

## From Coast to Coast... Two *IMP* Teachers are Chosen Presidential Awardees



*Sandie Gilliam and Priscilla Burbank-Schmitt*

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**S**andie Gilliam, from Felton, California, and Priscilla Burbank-Schmitt, from Brookline, Massachusetts, traveled to Washington, D.C., in March to receive the Presidential Award for Excellence in Mathematics and Science Teaching at a ceremony at the National Academy of Sciences.

Priscilla was one of three teachers who piloted the *Interactive Mathematics Program* at Brookline High School seven years ago. She credits *IMP* with having more influence on her teaching than any other program she has participated in. In her class, students spend a lot of time in groups experimenting with ideas. “I believe that all students should be active, creative learners of mathematics.”

Sandie, who in 1994 was the first *IMP* teacher at her school, takes pride in the great progress her *IMP* classroom has made toward reaching her vision of an exemplary mathematics program—“one that invites curiosity.” When she teaches the *High Dive* trigonometry unit, for example, she makes connections to both the “real” world and her students’ physics class. As chair of the Business Outreach Committee of the

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## Creating Honors Opportunities for All Students

*By Kim Race and Larry Linnen,  
IMP-Rocky Mountain Region*

Two years ago our principal was feeling pressure to provide more honors opportunities for the students at our high school. We already had all the traditional advanced placement courses, such as AP calculus, AP statistics, AP physics, and others, but many of the other district high schools had begun to offer honors sections of many courses, with weighted grading. The concern was that students at our school might be at a disadvantage for college placement if we did not offer a weighted grading alternative and honors-level classes.

Our school had always offered both the *Interactive Mathematics Program* and a sequence of algebra, geometry, algebra II/trigonometry, precalculus, and calculus, which some termed a traditional sequence. Some of our teachers immediately began discussions about creating separate sections such as honors algebra. The focus of the design of these honors sections was clearly on how much faster the curriculum could be and

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# Creating Honors Opportunities for All Students

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should be taught. The discussions emphasized how much easier it would be to teach just the honors kids. By their very nature, such separate honors sections would be exclusive and restrictive. They would exclude all who could not meet entry criteria and would restrict learning to only those who could keep up with the fast pace.

By contrast, the *IMP* teachers began discussions on how we might create honors opportunities without disrupting the integrity of our heterogeneous grouping. Our focus was to develop an honors process that would emphasize a deeper understanding of the mathematical concepts. Although our principal stated that she preferred separate advanced sections, she agreed to let us proceed if we could develop a plan that provided differentiated opportunities for these advanced students.

Those who are familiar with the *IMP* curriculum are aware that opportunities for differentiation occur on a daily basis. Master teachers also know that by providing rich learning environments and problem-solving settings, all students have opportunities to extend their thinking and deepen their understanding. We agreed that we could not always determine who in our *IMP* classes were “advanced” and that many students often rose to that “advanced” stage at different times in different units. Our goal was to create a differentiated experience that would be available to any student who wished to garner honors credit. We believe that keeping the honors students integrated with the class allowed everyone to see extended learning.

The actual honors projects that we created were opportunities for any student to demonstrate a deepened understanding of the unit concepts through written and oral presentations. Entry into the honors *IMP* program would not be decided by tests or teachers’ recommendations, although students could opt in or out by semester and had to maintain at least a B-average to stay in the program. Teachers would inform all *IMP* classes of the honors expectations, and then students would decide whether or not they would register for honors credit.

Although specific honors projects were defined as we proceeded through *IMP* units, the overall expectations for honors students were clear. Written presentations would be submitted for the first and third quarters, and oral presentations would be made at the end of each semester to a panel of teachers and/or parents. Successful completion of these projects would entitle students to honors designation with weighted grading. Students who opted for the honors designation but failed to complete the project would be given an incomplete until they completed the project. Example 1 may provide some insights into how we defined and refined the process.

