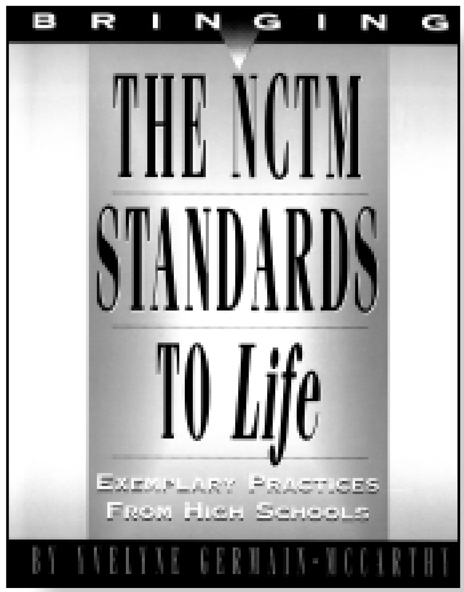


mathematics bookshelf

Book Review

Bringing the NCTM Standards to Life: Exemplary Practices from High Schools
by Yvelyne Germain-McCarthy
(1999, 193 pages, $29.95 paper, ISBN 1-883001-58-7)
Published by Eye on Education,
6 Depot Way West, Suite 106
Larchmont, New York 10538

Review by Susan Halko



More teachers are becoming aware of the NCTM Standards, but are they implementing the Standards into classroom activities? *Bringing the NCTM Standards to Life: Exemplary Practices from High Schools* is a good resource for anyone interested in gaining insight on how to successfully implement the NCTM Standards into their own practices. In this book, Yvelyne Germain-McCarthy profiles 10 teachers who have incorporated the NCTM Standards into real and workable classroom lessons.

McCarthy begins by summarizing the NCTM Standards along with some of the research and philosophy that grounded the Standards. She identifies four Standards that are common to all grade levels: mathematics as problem solving; mathematics as communication; mathematics as reasoning; and mathematics as connections. In addition to these four Standards, she identifies the Standards for middle grades and high school and suggests ways to apply them so that students realize the interconnectedness of mathematics.

McCarthy then describes the elements of exemplary practice. By exploring two different classrooms, she points out that what looks like reformed teaching may actually lack key elements of reform. For example, students seated in groups of four busily working with algebra tiles and calculators might not be extending their learning any more than students in a traditional classroom. Similarly, students sitting in straight rows busily working individually on worksheets could be applying valid problem-solving techniques to problems that are suitable for individual work. McCarthy thoroughly explains how each of these scenarios could be possible.

The heart of the book consists of the 10 profiles of Standards-based units. Each profile includes a description of the unit, a "discussion between colleagues" section that clarifies or expands on the ideas presented in the lessons, a commentary that walks readers through specific Standards and other research applied in the lessons, and a unit overview. Secondary teachers will especially appreciate the unit overview at the end of each profile; it allows teachers to adapt each unit to their own settings.

Although the 10 profiles incorporate a number of different Standards, they all demonstrate that Standards-based mathematics should include problem solving, communication, and reasoning. Other Standards incorporated into the 10 profiles include the following: computation and estimation; patterns and functions; algebra; measurement; trigonometry; connections; statistics; geometry from an algebraic perspective; and discrete mathematics.

McCarthy devotes the last section of her book to planning ahead for the 21st century. She suggests ways for parents, teachers, and administrators to change their thinking about the nature of thinking and learning. Teachers, for example, can read reform-based articles in journals, revise and reflect on lessons, participate in conferences, and listen to and assess students as a basis for informing instruction. The suggested Web sites and bibliography will motivate "traditional teachers in transition" who want to implement reform-based practices.

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Have you read any good books about mathematics lately? In Mathematics Bookshelf, tell other teachers about what you've been reading. We welcome book and article reviews about mathematical concepts, current research in mathematics education, and first-hand experiences of

in the news

MATHEMATICS

MATHEMATICS in the news

offers news on research findings, mathematical discoveries, and events that concern secondary mathematics teachers. If you would like to submit a news item to ***Mathematics in the News,*** whether it is something you have read or an event in which you have participated, please complete the **Suggestion Box** form on page 15.

CMIC Cited as Exemplary Program by U.S. Department of Education

The Core-Plus Mathematics Project has been notified by the U.S. Department of Education that *Contemporary Mathematics in Context* is one of five K–12 mathematics programs in the country to be designated as "Exemplary" by the Department's Expert Panel on Mathematics and Science. This is the highest possible rating for a program. The panel is comprised of experts in mathematics and science, including academics, association representatives, regional lab representatives, and practitioners.

