IMP™

IMPressions

SPRING 1999 A NEWSLETTER ABOUT THE INTERACTIVE MATHEMATICS PROGRAM®

IMP Chosen as Exemplary Program by Department of Education

The directors of the *Interactive Mathematics Program* have been notified by the U.S. Department of Education that *IMP* is one of five K–12 mathematics programs in the country to receive the highest rating of Exemplary from the Department's first Expert Panel on Mathematics and Science.

The Panel was the first to be established as a result of the Educational Research, Development, Dissemination, and Improvement Act of 1994. Their charge: 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 these two areas.

"We are delighted at the Panel's evaluation of *IMP*," says *IMP* director Sherry Fraser. "Since the program's inception ten years ago, we've been committed to an independent, multi-faceted evaluation by respected colleagues. The Department's process for evaluating the program was thoughtful, thorough, and well-informed. Theirs was a tough test to pass."

Each program submitted for evaluation faced a stringent review process built on four criteria: Quality of Program, Usefulness to Others, Education Significance, and Evidence of Effectiveness and Results. 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 to evaluate the fourth. Evaluation scores of all three panels were then considered by the Expert Panel in making a final selection.

Information about those programs designated as Promising or Exemplary will be disseminated through the National Education Dissemination System and other national, regional, and state school improvement systems such as the Eisenhower Regional Mathematics and Science Education Consortia and other systemic initiatives. Also, various funding opportunities may arise from a program's designation as Exemplary.

Here are the criteria against which *IMP* and other programs were evaluated:

A. 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.

B. Usefulness to Others

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

C. 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.

D. 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.

INSIDE

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Key Curriculum Press
Innovators in Mathematics Education

Ten Years of *IMP*™

by Dan Fendel

Spring 1999 marks the tenth anniversary of the start of the Interactive Mathematics Program®. *It was ten years ago that* IMP*'s concept of a problem-centered unit first started to take shape and the* IMP *pioneer teachers began meeting with the directors. We asked director Dan Fendel to reflect on a few highlights of what this experience has meant to him.*

Collaborative work

One of the most exciting aspects of the project for me has been the opportunity to share and debate ideas with my fellow directors and with bright, motivated, and courageous teachers. Throughout the development of the program, the *IMP* directors—Lynne Alper, Sherry Fraser, Diane Resek, and myself—met virtually every week to discuss curriculum, professional development, evaluation, and all the other issues that came along. These meetings were often stormy, but always grounded in respect for each other. None of us were completely sure where we were headed (especially when it came to issues beyond the classroom such as public relations and "image"), so we struggled together to find a clear direction.

Just as rewarding and stimulating were the opportunities to sit in on the classrooms of master teachers, and to lead *IMP* inservice workshops. My appreciation of the challenges faced by classroom teachers grew by leaps and bounds, and I have enormous respect for the quality of work that *IMP* teachers do. Workshops with teachers were challenging, as I was forced to rethink my beliefs about learning and to try to make abstract mathematics more meaningful.

From local to national

When *IMP* began, the plan was to develop three years of integrated, problem-based mathematics curriculum that would be used by three schools in the San Francisco area. We thought our work might simply serve as an "existence proof" that such a program was possible. We soon realized that the impact of our work would be broader than that, as we went beyond California in the second year, and roughly doubled the number of *IMP* schools each year for the first five years. For me, this has meant working on a larger stage than I had before, such as speaking at national conferences and being asked to join the Editorial Panel of *Mathematics Teacher*. It has been both exciting and scary.

Learning mathematics

Many *IMP* teachers have told me how much mathematics they have learned through their *IMP* experience, both in *IMP* training and through teaching. My own experience is no different. As I worked on developing the program, I found that I needed to deepen my understanding of many mathematical topics, especially statistics. Through reading, exploring examples, and trying to explain what I knew to teachers, I learned a great deal. I now know more mathematics and can appreciate many concepts on more levels than was true at the start of the program.

A transformative experience for many

IMP has changed the lives of people who have been part of this groundbreaking work. Classroom teachers tell us that they have been reinvigorated and have learned to teach in exciting ways they never dreamed of before. Many have taken on mathematics leadership positions in their districts, become *IMP* trainers, or made presentations at conferences. Seeing the positive impact of the *IMP* experience on the lives of so many teachers (not to mention the students!) has been personally very rewarding.