The task in Example I was presented to all of our *IMP* Year 1 honors students. We anticipated that each of the four parts would provide opportunities for honors students to demonstrate extended and deepened understanding of the following concepts:

- a) Planning and performing controlled experiments (*Pit* and *Shadows*)
- b) Collecting and analyzing data (*Pit* and *Shadows*)

## EXAMPLE 1— Oral Presentation, Honors *IMP* 1 Semester 2 Project for *The Pit and the Pendulum* and *Shadows*:

If you drop a ball, how many times does it bounce? Investigate this question and use ideas we’ve studied to analyze the results.

- a) Decide which variables you think will affect the number of times a ball bounces (use at least 3 different ones).
- b) Conduct a series of experiments to test your variables.
- c) Use standard deviation and normal distribution to determine which variable(s) make a difference.
- d) Use curve fitting to find an equation for the variable that made the biggest difference.

You will be presenting your results to a panel of teachers, so you do not need to do a formal write-up. However, transparencies or a poster would be nice. You will be signing up for a presentation time soon so we can take care of them before finals week. Good luck!

- c) Formulating and refining conjectures (*Shadows*)
- d) Recognizing the phenomenon of measurement variation (*Pit*)
- e) Learning about the normal distribution (*Pit*)
- f) Developing concepts of data spread, especially standard deviation (*Pit*)
- g) Using standard deviation and the normal distribution in problem contexts (*Pit*)
- h) Calculating the mean and standard deviation of data (*Pit*)
- i) Using standard deviation to decide whether a variation in experiment results is significant (*Pit*)
- j) Fitting a function to data (*Pit*)
- k) Making predictions based on curve fitting (*Pit*)

All students presented their projects and then the panel members posed questions about the projects. Some of the variables the students proposed included wind speed (induced by an electric fan), temperature of the ball (some actually froze a ball), drop height, surface texture, and type or size of ball (hollow or solid).

All the honors students identified at least one variable that made a difference, but many were unclear about the mathematics that supported their decision. So a natural follow-up question might be, “What mathematics have you used to support that a ball dropped from 2 feet will bounce differently from a ball bounced from 3 feet?” The students’ responses to such questions varied from weak to strong, as might be expected. But further questioning often elicited deeper thinking and more carefully constructed responses. One student had drawn sketches of normal distributions with standard deviations for one ball type dropped from three different heights, which illustrated that indeed the variable of height made a difference. But the student had not verbalized the significance of the three distributions. A panel member posed, “Suppose someone told you that they had just dropped a ball from 3 feet and it bounced 4 times. What might you tell that person?” This particular student explained that 4 bounces were

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## ACTIVITY

### Toasts of the Round Table

One of the Supplemental Problems of the Year 2 unit *Do Bees Build It Best?* involves a geometric twist on the classic “handshake problem.”

In the classic problem,  $N$  people are in a room, each pair shakes hands, and we want to know how many handshakes there are. In the variation called *Toasts of the Round Table*, the people are King Arthur’s knights, and they are seated at a round table (of course!). Instead of shaking hands, they want to “tap lances” with each other.

A preliminary question to consider is this: How many lance taps would there be if every knight can tap lances with every other knight? (Give your answer as a function of the number of knights.) This question fits nicely in the Year 3 unit *Pennant Fever*.

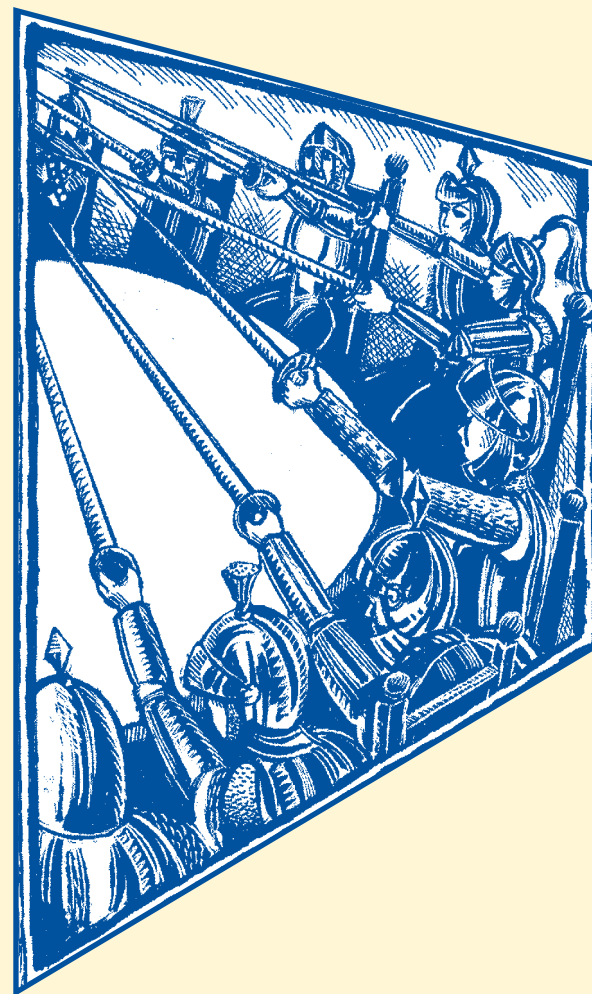
But in the Supplemental Problem, the table is rather large, and the knights don’t want to leave their seats, so knights at opposite ends of the table can’t necessarily get their lances to reach each other.