The Expert Panel was established as a result of the Educational Research, Development, Dissemination, and Improvement Act of 1994. Its charge is to oversee a process for identifying and designating both "Promising" and "Exemplary" programs in mathematics and science education so that practitioners can make better-informed decisions in their efforts to improve the quality of student learning in mathematics and science. The Expert Panel reviewed comprehensive elementary, middle, and high school programs like *CMIC* as well as individual course texts in mathematics and science.

The panel's process required curriculum programs to undergo an extensive evaluation process. Each program faced a stringent review process built on four criteria:

- Quality of Program
- Usefulness to Others
- Educational Significance
- Evidence of Effectiveness and Success.

Two Quality Review Panels of practitioners with content expertise and classroom experience evaluated each program based on the first three criteria. Programs that satisfied these criteria then went to an Impact Review Panel of evaluation experts which evaluated the program on the fourth criterion. Ratings by all three panels were then considered by the Expert Panel in making a final selection.

The criteria against which *CMIC* and other programs were evaluated include the following:

Quality of Program

Criterion 1
The program's learning goals are challenging, clear, and appropriate for the intended student population.

Criterion 2
The program's content is aligned with its learning goals and is accurate and appropriate for the intended student population.

Criterion 3
The program's instructional design is appropriate, engaging, and motivating for the intended student population.

Criterion 4
The program's system of assessment is appropriate and designed to inform student learning and to guide teachers' instructional decisions.

Usefulness to Others

Criterion 5
The program can be successfully implemented, adopted, or adapted in multiple educational settings.

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Educational Significance

Criterion 6
The program's learning goals reflect the vision promoted in national standards in mathematics education.

Criterion 7
The program addresses important individual and societal needs.

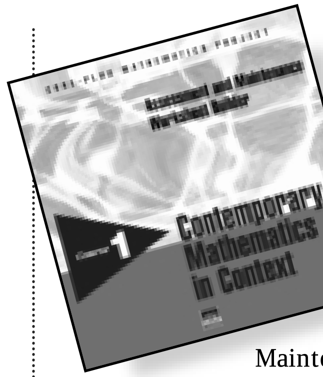
Evidence of Effectiveness and Success

Criterion 8
The program makes a measurable difference in student learning.

To be rated as "Promising," a program had to satisfy specific indicators for each of criteria 1–7. To be rated as "Exemplary," a program also had to fulfill Criterion 8 by providing "convincing evidence of effectiveness in multiple sites with multiple populations" using several indicators of student gains.

Information about programs designated as "Promising" or "Exemplary" is being disseminated through the Eisenhower National Clearinghouse for Mathematics and Science Education, the Eisenhower Regional Mathematics and Science Education Consortia, and the National Education Dissemination System. Teachers of *Contemporary Mathematics in Context* may wish to share this recognition of *CMIC* with local school boards, administrators, and parents.

Contemporary Mathematics in Context Assessment and Maintenance Builder CD-ROMs



ELC recognizes that teachers of *Contemporary Mathematics in Context (CMIC)* can better meet the needs of their students if they can easily prepare and customize the assessment and maintenance items used with *CMIC*. Early next year, *CMIC* Assessment and Maintenance Builder CDs will be available to specifically meet this need. The *CMIC* CDs, formatted for both Macintosh and IBM platforms, offer an electronic environment that enables teachers to choose and customize the assessment items that now appear in print format in the Assessment Resources. The Assessment and Maintenance Builder CDs will make assessment and maintenance preparation easier, faster, and more effective for use in individual classes.

Teachers will be able to cut and paste, delete, or add to existing quizzes and exams in Courses 1, 2, and 3. The CDs will also suggest which items can be adapted for a multiple-choice format or "cloned" (recreated with minor modifications). In addition to all of the assessment items from the Assessment Resources, the CDs will also include Maintenance Master items along with supplemental maintenance items.

A CD sampler for the *Contemporary Mathematics in Context* Assessment and Maintenance Builder CDs will be available this winter. To request a sampler, call 1-800-382-7670.

