

Application form for
PROMYS for TEACHERS
Program in Mathematics for Young Scientists
Boston University
June 29 to August 7, 2009

Please complete Part I of this form and have an appropriate administrator complete Part II. (Complete Part II only if you are an in-service teacher.) Completed applications should be returned to: PROMYS, Department of Mathematics, Boston University, 111 Cummington Street, Room 142, Boston, Massachusetts 02215. Most admission decisions will be made from March 1 through May 15, 2009.

Part I

1. Your Name (Mr., Ms., or _____) _____
(Circle one) (Last) (First) (Middle)

2. Social Security No. _____ 3. Date of Birth _____

4. (This question is optional.) Please check one:

- | | |
|--|--|
| <input type="checkbox"/> White (Non-Hispanic) | <input type="checkbox"/> Native American |
| <input type="checkbox"/> Black (Non-Hispanic) | <input type="checkbox"/> Hispanic |
| <input type="checkbox"/> Asian or Pacific Islander | <input type="checkbox"/> Other (_____) |

5. Are you taking PROMYS as part of a degree program at Boston University? If so, please specify the degree program in which you are currently enrolled.

6. School in Which You Teach (skip to Question 7 if you are a pre-service teacher):

Your Position _____

Name of School _____

School's Address _____

City, State, and Zip _____

School Telephone Number (_____) _____

Type of School: Public Private

Range of Grades in this School (i.e. 9-12, 10-12) _____

7. Home Address _____

City, State, and Zip _____

Home Telephone Number (_____) _____ Email: _____

8. Mailing Address You Prefer: At School At Home

9. Name of accompanying student you will recommend (if you know this now): _____

10. Employment Record.

List professional experience of the past five years in teaching and work related to teaching. Be sure to include any positions of leadership you have held. Also include your anticipated position next year.

Dates	Employer	Nature of Activity
Next Year		
Current Year 20____ to present		

11. Certification Status (check the appropriate box(es))

Subject	Initial licensure, 5-yr	Professional licensure, 5-yr	Preliminary licensure, 5-yr	Temporary Licensure, 1-yr
Mathematics				
Computer Science				
Other (specify _____)				

12. Years of teaching experience (not including student teaching):

(a) Elementary school (grades K-6) _____ years, from _____ to _____

(b) Middle school (grades 7-8) _____ years, from _____ to _____

(c) Secondary school (grades 9-12) _____ years, from _____ to _____

(d) Other (specify _____) _____ years, from _____ to _____

13. College or University Education

Name of Institution and Location	Years Attended	Degree(s) Earned	Major Subject(s)	Minor Subject

14. List your college coursework in mathematics, mathematics education, and science. Indicate whether the course was for graduate credit or undergraduate credit.

Mathematics

Descriptive Course Title	Check One	
	Graduate	Undergraduate

Mathematics Education

Descriptive Course Title	Check One	
	Graduate	Undergraduate

Other Sciences

Descriptive Course Title	Check One	
	Graduate	Undergraduate

Attach separate sheets as necessary.

15. Please write a mathematical autobiography of your life experiences with mathematics. In this autobiography, please describe how your experiences have affected your answers to each of the following questions:

- (a) What is your definition of mathematics? What does it mean for you to *do* mathematics?
- (b) What is your philosophy of teaching mathematics?

(Please answer this question on a separate page.)

16. Discuss your reasons for wishing to participate in PROMYS this summer. (Attach a separate sheet if needed.)

17. Please tell us how you learned of PROMYS.

Applicant's Signature _____ Date _____

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Part II (Supporting Document)

This section should be completed by an appropriate administrator at the applicant's school. Completed applications should be returned to: PROMYS, Department of Mathematics, Boston University, 111 Cummington Street, Room 142, Boston, Massachusetts 02215. Most admission decisions will be made from March 1 through May 15, 2009.

1. Information about the applicant and the school.

Applicant's Name _____
(Last) (First) (Middle)

Name of School _____

School Address _____

School City, State, and Zip _____

School Telephone Number (_____) _____

Type of School: Public Private

Range of Grades in this School (i.e., 9-12, 10-12) _____

What computer facilities are available for your students?