The specific case described in the Supplemental Problem is this:

*Imagine 30 knights seated at a round table, spaced equally around the edge. Each knight can extend his lance to reach up to 10 feet from his sitting position. (That takes arm length into account also.) The table has a radius of 12 feet.*

*King Arthur walks into the room and raises his glass. Standing near the table, he drinks in honor of his knights.*

*In response, the knights each tap lances with all other knights that are close enough. How many lance taps are there?*



Of course, the Supplemental Problem asks student to do more than this specific case, and the generalizations include varying the number of knights and changing the radius of the table.

Now it’s time for you to solve the specific case just described. You may want to pick a particular pair of knights and represent the situation with a geometric diagram.

If you or your students want a hint, consider the simpler case of 12 knights, placed around the table at the “o’clock” positions. Can the knights at 12 o’clock and at 6 o’clock tap lances? What about the knights at 12 o’clock and 5 o’clock? At 12 o’clock and 4 o’clock?

After you have solved the problem, think about these questions, for yourself or for your students:

1. What mathematical ideas are involved in this situation?

2. What general formula can you give for the number of lance taps in terms of the radius of the table, the length of the lances, and the number of knights?
3. What if you change the radius of the table and also change the length of the lances proportionately? (For instance, double both.) How does that affect the number of “lance taps”?
4. The geometry of this situation is related to the Law of Cosines, because it involves a triangle in which you know two sides and the included angle and want to find the third side. What’s special about the diagram that allows you to do this problem without the Law of Cosines? (*Note:* Students see the Law of Cosines in the Take-Home Assessment of the Year 4 unit *Know How*.)

# Regional IMPressions

## CALIFORNIA

### COME ON!

The California *IMP* region has recently been awarded a five-year National Science Foundation grant which will address the severe statewide teacher shortage in mathematics and support the implementation of *IMP* throughout the state. The project, California's Outstanding Mathematics Educators Ongoing Network (COME ON), has three major goals:

- To increase retention of novice teachers by providing standards-based professional development, mentoring, and an active support network.
- To foster renewal of veteran teachers by preparing them to teach a standards-based curriculum and providing an active support network.
- To foster renewal of teachers already experienced in standards-based curriculum by helping them to develop mentoring skills, and either to deepen and extend their classroom teaching or to conduct professional development for others.

This network of novice and experienced teachers will support each other as some begin their teaching career, some begin teaching *IMP*, and others re-energize themselves through learning more mathematics, developing new skills in the art of teaching, and supporting their peers in *IMP* curriculum implementation. Project activities include summer and winter inservices, leadership retreats, conference attendance, individual work, collaboration on school action plans, mentoring, and electronic communication throughout the school year.

As we progress with our grant implementation, we will share our experiences with other *IMP* regions and undoubtedly ask for support and advice.