Now what?

By the time this issue of *IMPressions* appears, the writing, revising, editing, and production of the four-year *IMP* program will be virtually complete. Although I will continue to support the implementation of the *IMP* program in whatever ways seem most appropriate, this milestone largely means, for me, a return to San Francisco State University and seeking out new challenges. Most of all, I hope I can bring the lessons I've learned from high school teachers into the college classroom and use those lessons to help inspire the next generation of teachers.

ACTIVITY

Shuttling with Variations!

Many of *IMP*'s Problems of the Week (POWs) involve puzzles. Puzzles are not only a good way to draw students into mathematics, but often illustrate important mathematical ideas and investigative techniques. In *Shuttling Around,* which appears in the *Year 2* unit *Cookies,* students need persistence in gathering data and they can develop their proof-writing skills.

Each of these puzzles requires two sets of markers, such as coins of two different types. We will use plain and shaded circles to represent the markers.

An Example

One of these puzzles uses three markers of each kind. At the beginning of the puzzle, the markers are arranged as shown below, with each marker in a square. The plain markers are at the left, the shaded markers are at the right, and there is one empty square in the middle.

The task in the puzzle is to move the markers so that the shaded markers end up at the left and the plain markers end up at the right. Of course, there are some rules:

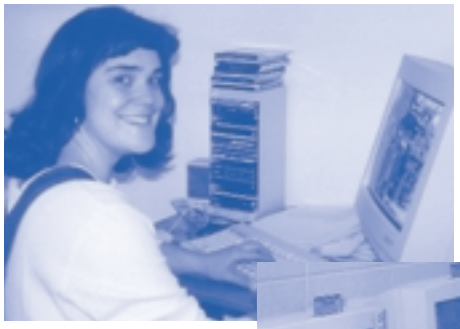
- The plain markers move only to the right and the shaded markers move only to the left.
- A marker can move to an adjacent open square.

Professional Development Online at IMP-Rocky Mountain Region

by Alan Olds and Michelle Novotny

Education reformers know all too well that change is tough. To help make reform a success, it's not only important to to provide teachers with ongoing support and information, but also for teachers to regularly talk with each other about what is happening in the classroom.

That's why, from its start, the focus at IMP-Rocky Mountain Region (IMP-RMR) has been on professional development. Weekly visits with teachers by program coordinators, daily common planning periods devoted to professional growth, quarterly large group gatherings, and a three-day summer "rendezvous" to reflect on how the *IMP*™ curriculum is being implemented, have been successful parts of the IMP-RMR regimen.



Novotny (left) and Olds (below) enjoy the ease of communicating online.

When project director Jean Klanica signed up all 80-plus teachers in the program with Colorado Education Online (CEO) last summer, she was hoping for even richer professional dialogue. CEO is a consortium of K–12 and post-secondary schools in Colorado providing teachers and staff email accounts and the server software to talk with each other online.

After some initial wariness about email (for those who had not yet been introduced to it) and some worries about how much time it would take away from school duties to read and write electronic messages, teachers and staff found a way to make CEO work for them.

How does CEO work?

CEO provides every registered member with software to log onto the system, either directly via a modem or through the internet. What users see when they log on is a screen with "folders," one of which is labeled IMP-RMR. This is the general discussion area for the program, where messages are posted. In addition, there are four other folders:

Announcements: A real postage-saver! One goal for the program this year was to reduce postage costs by doing as much of the "mailings" of announcements, forms, and handouts—"attached" as text files to an email message—on CEO. Mission accomplished!

Weekly Focus Questions: Professional development themes for discussion.

Program Coordinators: Online workspace for IMP-RMR staff.

Chat Room: For "real time" online discussions.

How is CEO being used by teachers and staff?

IMP-RMR reformers have discovered that email makes communication among teacher partners—who are spread around the state and region—and IMP-RMR staff, quicker and easier. It allows program coordinators to keep in touch with teachers between school visits, and teachers to keep in touch with each other between whole-group gatherings.