List the mathematics and computer science courses in your curriculum, together with their usual enrollment. Attach a separate sheet if necessary.

2. Institutional Support of Applicant

PROMYS for TEACHERS requires a six-week summer commitment from the teacher as well as a commitment to attend 5 full-day workshops during the academic year. Teachers earn 8 graduate credits in mathematics for their participation during the first summer, and 6 graduate credits (4 in mathematics education and 2 in mathematics) for their participation during the second summer. In addition, they receive a stipend of \$1,200 for each summer's participation.

(a) Indicate the level of support your school system will be able to provide the applicant (e.g., reduced load, funding of possible in-service meetings, funds for a substitute teacher while attending academic-year workshops, etc.)

(b) Can your school system provide this applicant, if selected, with a personal computer for use during the intervening year?

3. What impact would the participation of this person in PROMYS for TEACHERS have on your program?

Please indicate your endorsement of this applicant's application by signing below.

Administrator's Signature _____ Date _____

Name (print or type) _____ Telephone (____) _____

Position _____

PROMYS for TEACHERS

An Immersion in Mathematics for Secondary Teachers

Purpose of PROMYS for TEACHERS

PROMYS for Teachers is designed to support current efforts in Massachusetts to enhance problem-solving and open-ended exploration in secondary school mathematics classrooms. PROMYS engages middle and high school teachers in an intensive experience of mathematical exploration. Over the course of six weeks, PROMYS teachers develop, through problem-solving, many classical results in number theory. This experience is enriched by a supportive community of other teachers, high school students, graduate students, and research faculty. The program fosters new insights into the nature of mathematical investigation as participants practice the habits of mind that are at the core of creative mathematics. Academic year workshops help teachers translate the summer experience into fundamental change in their own classrooms.

The Massachusetts Mathematics Curriculum Framework calls for exactly the kind of exploration that PROMYS provides. It calls for a shift away from solving routine problems to problem-solving as the focus of mathematics programs. Indeed, one of the Framework's guiding principles is that students should *explore mathematical ideas* in ways that help them maintain their enjoyment of and curiosity about mathematics. Accordingly, PROMYS participants are asked to *work beyond their centers of competence* and to push the limits of their knowledge. The PROMYS community provides a rich support network so that teachers can spend time as mathematics learners in a safe and supportive environment.

Components of the PROMYS for TEACHERS Program

PROMYS for Teachers consists of three major components: (1) in the summer of 2009, new PROMYS teachers will come to Boston University for an intensive six-week experience of exploring deep mathematical ideas, focused primarily on number theory; (2) during the academic year 2009-2010, these teachers will attend five workshops at Education Development Center (EDC) in Newton to discuss and support exploration-based activities they are using in their classrooms; (3) in the summer of 2010, they will return to PROMYS for a second summer of more advanced mathematical activities.

During the 2009 and 2010 summer components, teachers will engage in intensive problem-solving activities with the other teacher participants. These problem-solving activities will run parallel to but separate from similar activities for high school students.

A Typical Day at the PROMYS for TEACHERS Program (Monday – Friday 9:00A.M. – 5:00P.M.)

A typical teacher's day in the summer program will begin with a morning lecture attended by all PROMYS participants—teachers and students, first year and returning participants alike. This is followed by work with other teachers on a daily problem set. Counselors—graduate students in mathematics, research mathematicians, and graduates of previous PROMYS programs—serve as resources for the teachers in their work. Participants' written work on problem sets will be reviewed by the counselor staff each evening and returned the next morning with written comments. Weekly problems sessions run by PROMYS staff help teachers pull together threads of ideas from the problem sets and focus on the big ideas.

Second-year participants: Twice each week, teachers will meet with their small research group (usually two teachers and a counselor) in the exploration labs. In the fifth week, each research group will submit written reports of their work and give an oral presentation summarizing their results to the rest of the program.