### Congratulations to CAMS

The California Academy of Mathematics and Science (CAMS) is a Los Angeles area public high school that uses *IMP* as their sole mathematics curriculum. Last year more than eighty CAMS students participated in the international problem-solving contest sponsored by the Consortium for Mathematics and its Applications (COMAP). Two of the teams won Regional Outstanding Awards for their 24 hours of work. They solved problems such as the following:

- Given the “footprints” of major U.S. airport terminals, use high school mathematics to design an optimal passenger terminal,

taking into consideration ease of access to gates and services for both passengers and planes.

- A major forest fire has erupted. If you have some information as to the severity of the fire and the condition of the brush and access roads, how would you use mathematics to decide how and where to deploy your fire-fighting resources?

Fourteen other CAMS teams successfully completed the contest with Meritorious Awards (2nd place), and five teams received the Honorable Mention Award (3rd place).

This year the fourth annual High School Mathematical Contest in Modeling (HiMCM) will take place in November and teams will have 14 days from which to choose their contest period. Teams will have a 36-hour consecutive work period to prepare their solutions. For more information about this contest, visit the COMAP Web site at <http://www.comap.com/highschool/contests/himcm/index.html>.

## HAWAII

Kapolei High School has added *IMP Year 2* to their curriculum this school year. Expansion of *IMP* to all freshmen and sophomores has enabled the school to hire four more math teachers. All teachers are busy working on interdisciplinary projects that incorporate mathematics. The math department plans to use the Star Math/Accelerated Math software with freshman and honors students this year.

Farrington High School, one of the original *IMP* implementation sites in Hawaii, is offering a “two-year” *IMP 1* class to a group of freshmen who need more time to understand the material (Farrington has a 4x4 block schedule). Besides doing *IMP*, the class is using the Cognitive Tutor curriculum to help improve and sustain algebra, reading, and writing skills.

Kalani High School, another original *IMP* implementation site, is offering AP Statistics for the first time this year. *IMP* teacher Kristen Kawasaki is teaching the course. She has two *IMP* students in this class. Both are very comfortable using the statistical features of the graphing calculator and are confident in class since they are going over material previously learned in *IMP*.

## MIDWEST

In the Midwest Region, *IMP* continues to grow. In the Minneapolis metropolitan area, all schools in the Anoka-Hennepin school district will begin sections of *IMP* this fall. The high schools include Anoka High School, Blaine High School, Champlin Park High School, and Coon Rapids High School plus at least one alternative school program. They are on a four-period day (4 + 4) and at least a few

sections will run *IMP 1* for two semesters to give some students the opportunity to do the program at a slower pace.

The Minneapolis public high schools are focused this year on high school reform. While our top students do well, many of our lower students do not connect to high school and we have an unacceptably high dropout rate. To reverse this, the district is asking each high school to divide itself into small learning communities of no more than 120 students per grade that will be based on some theme or philosophy. The plan is that all students will be able to make a program choice. There will be no “default” programs. Coupled with this is the expectation that we will continue to move in the direction of “best practice” in every classroom. As the consultants come through and lay out the principles of best practice for all subject areas, it is reaffirming to look at those principles and know that *IMP* met all of those expectations years ago.

## NEW ENGLAND

*The New England Regional Center wishes to share a letter written to IMP from a high school IMP teacher in Massachusetts:*

*IMP* is awesome. Despite what obstacles have been placed in your path, it has been worth it. At Milton High School this June, 31 awesome mathematicians graduated from *IMP*. They knew they had done something remarkable. And, I felt exhilarated that I had led the charge. We were all so impressed with what we learned, how we worked together, how we could present our ideas, and how we made it to the finish line. (The “we” in all cases includes me.) We were not a particularly special group—public ex-urban school, special ed to honors, spatial and symbolic, under-funded and hardly appreciated, bombarded with statewide testing, etc., etc. To paraphrase Mao, “The 100-mile journey starts with the first step.” “If you don’t start, you’ll never finish.” We had faith, and it paid off big time in understanding of math—and ourselves.

About the obstacles. Keep fighting, I do locally. It’s worth it. Having made it to the finish, I know *IMP* “works.” *IMP* is what sucked me into teaching. And having to teach skills will make me leave.

Next year, my students go off to numerous universities, some to even study engineering, computer science, math (yes!!!), and everything else. I go back to revisit *Orchards*, etc. (Did you realize that students don’t get the reference to pop culture, but they did

enjoy Movie Night when they watched *Bonnie and Clyde* and the Marx Brothers for *Alice*?)