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In **Techlink**, mathematics teachers find out about software, Web sites, calculators, and creative computer and calculator projects. If you want to share your ideas, please complete the **Suggestion Box** form on page 15.

interview

USING BASEBALL STATISTICS FROM THE INTERNET

Tim Kaltenecker has been teaching mathematics in New York City for twelve years and has been at the Little Red School House and Elisabeth Irwin High School for nine of those years. He received his bachelor's degree in Math and Computer Science Education at Bowling Green State University in Ohio and is currently pursuing his master's degree in Math Education at New York University. In this interview, he describes a project involving baseball statistics that he and his students completed using the Internet.

ML: Describe your project involving baseball statistics. How did you come up with the idea? What were you goals for the students?

TK: The first unit in *Contemporary Mathematics in Context* introduces statistics, and this project followed that unit. I wanted students to research data using the Internet and to find different ways to look at the information given. I also wanted students to realize that they must look carefully at the information in order to determine what the data tell them, and that in many cases, they can interpret the data differently. Finally, I asked students to communicate their understanding in writing.

I was introduced to the idea in a graduate course in statistics at New York University. At the time, the headline-making news involved the greatest number of home runs in a single season. The players, Mark McGwire and Sammy Sosa, were making headlines each day, and the debate centered on the question, "Who is the better player?"

I wanted students to use the concepts of *average, center,* and *spread* to analyze information. Given a set of baseball statistics, I wanted them to organize data and draw conclusions based on the way in which they made their observations. We looked at baseball statistics for Sammy Sosa and Mark McGwire from the ESPN Web site. We found that looking at total home runs within a career was one way to judge the better player … but was it the only way?

ML: How did you organize time, space, and using the Internet? Did students work in groups?

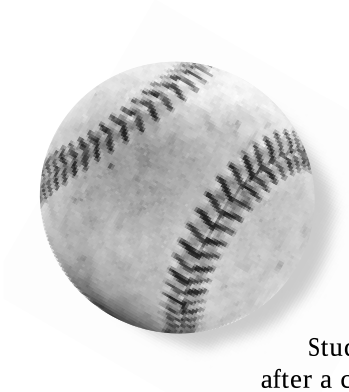
TK: I planned three days for this project. The first day included an introduction to the debate over who is the better player, a discussion of methods to use in order to determine the better player, and an introduction to using the Internet. There were several students in my class who had experience using the Internet, so it was convenient to match those students with other students who had never used the Internet.

On day two, students arrived having done some number crunching and presented their initial findings. After each student gave a presentation, I asked students to write a one-page argument presenting either Sammy Sosa or Mark McGwire as the better player.

On the third day, I asked several students to read their arguments. An interesting class discussion followed during which students fully began to realize how statistics can be manipulated to any opinion, and that one must pay close attention to what is actually being considered. I also introduced box and whisker plots using the home run data that initiated the discussion in the first place. I asked the students, "Why is there so much fanfare over Sammy Sosa when Mark McGwire clearly has more home runs than Sammy?" By analyzing the box and whisker graph, students could look at the spread of the data.

ML: How did the students analyze the data they found on the Internet?

TK: The students had been studying mean and median, and would soon be looking at mean absolute deviation. They had two options for analyzing their data: They could enter the data from the Web site into their graphing calculators and use the methods studied to determine the appropriate measures; or they could transfer the data from the Web site to a spreadsheet and use the spreadsheet operations to find the appropriate measures.



In doing this, students were not only using their knowledge of the measure of center and spread, but they were also using the technology available in an efficient manner to assist them in their calculations.

Students discussed their ideas in groups after a class discussion on the meaning of each column in the statistical chart. However, they were required to come up with their own unique look at determining the better player. The advantage of beginning in a group was that the students could discuss and debate different approaches. Additionally, they helped each other use the technology.

ML: How did the students use calculators?

TK: First they entered the data into a data list. Then, they used various functions, such as "SUM (listname)" to help them find the mean. Some students explored the calculator on their own and found that they could automatically calculate the mean. This was allowed; I was primarily interested in the interpretation of mean at this point. There were other homework assignments that asked for the procedures for calculating the mean.

ML: So … who is the better baseball player? What results did your students find?

TK: After the students presented their results to the class on the second day, they determined that identifying the better player *depends* upon how one looks at the data. Each student justified that *each* player is better when one looks at the data from a certain perspective. Once they made an argument for one player, I asked them to write an argument for the other. They had to support their arguments using statistics as well as show how they arrived at their numbers. By writing these arguments, students learned to communicate with mathematics and justified their thinking in an analytical way.