One of the most successful uses of CEO has been as a place to respond to weekly "focus" questions At the beginning of the year, teachers responded directly to their individual program

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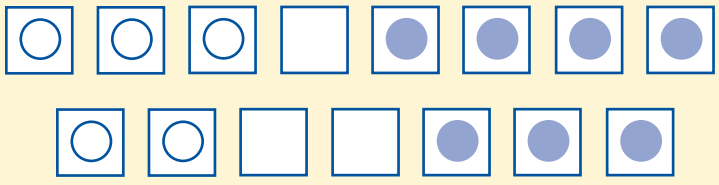
- A marker can jump over one marker of the other type into an open square.
- No other types of moves are permitted.

The Generalization

In the POW itself, students are asked to vary the number of markers of each kind, but to keep the number of plain markers and the number of shaded markers equal, with one empty square in the middle. In the supplemental problem *Shuttling Variations,* they consider further variations, such as the initial situations shown in the next two diagrams—the number of plain and shaded markers need not be equal and the number of empty squares may be more than one.



Your Challenge

Explore this family of puzzles. Here are some things you can do:

- Determine whether all such puzzles have solutions.
- Look for a rule that describes the minimum number of moves required to solve each puzzle in terms of the number of markers of each type and the number of empty squares.
- Decide, for each specific puzzle, whether there is more than one solution, and if so, whether different solutions require a different number of moves.
- Prove your results.

Regional IMPressions

ARIZONA

The Arizona Regional Center currently supports 19 *IMP* schools. This past summer many of the feeder middle school teachers attended the professional development sessions for the *Year 1* curriculum. These teachers are now implementing strategies and activities aligned with the *IMP*™ philosophy. Middle school students are solving Problems of the Week (POWs) and/or Problems of the Day (PODs) and completing write-ups in *IMP* fashion. Both POWs and PODs are available from a variety of sources for middle school students.

Arizona schools, teachers, and students are busily preparing the administration of the newly mandated state test, Assessment Instruments to Measure Standards (AIMS). High school students of the class of 2002 will be required to pass this test in order to graduate. This high-stakes assessment, which tests all strands of mathematics, is closely aligned with the mathematics taught in the first three years of *IMP*. Our spring and summer activities will address issues associated with the AIMS.

CALIFORNIA

A number of California *IMP* teachers have undertaken new roles in their schools, districts, or counties. The number involved reflects the leadership development that has been a central part of the California *IMP* experience.

IMP teacher Kate Dubost from Atascadero High School is on special assignment helping her district develop a K–12 mathematics implementation plan. She credits *IMP* with providing her the necessary professional development experiences for her current assignment. She says, "Teachers need to be students and understand the learning process. *IMP* did this for me."

Caran Resciniti taught *IMP* at Fresno High School and is now the mathematics coordinator for her district. Caran states, "I am certain the *IMP* curriculum and professional development made me a strong mathematics teacher. The content and pedagogy I learned gave me the confidence to allow my students to explore their own world of mathematics and it also allowed me to bring meaning to their learning. As mathematics coordinator, I am able to think critically and react rationally to issues regarding the learning of mathematics for all students. I am knowledgeable about varied instructional practices, alternative assessments, and current political issues that impact mathematics education. I owe it all to *IMP*."

Sharon Taylor from Colton High School now serves as a district mathematics specialist. Sharon says, "Being involved with *IMP* has made me realize the importance of making time for regular involvement with other educators who see themselves as learners as well as teachers. Learning comes from sharing thoughts and reflecting on ideas, very often generated by the work and words of students. Learning comes from asking the right questions. *IMP* teachers model good learning, which could also be called good teaching."

Other *IMP* teachers in new leadership roles include Dean Ballard, Piner; Janice Bussey, Tracy; Dave Calhoun, Fresno; Margaret DeArmond, Kern; Donna Gaarder, San Francisco; Theresa Hernandez-Heinz, San Francisco; Scott Nevison, Palmdale; Barbara Schallau, San Jose; Jim Short, Oxnard; Cathie Thompson, Kern; and Jane Wentzel, Fresno.