Thank you Dan, Diane, Lynne, and Sherry from me and my crew.  
Sharon Hessney  
Milton High School, Milton, MA

## NORTHWEST

*IMP*-NW has expanded its *IMP* sites this year with the addition of the entire Tacoma School district, West Seattle, and another school in the Hillsboro Oregon area (Glencoe High School). This adds 7 more high schools and 10 more middle schools to our region! The Tacoma district has adopted *IMP* as their sole math curriculum for their high schools, which added 90 teachers, counselors, and administrators to our summer *IMP 1* inservice. Key Curriculum was generous and helped us out with some free goodies for the participants (like t-shirts, supplemental books, and posters). Tacoma went through a year-long selection process before deciding on *IMP*. One of the deciding factors for Tacoma was the professional development program that *IMP*-NW offers teachers who implement *IMP*. Needless to say, we are pleased that they chose *IMP*.

## PENNSYLVANIA

*IMP* continues to grow in the Philadelphia Metropolitan Region, supported by our National Science Foundation Local System Change grant, the Greater Philadelphia Secondary Mathematics Program. Our most successful *IMP* implementations continue to be at those high schools that have opted for whole-departmental change.

Our first all-*IMP* high school is Strath Haven High School in the Wallingford/Swarthmore School District. They began *IMP* in 1996. In June 2001, they graduated their first all-*IMP* senior class. Each of these 246 students (except for transfers) went through all four years of *IMP*, and many went on to take other math courses including several different AP courses. We are very proud of their results. In spring 2001, six students took the AB Calculus exam, five of whom received a score of “5” and one, a score of “3.” Twenty students took the BC Calculus exam, of whom eighteen received a score of “5” and two received a “4.” In addition, twenty students took the AP Statistics exam. Ten of those students received a score of “5,” eight a “4,” and two received a score of “3.” Thus, of the forty-six scores, *every one* merited college credit!

Another accomplishment of Strath Haven’s first all-*IMP* class

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# Regional IMPressions

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was fielding a team of eight *IMP* senior students (six males and two females) to compete in the JETS (Junior Engineering Technical Society) competition in February 2001. In that competition, students work in teams, applying mathematical problem-solving skills to solve real-world problems. The team tied for first place nationally in their division! A major component of the competition involves responding to open-ended, subjective questions. Students reported that their years of experience writing up *POW*s definitely helped put them over the top! We commend the mathematics teaching staff at Strath Haven for their dedication and skill as exemplary teachers.

Twelve other high schools in the Philadelphia region are in the process of developing all *IMP* classes. These high schools include Haverford, Interboro, Academy Park, Carver, Parkway, Palisades, Bensalem, Pennridge, Pennsauken, Gloucester Technical, Furness, and Kensington.

## ROCKY MOUNTAIN

The Rocky Mountain Mathematics Leadership Collaborative (RMMLC) begins its second year with more than 60 schools in the project from Colorado, Kansas, New Mexico, and Wyoming,

including 44 high schools and 17 middle schools. RMMLC held 13 professional development workshops this past summer for school leadership teams, teacher leaders, and teachers of the *IMP*, *MiC*, and *CMP* curricula.

Leadership teams composed of the principal, a counselor, a parent, the mathematics department chairperson, and mathematics teacher leaders attended a two-day Leadership Summit. Teams focused on ways to support curriculum implementation in their buildings. Teacher leaders also studied Cognitive Coaching in the summer leadership workshop to prepare them to mentor and coach their colleagues.

Leadership workshops during the 2001–02 school year will continue to support teachers' work in their school buildings. Mathematics teachers from RMMLC schools participated in curriculum workshops for *IMP*, *MiC*, or *CMP*. To support the many middle schools that joined our project this year, we have extended our curriculum support to include the *MiC* and *CMP* curricula. Middle school mathematics teachers attended a one-week *MiC* or *CMP* workshop in the summer and will participate in three days of workshops during the school year along with the *IMP* teachers.