A Typical PROMYS for TEACHERS Follow-Up Session

During the academic year, PROMYS teachers attend five full-day workshops offered jointly by Education Development Center in Newton and Boston University's Department of Mathematics. These seminars are designed to help teachers "unpack" the pedagogical approaches used in PROMYS to enrich the school curricula. Another important goal of the workshops is to establish an ongoing network (including an electronic network) of teachers, mathematics educators, and research mathematicians. Typical agenda items include:

- A few teachers share experiences, activities, and student work from their classrooms.
- The whole group works together on some mathematics inspired by topics in the secondary curriculum.
- Teachers collaboratively plan lessons, inspired by their mathematics research experience in PROMYS, working in the style of Japanese Lesson Study groups.

History of PROMYS

PROMYS has existed for over a decade at Boston University as a program that engages mathematically inclined high school students in the process of mathematical exploration through their work on unusually challenging problems in number theory. Since 1991, PROMYS has also worked with pre-service high school mathematics teachers from the Boston University School of Education. In the summer of 1999, PROMYS expanded its activities again by engaging in-service Massachusetts high school mathematics teachers in the program's summer activities and running five professional development seminars during the academic year. PROMYS was founded in 1989 by alumni of the famous Ross Young Scholars Program (RYSP), which is still running very successfully at the Ohio State University in Columbus. PROMYS has adapted aspects of the Ross Program to the Boston University environment, and has introduced strategies for the discovery of bright and eager young students from all backgrounds. The Ross Program, which dates back to 1957, can proudly point to a long list of alumni who are now actively working in careers in science, mathematics, engineering, computer science, economics, medicine and many other mathematics-related fields.

Accompanying Student

Each teacher participant is invited to recommend a high school student to the PROMYS program. That student may be admitted to PROMYS through the usual high school admissions process. Students are admitted only for the summer of 2009. However, it is possible that students will be invited to return for a second summer to engage in advanced PROMYS activities designed especially for them.

Dates of the Program

The 2009 summer component will be held from June 29 to August 7. The five academic year workshops will be held approximately once a month at EDC from September, 2009 through April, 2010. The dates for the summer component in 2010 are not yet definite.

Stipends

Teacher participants will receive a stipend of \$1,200 for their participation in the six week summer component in 2009 and also in 2010.

Graduate Credits

Teacher participants will receive 8 graduate credits in mathematics from Boston University for their participation in the summer component of 2009. An additional 6 graduate credits (4 in mathematics education and 2 in mathematics) will be awarded for the summer of 2010. Assessment for the summer program (for the first-year participants) is based on participants' work on the daily problem sets and on the results of a midterm exam and a final exam.

Sponsors

PROMYS gratefully acknowledges the financial support of its sponsors: the National Science Foundation, the Noyce Foundation, the Massachusetts Board of Higher Education and the Improving Teacher Quality State Grant Program, National Security Agency, Park City Mathematics Institute, MathWorks, Inc., American Mathematical Society, and many generous private contributions from alumni and friends.

Application Information

Applications will be accepted from March 1 through May 15, 2009. Completed applications should be mailed to PROMYS, Department of Mathematics, Boston University, Boston, MA 02215. For more information call (617) 353-2563 or send email to promys@bu.edu. Also see the PROMYS website <http://www.promys.org>.

PROMYS for TEACHERS At-A-Glance

Summer Sessions:

First Summer:

- 6 weeks (June 29 to August 7, 2009) of an immersion experience in mathematics, run by Boston University's Mathematics Department.
- The first summer, the focus is on Number Theory, with most of the day spent working on Number Theory problem sets with other teachers, and with the help of PROMYS counselors.
- Teachers receive a stipend of \$1,200 in addition to eight graduate credits in mathematics for participation in the first summer.

Second Summer:

- The second summer, teachers have the option to take other graduate-level courses as well as the opportunity to re-take the Number Theory, filling in the missing pieces and serving as a mentor to the first-year teachers.
- Teachers receive a stipend of \$1,200 and six graduate credits (four in mathematics education and two in mathematics) for participation in the second summer.

Academic Year Sessions:

- 5 full-day workshops jointly run by Education Development Center and BU's Mathematics Department.
- The focus is on pedagogy, and connecting an immersion experience in mathematics back to the classroom.
- Teachers explore mathematics inspired by the secondary curriculum, and collaboratively plan lessons.