This list is not all-inclusive; it reflects only those *IMP* teachers who have moved out of the classroom into positions of district leadership. When one adds to this number the large numbers of *IMP* teachers who have served, or continue to serve, as mentor teachers in their districts, as department chairs in their schools, and on district, area, state, and national task forces, it is easy to see that California *IMP* has helped in developing significant leadership in mathematics education.

HAWAII

Hawaii schools are under the guidance of a new Superintendent, Dr. Paul G. LeMahieu. His message to the schools on preparing teachers, students, and schools for success resonated with what *IMP* is about: clear sets of goals; a standards-driven curriculum; instruction, assessment, and accountability; access for teachers to a high quality curriculum; investment in professional development; and on-going, sustained, best-practices. High schools using *IMP* are moving in the right direction—toward standards-based education.

Some news from around the state: Kapa'a High School, on the island of Kauai, has a new Hawaiian Immersion Program on their campus. The instructor, Keoni Inciong, has elected to use *IMP* as his mathematics curriculum. Some of his *IMP* students are "flying high" with their celebrity status as models in the *Year 3* textbook. Mililani High School, on the island of Oahu, also has students enjoying their celebrity status with their pictures in the *Year 3* textbook. Honoka'a High and Intermediate School, on the island of Hawaii, and Moloka'i High and Intermediate School, on the island of Moloka'i, are thankful for having three new teachers aboard, all teaching *IMP*. Ryan Cabalse and Dan DeMattos are at Honoka'a High and Intermediate, and Szhameen Terazono is at Moloka'i High and Intermediate School. Dole Middle School, on the island of Oahu, has expanded from one 8th grade *IMP* class last school year to four classes this school year! A supportive principal and school funds allowed the purchase of TI-83 calculators and *Year 1* textbooks.

ILLINOIS

The Illinois Regional Center was awarded a grant from the McDougal Family Foundation to boost its leadership development program. The leadership program helps classroom teachers learn to support other, newer teachers. Teachers who are at least in their second year of teaching *IMP* will be conducting introductory workshops called "Engaging Students in Inquiry-Based Learning." Working with experienced staff developers, teams of three teachers will be recruiting participants, assembling boxes of manipulatives for participating schools, and planning workshops based on the activities and pedagogy of *IMP*. After this initial experience, teacher leaders will continue to help the Illinois Center offer the yearly curriculum workshops for developing *IMP* teachers.

MIDWEST

Implementation of *IMP*™ in Minnesota is being carried forward with the support of the NSF-funded $(MASP)^2$ project at the University of Minnesota. $(MASP)^2$ provides 130 hours of professional staff development work for teachers implementing a NSF-developed mathematics curriculum for the first time. $(MASP)^2$ was recently awarded a Minnesota Higher Education Eisenhower Grant to provide 48 hours of additional staff development for teachers implementing *IMP Years 2–4*. The $(MASP)^2$ staff is beginning a study of student performance after 1–2 years of participation in a standards-based mathematics program.

The state of Minnesota is developing a mathematics test for 11th grade students (1999-2000) that will assess achievement based on high standards. The test will evaluate conceptual understanding, procedural knowledge, and real-world applications and problem solving in the areas of chance and data analysis, discrete mathematics, algebraic patterns, and technical applications, as well as shape, space, and measurement. Students will not have to "pass" this test to graduate, but the results will be used to compare schools, to provide data for accountability, to evaluate learning opportunities for students, and to complement standards-based classroom assessment. The *IMP* curriculum should fit well with this test.

Our *IMP* students continue to get high scores on the very difficult International Baccalaureate (IB) exams. The success of *IMP* students in high school is partly due to mathematics programs taught in the middle schools. In Minneapolis, the Connected Mathematics Program (CMP) is taught to 80 percent of the 7th and 8th graders. *IMP* mentors have met with middle school teachers and parents to support their efforts and to inform them of the benefits of the challenging *IMP* curriculum. We also developed an advanced standing test (first used in Spring 1998) to identify strong students from CMP who would be recommended for *IMP Year 2* in 9th grade. The students who took that leap this year are doing well.

NEW ENGLAND

The New England Regional Center is in its fifth year of operation. We began with three schools and nine teachers and now we have 33 school and 147 teachers. This year, Burrillville became the first Rhode Island school to implement the *Interactive Mathematics Program*®. Present plans have five new schools adopting *IMP* in September 1999. Wellesley and Needham will implement *IMP* at the eighth grade level.