## Meet *IMP*'s New Outreach Coordinator, Lisa Doak

Many thanks to Janice Bussey who has been *IMP*'s Outreach Coordinator for the past four years. Janice is really busy these days, teaching *IMP 1* and working full time with the new teachers in her district. She will be transitioning her outreach work to Lisa Doak. Lisa is a veteran *IMP* teacher and a professional development leader for the Rocky Mountain Region *IMP* training team. She has taught all four years of *IMP* during her seven years at Eaglecrest High School, which adopted *IMP* ten years ago. Lisa has two small children at home now and has decided to actively keep in touch with *IMP* by providing support to the *IMP* community at large. When folks call the toll-free *IMP* line at 888-MATHIMP, Lisa will be the one to respond. She will also answer questions via email at [Lisa\\_Doak@ceo.cudenver.edu](mailto:Lisa_Doak@ceo.cudenver.edu). When someone requires information that is not posted on the *IMP* Web site ([www.mathimp.org](http://www.mathimp.org)), she will send the needed materials and provide the networking connections. Welcome Lisa!

## Creating Honors Opportunities for All Students

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unlikely because the mean for that experiment was 12 and the standard deviation was 2.3. "Thus," she said while pointing to her distribution, "there would be at least a 95% likelihood that her ball was not dropped from 3 feet because 4 bounces would fall at least 2 standard deviations from what would be expected." We agreed that this student had demonstrated extended and deep understanding of the concepts, so she secured her honors credit. Others who did not demonstrate such understanding were asked to revise their work and present their revisions to their particular math teacher. In three years, only a few honors students have failed to make adequate revisions prior to the end of a grading period. Those students received an incomplete grade until they successfully presented acceptable and convincing revisions to their work.

Keeping the honors students integrated in our *IMP* classes was a challenge for our department. Maintaining heterogenous classrooms has allowed our teachers to focus on increasing student achievement. Many of the honors presentations have provided evidence that our program is working and that challenging opportunities exist not only for the honors students but also for all the students in our classes. ■

## Inservices for the Interactive Mathematics Program, 2001-2002 school year

### California Regional Center

IMP 1, IMP 2, IMP 3, IMP 4, AP Calculus January 16–18  
(Berkeley)

IMP 1, IMP 2, AP Statistics January 30–February 1 (Oxnard)

### Hawaii Regional Center

IMP 1, IMP 3 December 20–22

### Midwest Regional Center

IMP 1 September 28

IMP 2 December 6–7, February 14

### New England Regional Center

IMP 1 September 21, November 2, February 8, March 1

IMP 2 October 19, February 8, March 8

IMP 3 October 12, November 30, February 1, March 15

IMP 4 September 28, March 22, April 26

### New York Regional Center

IMP 1 September 24, 25, 29, October 2, 16, 20,  
November 26, 27, December 1, 10, 11, 15,  
January 28, February 9, 11, 12, March 11, 12, 16

IMP 2 October 9, 20, November 13, 17, December 1, 4,  
15, January 15, 28, February 5, 9, March 5, 16

IMP 3 October 9, 13, November 13, 17, December 1, 4,  
January 15, 19, 28, February 5, March 5, 9,  
April 13

IMP 4 October 13, November 3, December 1, January 19,  
February 2, March 9, April 13, May 4, June 1

### Northwest Regional Center

IMP 1 September 28–29, October 5–6, 13, December 8,  
February 1–2, May 3–4  
Tacoma (Closed)

IMP 1, IMP 2 September 29, December 1, April 27  
NW-IMP

IMP 3, IMP 4 December 1, April 27 NW-IMP

IMP 1, IMP 2,  
IMP 3, IMP 4 February 7–9 NW-IMP Winter Retreat

### Pennsylvania Regional Center

IMP 1, IMP 2 October 13, November 3, December 1, January 26,  
February 23

IMP 3 November 6

**For updated professional development opportunities,  
see the IMP Web site at [www.mathimp.org](http://www.mathimp.org).**

## IMP National and Regional Centers Contact List

NATIONAL OFFICE/Sherry Fraser  
Call: (415)332-3328/Toll-free (888)MATH-IMP  
Fax: (415)332-3381  
email: [imp@math.sfsu.edu](mailto:imp@math.sfsu.edu)