The first thing to do in any data set is to determine if there are any outliers that need to be eliminated. Students sometimes had trouble discarding data; they felt that everything should count. However, it was a valuable discussion. As a class, we decided to eliminate the rookie year. We did not feel the first year was representative of their "career" stats. Then, we noticed some very low numbers for each player. A student in the class informed us that there were a few seasons during which each player had an injury, and therefore, they did not play the entire season. We decided to throw out those numbers, too.

With the remaining data of each player's career statistics up to and including 1998, the batting average statistics are as follows:

	Mean	Median	Number of Seasons
Mark McGwire	.264	.271	10
Sammy Sosa	.271	.268	7

From this data, one could conclude that Sosa is the better player by looking at the mean; his average is .271 while McGwire's average is .264. However, by looking at the median data, McGwire is the better player with an average of .271 compared to Sosa's .268.

So … who is the better player? Of course, the students realized that it depends!

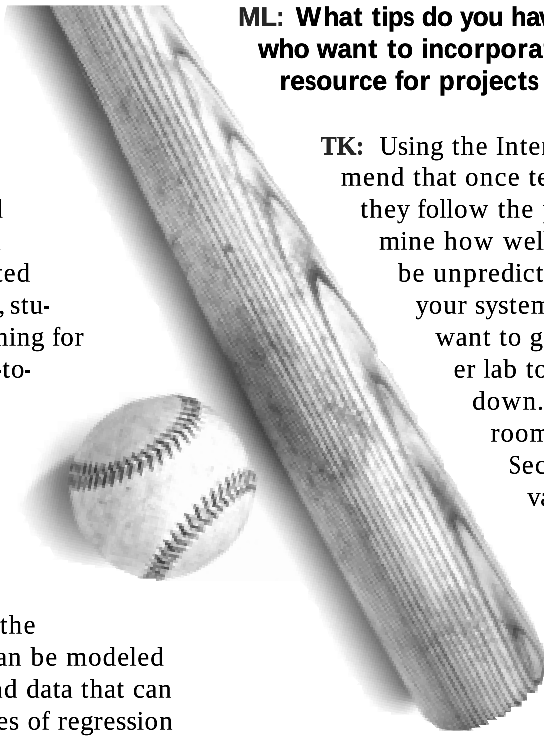
ML: How did this discovery help your students learn about using the mean and median?

TK: Students discovered that using the mean and median can result in different conclusions, and that one must determine which system of measurement should be applied to each situation. Throughout the project, they gained practice in finding these values and in thinking about what these values actually represented. Students were more careful in their choice of words when talking about "average" after this lesson. For example, after this project, a student approached me and asked if I would use her *median* test score instead of her *mean* test score when calculating her grade; she had discovered that her median score was higher!

ML: How did this project fit in with *CMIC*?

TK: The project fit in with the philosophy of *CMIC* in many ways. First, students engaged in a discussion about the different ways to determine the better player. They had to

articulate their ideas to their classmates while listening to others. They debated and discussed their ideas—they were communicating about mathematics. Then, students searched for ways to justify their argument through the use of mathematics. In doing so, they learned the different interpretations of mean and median. And finally, students communicated their findings to their classmates. Overall, students were acting like statisticians, searching for meaningful ways to interpret real-life, up-to-date data that had relevance to them.



ML: Do you do any other projects that incorporate statistics from the Internet?

TK: In another class, a senior elective on mathematical modeling, students use the Internet to search for real-life data that can be modeled using regression equations. They must find data that can be modeled using a few of the many types of regression equations: linear, quadratic, cubic, quartic, exponential, and so on. Once they gather their data, students generate an equation and justify that it is a good fit using residuals and the correlation coefficient. Once they are sure that they have a good fit, students interpret the meaning of their model, use it to make predictions, and determine the accuracy of their predictions. This information is presented in a written paper using Microsoft Word with graphs and charts imported from Microsoft Excel and the graphing calculator with the TI-Graph Link.

ML: What tips do you have for other *CMIC* teachers who want to incorporate the Internet as a resource for projects like these?