Our first students graduated in June 1998 and many of them are enrolled in colleges all over the country. We are getting positive feedback from them on their college experiences. Our graduates are telling us that *IMP* prepared them well for their college math courses.

The State of Massachusetts has initiated a statewide testing program in all subjects at the 4th, 8th, and 10th grades. Students are required to pass this test before they can graduate from high school. The mathematics test has many open response questions which require a lot of thinking and writing about mathematics. Initial reports from our schools show that our students did very well on this test.

Four years ago in Cambridge, one of the questions asked of co-director Paul Lyons at the first parents' information night for prospective *IMP* students was, "If my daughter signs up for *IMP*, can she take calculus in her senior year?" Paul explained it was possible to take calculus in the fourth year. Well, four years later, Cambridge has two students enrolled in AP calculus and they are among the top students in the class. One of the students wrote the following in her "Mathematical Autobiography" after seven weeks in AP calculus.

"...In ninth grade, I entered the *Interactive Mathematics Program* and it changed how I will see math for the rest of my life. ...I know that I learned more about math, writing about math, and thinking about math than I ever did in nine years of elementary school, and than I think would have in three years of traditional math classes. My confidence in math increased maybe even *exponentially* in the *IMP* environment.... It seems tedious, but three years later, I know not only most of the same math my friends learned and I know where it all came from.... I'm convinced that if I had entered a traditional math classroom in ninth grade, I would still be the same math student I was in elementary school: discouraged, frustrated and pessimistic. *IMP* taught me to accept math in its most abstract forms; as a result, I can now think about, write about, and question math with complete clarity....When I made my decision to leave *IMP* this year in exchange for AP calculus, it was a choice I made only because I knew that I was well prepared for the math world beyond Room A101. I wanted to see just how far my *IMP* education could take me, and so far I couldn't be more pleased. It's exciting to be in a new math class with different students and a new teacher, and it's also rewarding to know that *IMP* seems to have passed a test even more important than the SAT's.

NEW YORK

This year New York City "rolled out" new Performance Standards in mathematics. Distributed as part of this initiative was a manual that, among other things, featured exemplary student work. After examining hundreds of student samples for possible publication in this manual, the works of two *IMP* students—Destiny Suza and Daniel Camillo—from Harry S. Truman High School in the Bronx were chosen. Additionally, this June, a new Regents Assessment FORM A will be administered for the first time. This test will include *IMP*-like, performance-based problems which require the students to explain in writing how they arrived at their solutions. We believe that when *IMP* students take this test, they'll "ace" it!

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Regional IMPressions

NORTHWEST

Two schools in Tacoma, Washington joined *IMP* this year: Curtis Junior and Senior High Schools. Having 8th and 9th grade, the junior high school is starting *IMP* in the 8th grade and will have both *IMP 1* and *IMP 2* in their building next year. *IMP* will be the sole curriculum offered. A recent Family *IMP* night demonstrated the enthusiasm of the community by having an excellent turnout of 180 students and parents.

The Beaverton school district in Oregon will be opening a new high school (Southridge) in the fall. This will mean that 4 (Westview, Beaverton, and Aloha, as well as Southridge) of the 5 high schools in the district will be offering *IMP*.

PENNSYLVANIA

The number of *IMP*™ schools in the greater Philadelphia metropolitan area continues to grow. Contributing to this growth are favorable local statistics showing that, on average, *IMP* students have outscored their traditionally-taught counterparts on the Stanford Achievement Test (the SAT-9). The SAT-9 is used by Philadelphia's superintendent to evaluate schools, so principals take the results very seriously. The test is well-suited to *IMP* since it assesses both content and problem-solving processes. It also includes questions on probability, statistics, and discrete math—all of which are given far greater coverage by *IMP* than by traditional curricula.

As more and more teachers join our *IMP* family, we've had to find new ways of maintaining a high level of classroom support. We took advantage of the fact that several veteran *IMP* teachers took early retirement last year and were thus available during school hours. We have hired them to travel to *IMP* schools to mentor new teachers. Their contributions to *IMP*'s success in the region have been invaluable!

