



# Focus on Mathematics

*A partnership of teachers and mathematicians  
committed to increasing student achievement*

Volume 1, Number 1

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Welcome to the **Focus on Mathematics** Newsletter, which will be published bi-monthly. Through this newsletter, participants in our partnership can exchange ideas, pose questions, share highlights of activities, and post upcoming events. In addition, the newsletter will be a valuable tool for disseminating information and connecting with other Math/Science Partnerships. Your contributions and suggestions are most welcome.

*Jill Vollmuth, Focus on Mathematics Project Liaison*

## Focus On Mathematics

### An Overview

**Focus on Mathematics** is a *Targeted Math-Science Partnership* funded by the National Science Foundation. It includes 9 partners and a team dedicated to evaluation and research:

- The Department of Mathematics and Statistics and the School of Education at **Boston University**
- The **Education Development Center** in Newton, Mass
- Math faculty and administrators from 5 school districts in the Greater Boston area:
  - **Arlington** Public Schools
  - **Chelsea** Public Schools
  - **Lawrence** Public Schools
  - **Waltham** Public Schools
  - **Watertown** Public Schools
- The Department of Mathematical Sciences at the **University of Massachusetts at Lowell**
- The Center for Industrial Mathematics and Statistics at **Worcester Polytechnic Institute**
- The Program Evaluation Research Group (**PERG**) at **Lesley University**

The goals of the **Focus on Mathematics** partnership are as follows:

- Provide teachers with solid content-based professional development
- Place students into rigorous courses and curricula
- Build a core of mathematically expert teachers who take the lead in professional development programs in their schools
- Establish a mathematical community in which mathematicians and precollege educators work together and with students to put mathematics at the core of 5–12 mathematics education
- Develop financial support to sustain the project after NSF funding expires to ensure continued success

Every middle and high school mathematics teacher in the partnership will be invited to participate in an ongoing portfolio of mathematical activities including:

**Summer Institutes** ♦ **Study Groups** ♦ **Seminars** ♦ **Afternoon Colloquia** ♦ **Online Courses**

Each school participating in the partnership will have one or more teachers in the school who will go through a master's degree program designed by the partners.

These **Mathematics Teaching Fellows** will

- serve as resources for their colleagues,
- conduct seminars and workshops, and
- offer “on-call” support and mentoring for teachers in the schools.

The broader impact of the **Focus on Mathematics** partnership includes the following:

- A new professional masters degree for teachers that will be a model for replication elsewhere
- A culture and system that supports mathematically active careers in education
- Exemplars of content-based, teacher-driven professional development programs
- Evidence that a mathematical community involving mathematicians, educators, and teachers can improve student achievement

**Focus on Mathematics** will be an enduring partnership striving to achieve ambitious long-term goals. Achieving these goals will require sustained work and gradual progress, maintained by dedicated effort of a mature **Focus on Mathematics** community—one in which each member contributes and benefits, all partners have a vested stake, and mathematics is at the core of the community's work.

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### **Executive Council Report**

The first official meeting of the **Focus on Mathematics** Executive Council, held at Boston University on September 8, 2003, brought a tremendous amount of enthusiasm and shared commitment. Participants posed many informed questions about where we're headed, generating much discussion and resolve to work together to meet our goals. Glenn Stevens, Professor of Mathematics at Boston University, opened the meeting with introductions and emphasized the role of the Executive Council in building the **Focus on Mathematics** Partnership. Glenn also introduced Ava Berinstein, MSP Project Coordinator at BU, and Jill Vollmuth, Focus on Mathematics Project Liaison at EDC (Education Development Center), who will both handle communication, knowledge sharing, and infrastructure support issues for the partnership.

Wayne Harvey, Vice President at EDC, presented a review of the project with an overview of what will happen in the next year. He pointed to the various differences among partners as the partnership's ultimate source of strength. Al Cuoco, Director for the Center for Mathematics Education at EDC, commented on some of the specific challenges and opportunities ahead. Al emphasized the need to recognize that building trust and community will develop over time, but maintaining our energy and focus on the purpose of our partnership—mathematics—will be key to facing

challenges and dealing with the many variables at play.

Carole Greenes, from the School of Education at BU, led a discussion of timelines and laid out a plan for the first two months of the project. The main goals for the first few months have been to

- introduce the partnership to teachers,
- select participants for the four professional development programs,
- introduce mathematicians to the schools, and
- study achievement benchmarks defined by the state and design tools for measuring progress.

Carol also stressed the need for each school to form a core group that will take the lead and disseminate information.

Glenn and Al led a discussion about how to generate working groups in each school and the type of support the groups would need. They also discussed ways of involving the mathematicians by inviting them to department meetings, meeting with teachers, and visiting classrooms.

Much was accomplished in this first meeting, with everyone focused on the next steps: generating teacher interest and participation, and developing lasting relationships in the partnership.

The Executive Council held its second meeting on November 4. Our District Leaders reported success in generating a great deal of interest, particularly for the proposed Certificate

and MAST programs at Boston University, through coordinated introductory meetings with their teachers. The questions and comments from teachers at these meetings helped to inform the planning and direction of the partnership. Everyone agreed that the school meetings achieved their goal of creating a springboard for the partnership in each district.

Mathematicians have been matched to districts and working groups have now been formed in each school. District leaders discussed the best ways to introduce and facilitate working groups, which will be meeting early in December. Districts are also in the process of developing procedures to determine which teachers participate in various professional development offerings. Dates and times for summer institutes, academic seminars, and colloquia were proposed and will also be finalized very soon.

Glenn Stevens and Carole Greenes led a discussion about the certificate and master's degree programs. These programs are being developed to meet the mathematics content needs of teachers, while providing them with all necessary requirements for the new Professional License.