TK: Using the Internet can be tricky. I recommend that once teachers have a plan, that they follow the plan themselves and determine how well it works. The Internet can be unpredictable. First, make sure that your system is working well; you don't want to get your class to the computer lab to find that the Internet is down. You will be faced with a roomful of angry students! Second, if you plan to use the various search engines, show the students the different methods of searching that narrow down the topic. You can spend hours searching for something without finding it. Also, avoid using the Internet if the data can be found somewhere else. I have had students spend long periods of time searching the World Wide Web for data that can be found in two minutes in the World Almanac. Finally, if you are doing this for the first time with a class, have Internet addresses available so that the students can go directly to the site that is relevant. Unless you are teaching a class on how to use the WWW, identifying the site you want students to visit will save you a lot of time and frustration. And one final point (this happened to me this year): Even if you have used an Internet location previously, check the location before using it again; the sites sometimes change or disappear!

Want to know more?

The career statistics for Sammy Sosa can be found at:

http://espn.go.com/mlb/profiles/stats/batting/4344.html

The career statistics for Mark McGwire can be found at:

http://espn.go.com/mlb/profiles/stats/batting/3866.html

Each site displays the player's batting statistics in a table format by year and includes the following statistics: team, at bats, runs, hits, doubles, triples, home runs, runs batted in, strike outs, stolen bases, caught stealing, on base percentage, slugging percentage, and batting average.

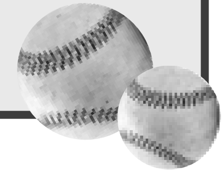
ABOUT THE teacher

Tim Kaltenecker

"Having been frustrated with traditional textbooks, I found myself drifting away from the book more and more each year until I was finally without a textbook. I decided it was time to explore new curriculum projects that supported the NCTM Standards and assessment methods. During a summer workshop on math and technology at the Philips Exeter Academy, I studied five curriculum projects, including the Core-Plus project that has become *CMIC*.

I brought three of the five projects to the math department at LREI, and after much research and investigation, we chose *CMIC*.

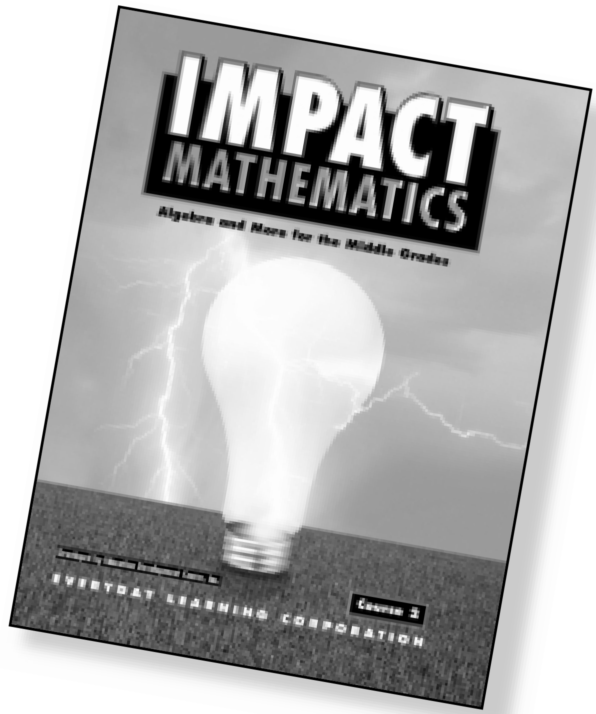
We began to phase in *CMIC* during the 1998–99 school year with our ninth grade algebra class. I also used various units throughout the three-course sequence in other classes in order to test them out, and I have been very pleased with the results. As a test, I taught two sections of a trigonometry unit this year—in one section, I used my traditional, college-level trigonometry book; in the other, I used the trigonometry units from *CMIC*. The difference in the two sections was apparent. Although I covered slightly more content in the traditional class, the students in the *CMIC* class seemed more confident in their understanding of the topics, and they were more engaged in the work. I can think of one student in the *CMIC* course in particular who had been struggling all year—not because of a lack of ability, but because of his apathy for school. After working with *CMIC* for about two weeks, I asked him to explain a problem to his teammate who needed help. I knew he understood the problem, because I had seen the work he was doing. He looked at me quizzically, took a deep breath, and said, 'I don't think that I have ever been in the position of helping another student in math.' This is what *CMIC* is all about!"