This summer, we will offer *IMP* inservices at multiple sites throughout the greater Philadelphia region. Complementing these inservices will be week-long workshops on teaching reform calculus and AP statistics. These latter workshops are especially appealing to *IMP* teachers who've completed the four years of *IMP* inservice and seek new summer professional development opportunities.

ROCKY MOUNTAIN

Although it seems the school year is far from over, *IMP* teachers in the Rocky Mountain Region are busily preparing for parent information evenings and student registration for the 1999-2000 school year. Each school designs its own program for informing parents, students, counselors, and administrators about the *IMP* curriculum and the instructional practices used to implement the program. We have found that no matter how many years a school has been offering *IMP*, many people in our educational community are still very interested in finding out more about the program and the positive learning results students have achieved.

See page 3 for an article about professional development online at IMP-Rocky Mountain.

Summer Inservice for the *Interactive Mathematics Program*®

ARIZONA REGIONAL CENTER
Year 1: July 6–9, 12–16
Year 2: July 6–9, 12–15
Year 3, 4: July 19–23

CALIFORNIA REGIONAL CENTER
Years 1–4, Berkeley, June 14–18
Years 1–4, Oxnard, August 16–19

HAWAII REGIONAL CENTER
Years 1–3: June 14–18
Year 4: June 28–July 2

ILLINOIS REGIONAL CENTER
Year 1: July 12–16, 19–23, 26–30
Years 2, 3: August 9–13

NEW ENGLAND REGIONAL CENTER
Years 1, 2: July 12–16
Years 1–3: August 16–20
Years 3, 4: June 28–July 2

MIDWEST REGIONAL CENTER
Year 1: August 9–20
Years 2, 3: August 16–20
Year 4: August 9–13

NEW YORK REGIONAL CENTER
Years 1–3: July 6–9
Year 4: June 29–July 1

NORTHWEST REGIONAL CENTER
Years 1–3: August 2–6

PENNSYLVANIA REGIONAL CENTER
Year 1: August 23–27
Years 1, 3: July 12–16
Years 2, 4: July 19–23

ROCKY MOUNTAIN REGIONAL CENTER
Year 1: June 21–July 2
Year 2: June 21–25
Years 3, 4: June 28–July 2

To register or for more information, call your local regional center listed at right.

IMP™ National and Regional Centers Contact List

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www.mathimp.org

Professional Development On-line . . .

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coordinator via email. It quickly became apparent to program coordinators that the richness of these responses should be shared with everyone in the program. So after winter break, responses were posted on CEO where everyone could read and respond to them. This shared information and experience has brought the program participants closer together, giving them a stronger feeling of mutual support and connectedness. And it has generated plenty of honest dialogue! (Copies of all focus questions can be found at http://204.98.1.1/high/standley/imphome.html).

CEO has become a place for:

Seeking advice:
I'm coming up on the end of the term for me, and I'm having some dilemmas about final grades for my Year 3 class . . . (Heidi H)

Thinking aloud:
Why do we use groups? [A focus question for the week]

I have seen sharp kids grow from group work. A good many of these kids also believe that they are smarter than anyone else in the class. However, I have heard more than one comment from these kids during their group discussion of their homework or class activity such as "I thought my method was a good one, but yours is even better," or "I never would have thought to do it that way," or "Same answer as mine, but a more elegant approach." (Richard P)

Sharing what works:
Our plan to let the current 8th graders and their parents know about *IMP* and what it involves includes several steps. . . (Janice F)

Feeling connected:
I have enjoyed reading everyone's message. I feel like a fly on the wall getting to read all these messages. (Anna H)

Planning on-line:
What do you think of last week's focus? Did the wording work ok? . . . I am always open to suggestion. Let me know if you have another direction that you think that we should go in. (Michelle N)

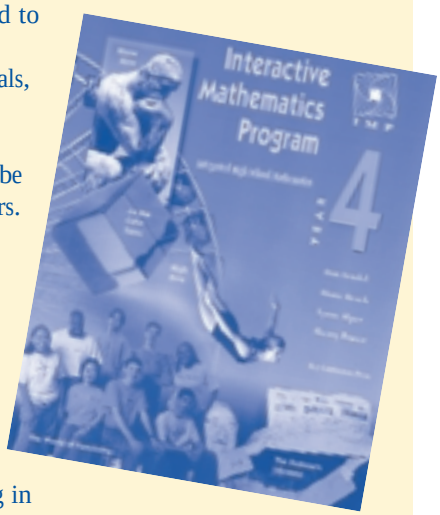
Posting announcements:
On Monday [at the fall "Immersion" meeting] we will begin at 8:00 with refreshments and the set-up of the first observation . . .