ARIZONA REGIONAL CENTER/Nora G. Ramirez  
Call: (480)731-8062 Fax: (480)731-8060  
email: [nora.ramirez@domail.maricopa.edu](mailto:nora.ramirez@domail.maricopa.edu)

CALIFORNIA REGIONAL CENTER/Margaret DeArmond  
Call: (661)827-4511 Fax: (661)827-4592  
email: [margaret\\_dearmond@khsd.k12.ca.us](mailto:margaret_dearmond@khsd.k12.ca.us)

HAWAII REGIONAL CENTER/Kathleen Nishimura  
Call: (808)394-1341 Fax: (808)394-1304  
email: [kathleen\\_nishimura@notes.k12.hi.us](mailto:kathleen_nishimura@notes.k12.hi.us)

ILLINOIS REGIONAL CENTER/Anne Horn  
Call: (312)355-0271 Fax: (312)413-7411  
email: [annehorn@uic.edu](mailto:annehorn@uic.edu)

MIDWEST REGIONAL CENTER/Jean Stilwell  
Call: (612)668-2000 Fax: (612)668-1993  
voicemail: (612)692-0524  
email: [jstilwel@mpls.k12.mn.us](mailto:jstilwel@mpls.k12.mn.us)

MIDDLE COLLEGE HIGH SCHOOL CONSORTIUM CENTER/  
Cece Cunningham  
Call: (718)349-4017 Fax: (718)349-4003  
email: [ceccullen@aol.com](mailto:ceccullen@aol.com)

NEW ENGLAND REGIONAL CENTER/Carla Oblas  
Call: (617)373-2276 Fax: (617)373-8562  
email: [oblas@neu.edu](mailto:oblas@neu.edu)

NEW YORK REGIONAL CENTER/Marty Elgarten  
Call: (718)430-6300  
email: [melgart@nycboe.nycenet.edu](mailto:melgart@nycboe.nycenet.edu)

NORTHWEST REGIONAL CENTER/Brent McClain  
Call: (503)431-5545 Fax: (503)916-2725  
email: [bmcclain@ttsd.k12.or.us](mailto:bmcclain@ttsd.k12.or.us)

PENNSYLVANIA REGIONAL CENTER/Joe Mertino  
Call: (215)951-1203 Fax: (215)951-5089  
email: [merlino@lasalle.edu](mailto:merlino@lasalle.edu)

ROCKY MOUNTAIN REGIONAL CENTER/Jean Klanica  
Call: (303)756-9141 Fax: (303)756-9256  
email: [jean\\_klanica@ceo.cudenver.edu](mailto:jean_klanica@ceo.cudenver.edu)

NEW BRUNSWICK, CANADA/Marcel Lavoie  
Call: (506)453-2326 Fax: (506)453-3325  
email: [marcel.lavoie@gov.nb.ca](mailto:marcel.lavoie@gov.nb.ca)

NOVA SCOTIA, CANADA/Antoine Jarjoura  
Call: (902)424-6500 Fax: (902)424-0820  
email: [jarjoura@ednet.ns.ca](mailto:jarjoura@ednet.ns.ca)

[www.mathimp.org](http://www.mathimp.org)

# Key Comments

## IMP AND TECHNOLOGY INTEGRATION

Although the initial pilot testing of the *IMP* curriculum included some computer-based activities, few schools had the infrastructure at the time to make effective use of those activities. Graphing calculators, more affordable to schools, became the base technology of the *IMP* curriculum.

In the last decade, many schools have invested heavily in technology, and computer access, while still limited in many schools, is less of an issue for some schools. As you may know, Key Curriculum Press is the publisher of *The Geometer's Sketchpad*<sup>®</sup>, computer software for exploring mathematics visually. As both *Sketchpad*<sup>™</sup> and *IMP* grow in use, Key Curriculum has received inquiries from some *IMP* schools regarding the availability of materials that help *IMP* users make effective use of *Sketchpad*. There are clear applications to geometry-oriented *IMP* units. In addition, new probabilistic and algebraic capabilities introduced in *Sketchpad* Version 4 make it useful with some additional units. Because of the resourcefulness of *IMP* teachers, and because many *IMP* schools also use *The Geometer's Sketchpad* in their traditional mathematics programs, there are experienced *IMP* teachers who have already found innovative ways to incorporate *Sketchpad* into their *IMP* programs.