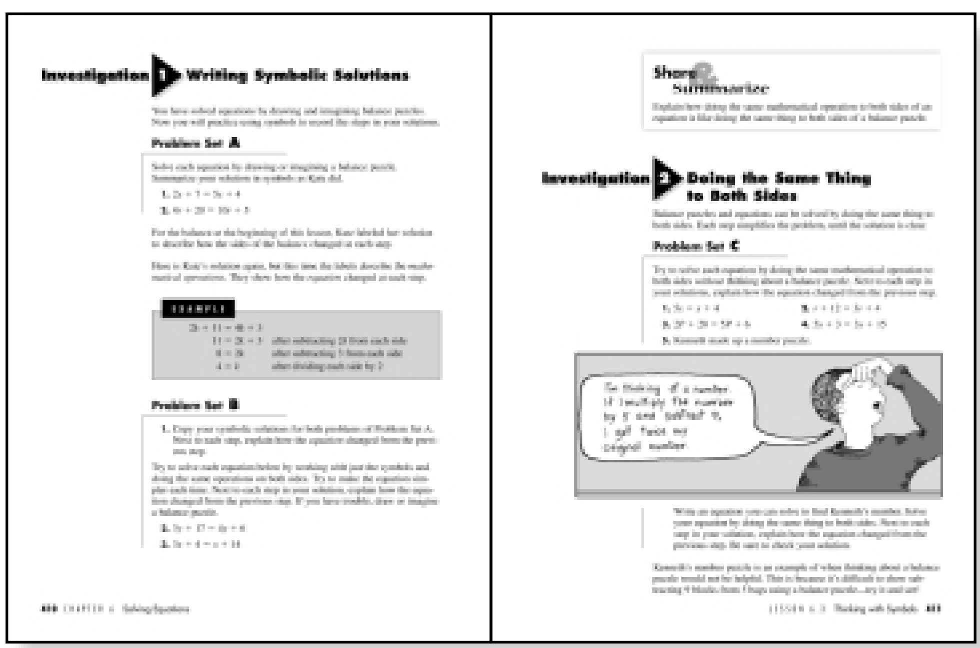
new & revised **PRODUCTS**

Introducing *Impact Mathematics: Algebra and More for the Middle Grades*

Developed in cooperation with Education Development Center, Inc., *Impact Mathematics: Algebra and More for the Middle Grades* is designed to make more mathematics accessible to more middle grades students. The program features:



- Full and rigorous coverage of Algebra I by the end of Grade 8
- Informal to formal concept development especially designed for middle grades students
- Number, measurement, algebra, geometry, probability, and statistics integrated throughout
- Problem-solving and engaging contexts that promote mathematical thinking
- Appropriate attention to and practice with computational skills and symbolic manipulation skills
- Balanced use of direct instruction and student discovery in whole-class discussions, collaborative group work, and individual student tasks
- Notes keyed directly to student lessons help teachers play an active role in instruction
- Lesson plans that accommodate traditional or block schedules
- Comprehensive assessment



IMPACT MATHEMATICS: Algebra and More for the Middle Grades

		Course 2 (Grade 7)		Course 3 (Grade 8)	
ITEM DESCRIPTION	Price	ELC Order #	Availability	ELC Order #	Availability
Student Text	42.00	39855	October 1999	39860	April 2000
Teacher's Edition, Vol. A	39.00	39856	February 2000	39861	
Teacher's Edition, Vol. B	39.00	39857	July 2000	39862	September 2000
Teaching Resources, Vol. A	22.00	39859	February 2000	39864	
Teaching Resources, Vol. B	22.00	39875	July 2000	39877	September 2000
Assessment Resources, Vol. A	36.00	39858	February 2000	39863	
Assessment Resources, Vol. B	36.00	39874	July 2000	39876	September 2000
Impact Mathematics Implementation Guide	15.00	39865	October 1999	39865	October 1999
Impact Mathematics Manipulative Kit	230.00	39884	October 1999	39884	October 1999
Teacher's Resource Package (Includes Teacher's Edition, Vols. A & B, Teaching Resources, Vols. A & B, Assessment Resources, Vols. A & B, and Implementation Guide)	190.00	39879	July 2000	39880	September 2000

Impact Mathematics Course 1 will be available in 2001.

eLCnews

Everyday Learning Corporation

NCTM Annual Meeting Blows into the Windy City

April 13–15, 2000

Plan to attend this year's national NCTM meeting in the city that is home to Everyday Learning Corporation. The meeting will take place at historic Navy Pier and will provide many learning opportunities from thousands of mathematics educators from around the world. Also, NCTM's updated Standards, *Principals and Standards of School Mathematics,* will be presented at the meeting. We hope to see you this spring!