Celebrating understandings:
The issue of questioning kids responsibly is right on the tip of my brain these days, as is the issue of knowing when to let a mistake today be an opportunity tomorrow. It's hard to let go even though in my head I know it's the right thing to do. I just want my kids to feel that same nausea that I feel when math goes south, and learn to have the gumption to fix it when it does.

Maybe THIS is actually "the toughest job I'll ever love." (Andy B)

For more information about CEO and how IMP-RMR has made use of electronic mail as a part of its professional development plan, contact Jean Klanica at jean_klanica@ceo.cudenver.edu.

Key Comments



We look forward to the release of *Year 4* materials, and are excited that the complete program in its final, published form will be available to *IMP*™ teachers. Look for the *Year 4* student textbook, teacher's guides, and calculator guide in August, 1999.

This April, please visit us in booths 337–445 at the NCTM Annual Meeting in San Francisco (our home port!). There'll be many *IMP* presentations and events during the conference, including those below (please see your NCTM program book or come to our booth for session locations).

NCTM Annual Meeting, San Francisco:

Thursday, April 22

10:30 am–12:00 pm
IMP director Lynne Alper presents "*The Interactive Mathematics Program*® (*IMP*)–What's It All About?"

5:00 pm–7:00 pm
IMP party, 425 Market Street, Rooms 2601–2602

Friday, April 23

8:30 am–11:30 am
IMP-Rocky Mountain director Jean Klanica panel presentation

2:30 pm–4:00 pm
IMP director Dan Fendel presents "Statistics: Developing Intuition and Understanding through the Problem-Based *Interactive Mathematics Program*"

6:00 pm–8:00 pm
IMP User Group (see article at right)

Saturday, April 24

10:30 am–12:00 pm
IMP director Sherry Fraser's poster session

10:30 am–12:00 pm
IMP California directors Jim Short and Margaret DeArmond present "Statistics for All High School Students—Experience a Hands-on Approach to Teaching Inferential Statistics"

1:30 pm–2:30 pm
IMP director Diane Resek presents "Developing Skills in Writing Proofs throughout High School: A Four Year Process"

Math Action Heroes to Gather at *IMP* User Group Meeting

DURING NCTM NATIONAL CONFERENCE

It's a point ...it's a plane...it's YOU, a Math Action Hero! Please join us at the third annual User Group Meeting at the NCTM Annual Meeting in San Francisco, co-hosted by *IMP* and Key Curriculum Press. Action heroes who are already using the *Interactive Mathematics Program* and those of you interested in finding out more about *IMP* are cordially invited to "fly over" to join us in exploring *IMP*'s super-powerful materials that help you to leap tall teaching hurdles in a single bound.

Please join us at this Super User Group Gala on Friday, April 23, 6:00 pm–8:00 pm, at the Forum Ballroom and East Garden at the Center for Arts in the Yerba Buena Gardens at 701 Mission Street, on the same block as the Convention Center.

You'll enjoy refreshments and the company of your colleagues from around the country, including classroom teachers, regional directors, and national program directors Lynne Alper, Dan Fendel, Sherry Fraser, and Diane Resek. Also on hand to welcome you will be Steve Rasmussen, president of Key Curriculum Press, and Madeleine Mulgrew, Key's senior vice president of sales and marketing.

We look forward to sharing a night of fun activities—and we hope you'll stay for the Super Party immediately following the User Group Meeting.

IMPressions is published by Key Curriculum Press each fall and spring. We invite readers to send *IMP*-related ideas and comments to us at: *IMPressions*, 1150 65th Street, Emeryville, CA 94608.

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