*Fathom Dynamic Statistics*<sup>™</sup> is a new tool from Key Curriculum for exploring mathematics from the perspective of data analysis and statistics. Because the *IMP* curriculum has a strong statistical strand, there are also *IMP* teachers who have become early experimenters with *Fathom*.

## From Coast to Coast... *continued from page 1*

California Mathematics Council, Sandie understands how businesses and schools can work together.

Sandie and Priscilla had a momentous week in Washington, D.C. Highlights for them included a formal dinner at the U.S. Department of State with speaker Dr. Francis Collins of the Human Genomic Project; a White House tour; and the group photo with President Bush. The evening was really an emotional experience for Sandie. "Surrounded by Harry Truman's piano, original RevereWare, and historic paintings and furniture made history come alive. On the patio, we overlooked the national monuments which were all lit up. Dr. Collins talked about his research and recalled how it was a high school science teacher who sparked his interest in biology and chemistry, which led him to his career. Teachers were made to feel very special and all my colleagues at school deserved to be

there and experience the evening."

Sandie worked on her National Boards at the same time as her Presidential Award application. "The applications had a lot of overlap and I figured if I was spending the time for one, I might as well give it my all and do both."

The Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST) is the nation's highest commendation for K–12 mathematics and science teachers. It recognizes a combination of sustained and exemplary work, both in and outside the classroom. Each award includes a grant of \$7,500 from the National Science Foundation (NSF) to the recipient's school. Winners use the money at their discretion to promote math and science education. Awardees also receive an expense-paid trip to Washington, D.C., during which each is given a certificate signed by the President. They attend seminars and

## NEW SUMMER INSTITUTES FOR IMP FOCUSED ON SKETCHPAD AND FATHOM

During the summer of 2002, Key Curriculum will organize two week-long residential Summer Institutes in the San Francisco Bay area for *IMP* teachers who have used or who want to use *The Geometer's Sketchpad* and *Fathom* in their *IMP* classes. Since we are all at the beginning stages of looking at *IMP-Fathom* and *IMP-Sketchpad* integration, these institutes will be collaborative in spirit. We will explore the technology and share the experiences.

*IMP* and *The Geometer's Sketchpad Institute*, July 7-14, 2002

*IMP* and *Fathom Dynamic Statistics Institute*, July 14-21, 2002

During the current school year, Key Curriculum will work with experienced *IMP* computer-using teachers and the *IMP* developers to brainstorm and develop prototype computer-based activities that will form the curriculum for the Summer Institute. Eventually, we hope to make these materials available to *IMP* teachers who want to use them.

If you are interested in attending either (or both) of the 2002 Summer Institutes, please register your interest via the Key Curriculum's Professional Development Web site at [www.keypress.com](http://www.keypress.com), or call us at 800-995-MATH.

## ONLINE SURVEY—SKETCHPAD AND FATHOM USERS PLEASE FILL IT OUT!

If you have used *The Geometer's Sketchpad* or *Fathom* in your *IMP* classes and/or you have ideas to contribute to the development of the Summer Institutes, please visit *IMP*'s Web site at [www.mathimp.org/techsurvey](http://www.mathimp.org/techsurvey) and fill out our short online survey. Thank you. ■

engage in professional discussions with their peers and with national legislators and education policy makers. Each awardee also receives a selection of gifts from private-sector contributors to the program.

We would encourage all of you veteran teachers to spend the time and "go for it!" *IMP* is a powerful curriculum, and the classroom it supports can show powerful teaching and learning. The 2002 application questions will be available soon at [http://www.ehr.nsf.gov/pres\\_awards](http://www.ehr.nsf.gov/pres_awards). ■

*IMPressions* is published each Fall and Spring by Key Curriculum Press. We invite readers to send *IMP*-related ideas and comments to us at:



**IMP**

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