Assessment and Maintenance Builder CD-ROMs for *Contemporary Mathematics in Context*

Contemporary Mathematics Context Assessment and Maintenance Builder CD-ROMs will be available next year. They will allow teachers to choose and customize the assessment items that now appear in print format in the Assessment Resources.

A CD sampler for the *Contemporary Mathematics in Context* Assessment and Maintenance Builder CDs will be available this winter. To request a sampler, call 1-800-382-7670. To find out more about the *CMIC* CDs, see ***Techlink*** on page 7.

Contemporary Mathematics in Context Reference and Practice Books

What are the Reference and Practice (RAP) Books?

The Core-Plus Mathematics Project is currently providing draft versions of *CMIC* Reference and Practice Books. The books provide Core-Plus students with summaries of previously learned concepts and skills, maintenance practice to review previously learned concepts and skills, and test-taking practice for standardized tests, college admission tests, and college placement tests. There is one Reference and Practice Book per course (Courses 1–3), and each student book contains an answer key.

How are the RAP books organized?

Each RAP book contains three sections.

Section 1 Reference section of key ideas and concepts from previously learned courses or units. This section includes examples and short exercise sets to accompany the text.

Section 2 Mixed-skills practice sets for previously learned concepts and skills.

Section 3 Test-taking practice in standardized test formats drawing from key content on college admission and placement tests.

Draft versions of the RAP books are currently available.

suggestion box

Name ______________________ Position ______________________

School ______________________ City & State ______________________

Secondary Mathematics Program ______________________

Home Phone ______________________ School Phone ______________________

Check all that apply. Below is my

- ❑ Question for the **Ask the Authors** section (Please be specific.)
- ❑ **Tip Trade** idea
- ❑ **Interview** topic
- ❑ Suggestion for **Techlink**
- ❑ Suggestion for **Mathematics Bookshelf**
- ❑ Other ______________________

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I would also consider

- ❑ Participating in a survey or interview
- ❑ Writing for *ELC's Mathlink*. Topic ______________________
- ❑ Reviewing books, articles, or software
- ❑ Interviewing another teacher or administrator

ELC's Mathlink's success depends upon educators like YOU who are willing to get involved in the exchange of ideas.

Please take a moment to share your ideas, questions, answers, suggestions, thoughts, experience, advice, achievements, or insight.

Return this form to:

ELC's Mathlink
P.O. Box 812960
Chicago, IL 60681

You may also call 1-800-382-7670 or fax 312-540-4660 with your ideas or send E-mail to mathlinkeditor@tribune.com.

Thank you for participating in *ELC's Mathlink* **Suggestion Box.**

the LAST word

Share your ideas and experiences in *ELC's Mathlink*

Have you ever thought that you might like to contribute to *ELC's Mathlink* but have some questions? Below are some commonly asked questions and our responses.

Who writes the articles for ELC's Mathlink**?**
Secondary mathematics teachers and administrators write about their ideas, research, and experiences in the classroom. The curriculum authors also write articles for the newsletter. Each contributor offers a unique perspective on secondary mathematics curricula, including algebra, geometry, precalculus, calculus, and integrated mathematics; and current issues in mathematics education.

I would like to contribute an article, but I haven't written for a publication before. Will I receive input from ELC's Mathlink *editors as I write the article?*
We will be available to answer your questions and offer input on your writing from the time you propose a topic to the time you turn in that well-crafted final draft. Contributing to *ELC's Mathlink* is a valuable opportunity to write for an audience of fellow teachers. You have the option of writing an article, a book or software review, classroom management hints, or an interview. Or, if you have another idea, tell us about it.

What should I do if I want to write an article for ELC's Mathlink?
Write down your ideas and send them in! Either send in a rough draft of an article or just jot down a few notes about the topic you would like to address. Don't forget to include your name, school name, address, and phone number. E-mail addresses work, too! You can send *ELC's Mathlink* a note addressed to **mathlinkeditor@tribune.com.**

I want to comment on an article that was in the last issue of ELC's Mathlink. *Do you print a "Letters to the Editor" column?*
Yes, we welcome your input on the articles and features in the newsletter. You can send all letters and other submissions to Everyday Learning Corporation, attn: *ELC's Mathlink* Editor, Two Prudential Plaza, Suite 1200, Chicago, IL 60601. You may choose to use the **Suggestion Box** form on page 15 of this issue to share your ideas.

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