The second Executive Council meeting was adjourned amid enthusiasm for the coming months. The month of December will bring the first round of meetings with teachers and mathematicians. In addition, the dates will be set for upcoming professional development programs.

### Getting the Word Out

Hot off the press, the new ***Focus on Mathematics*** brochure is printed and ready to deliver to our school districts. Look for them in your mailbox soon! If you would like to request extra copies, please email [jill@focusonmath.org](mailto:jill@focusonmath.org) or call 617-618-2815.

The new web site is being developed and will make its debut in early December. Thank you for your patience while it's been under construction. The web site will provide general information, information about professional development programs—including master's and certificate programs—forum, calendar, online newsletter, and much more. Look for our site, [www.focusonmath.org](http://www.focusonmath.org), to be up soon!

### Other Departments

Future issues of this newsletter will be expanded to include articles written and submitted by readers, resource listings—great

web sites, articles in journals, curricula—cool math problems, student projects, and information about other MSP's. Your contributions are always encouraged!

### Program Evaluation

One of our partners in the ***Focus on Mathematics*** project is the Program Evaluation and Research Group at Lesley University in Cambridge. The partnership invited this group to help provide feedback on program activities and inform any revisions needed to make the program better meet the needs of all participants—students, teachers, administrators, schools, districts, mathematicians, and universities.

Sabra Lee will lead the evaluation team for ***Focus on Mathematics***. Other PERG team members include Carol Baldassari, Judah Leblang, and Rachel Sayko. They will engage in interviews, surveys, observations and examination of program products. Each year the evaluation plan will be updated and approved by the Executive Council, which includes representatives from the districts.

The evaluation is a requirement of our funder, the National Science Foundation, and is intended to inform and help direct best practices for the partnership. It will not evaluate individuals, schools, or districts. We look forward to an enduring and informative collaboration with our members from PERG.

### Forum

This section will be reserved in each issue for questions, concerns, suggestions, teaching highlights and anecdotes. Everyone is invited to participate in this forum to exchange ideas and stories. The first ten people to submit an entry in this category will receive a prize...a gift certificate for a special coffee drink at Starbucks!

### Coming Events

On **December 5, 2003**, Boston University is hosting our first colloquium and kick-off reception at:

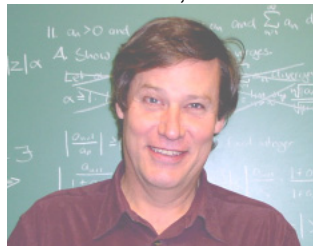
The School of Management  
595 Commonwealth Avenue  
Boston, Massachusetts

Colloquium speaker Bob Devaney will present "Chaos in the Classroom" in Room 208, from 5:30–6:30 p.m. A Reception will follow in the dining room from 6:30–8:30 p.m.

RSVP by email: [Ava@focusonmath.org](mailto:Ava@focusonmath.org)  
or telephone: 617-358-2388.

## And now, a Word of Welcome from our Co-Principal Investigators

Glenn Stevens, Boston University



As an impressionable young teenager in the late sixties and early seventies, I had the privilege of early membership in the *community of mathematicians* as a participant in a summer program offered by the late Arnold Ross at the Ohio State University. Over almost half a century, countless young people came to embrace the life of scientific exploration through this program. Indeed, three former students of the Ross program are now part of our *Focus on Mathematics* partnership. All of us who passed the program have vivid memories of Professor Ross's now famous exhortation "to think deeply of simple things". Whenever we face a difficult and complex problem, his words remind us to work hard to identify the essential features of the problem and to then focus deeply on resolving them. I am very happy to note that our *Focus on Mathematics* partnership will extend this philosophy by focusing the very broad base of expertise represented by our partners on the very difficult problem of building mathematical capacity in our schools and increasing student achievement in mathematics.

As a member of the *Focus on Mathematics* community, I look forward to engaging in two of my favorite activities – working with young people, and exploring mathematical ideas. As mathematicians, we are fortunate to live and work within a community of individuals actively engaged in learning, exploration and discovery. And as teachers, we have the rich pleasure of working with bright and energetic young people. Every mathematics teacher at every level has personal experience of both learning and teaching. For me, a central goal of the *Focus on Mathematics* project is to narrow the gap between these two sides of our profession by bringing university mathematicians together with school mathematicians so that each can benefit from the expertise of the other.

Wayne Harvey, EDC



Twenty-five years ago I was part of a group of people at the University of California in Berkeley called the SESAME Group standing for Search for Excellence in Science and Mathematics Education. The group consisted of educators, mathematicians, physicists, computer scientists, biologists, and psychologists, who all thought that together they could accomplish more in mathematics and science education than from a position of isolation within their own discipline. The various faculties formed an interdisciplinary program of study leading to a Ph.D. (in mathematics education, science education, or cognitive science) and admitted a small collection of students each of whom had a master's degree in a mathematics or science discipline.

This was where I first learned the power of diverse expertise coming together to work on complex education challenges together. Ever since I received my doctoral degree from the SESAME Group, I vowed that if I ever had the opportunity to help build and support a culture of learning that had any of the strengths of what I experienced in this program, then my time would be well invested to pursue such an opportunity.

And so here I am helping to launch *Focus on Mathematics*, a partnership with similar potential to my earlier experience, but with the strength of even more focus. The community we are building is dedicated to finding ways to build a future mathematics experience that serves all of us, and especially our students, in ways that may have remarkable impact. I couldn't be more pleased to be working with the talented people in our partnership who have the courage and dedication to invest time in working across boundaries on new ideas and new approaches to better our systems, our students' experiences, and ourselves. I am certain that our students and each of us will gain new understandings, new ideas and approaches, and new perspectives on mathematics, mathematics education, and the systems in which we carry out our work.