DOCUMENT RESUME

ED 365 531 SE 053 953

TITLE	Directory of Mathematics-Based Intervention Projects. Strengthening Underrepresented Minority Mathematics Achievement (SUMMA).
INSTITUTION	Mathematical Association of America, Washington, D.C.
SPONS AGENCY	National Science Foundation, Washington, D.C.
PUB DATE	[93]
CONTRACT	NSF-TPE-91-54054
NOTE	84p.
AVAILABLE FROM	Mathematical Association of America, 1529 Eighteenth Street, N.W., Washington, DC 20036.
PUB TYPE	Reference Materials - Directories/Catalogs (132)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	American Indians; Black Students; Elementary Secondary Education; *Enrichment Activities; Extracurricular Activities; Hispanic Americans; *Mathematics Education; *Minority Group Children; Program Descriptions; *Summer Programs
IDENTIFIERS	African Americans; American Indian Students; Hispanic American Students; Intervention Education; *SUMMA Consortium

ABSTRACT

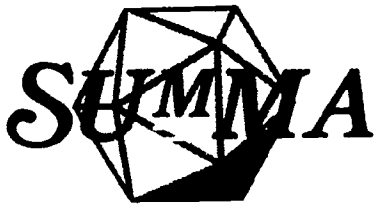
The magnitude of the underrepresentation of African Americans, Hispanic Americans, and Native Americans in mathematics-dependent fields is well known. This directory, organized by the Strengthening Underrepresented Minority Mathematics Achievement (SUMMA) Consortium, is a reference for students, faculty, and others to learn about extra-curricular mathematics-based intervention projects. Sixty-seven projects, supported by foundations, industry, universities, agencies, organizations, and individuals, are listed in two sections: pre-college projects sponsored by colleges and universities, and pre-college projects conducted by organizations. Each entry on the list provides the following information: sponsor; project type; recruitment area; total number and grade level of students; total staff; project dates; cost and financial assistance information; and a description of the program. The SUMMA Program focuses on seven areas of activity: (1) developing the consortium; (2) establishing mathematics-based intervention projects; (3) attracting minorities into teaching at all levels; (4) establishing mainstreaming projects for minority students on majority campuses; (5) mentoring minority students in mathematics; (6) creating an archival record of minority PhDs in mathematics and mathematics education; and (7) developing an organization for mathematics departments at minority institutions. (MDH)

Directory of Mathematics-based Intervention Projects

SUMMA

Strengthening Underrepresented Minority Mathematics Achievement

Directory of Mathematics-based Intervention Projects



Strengthening Underrepresented Minority Mathematics Achievement
The Mathematical Association of America
1529 Eighteenth Street, N.W.
Washington, D.C. 20036
202/387-5200

Acknowledgements

This material is based upon work supported by the National Science Foundation under Grant # TPE 91-54054. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the Foundation.

A very warm thank you to Lisa Johnson, SUMMA Administrative Assistant, who saw this publication through in every detail including mastering desk-top publishing.

We would also like to extend our thanks to The Arizona State University and Michael Cooper, Media Affliates, for providing the cover photographs of Joaquin Bustoz and two Navajo students, Byron Tsinnajinnie and Tanya Chischilly.

TABLE OF CONTENTS

Introduction

About SUMMA and the SUMMA Consortium

This Directory is a reference for students and faculty and others to learn about extra-curricular mathematics-based intervention projects. The individual projects are for the most part directed by collegiate mathematicians and held on their campuses. The SUMMA Consortium (SUMMAC) of the Mathematical Association of America (MAA) was organized in November 1992 to disseminate information about these projects and provide a variety of services to the Project Directors.

These projects are supported by foundations, industry, universities, agencies, organizations and individuals. There are 67 projects listed here. The total student enrollment is 12,521 with 81% minority. Projects are conducted in 26 states and the District of Columbia. The majority of projects are held in the summer, but they have academic year activities including meetings on Saturdays, electronic networking and newsletters. The range and extent of mathematics is contained in a brief narrative which follows a list of features common to all projects.

The Directory will be updated periodically to include new projects and descriptions of new curricula. With funds from the Carnegie Corporation of New York, SUMMA began a small grants program in 1991 to facilitate the designing of at least ten new projects each year with a long-term goal of projects being conducted on every campus to encourage access of students, particularly minority students, to the further study of mathematics.

The magnitude of the underrepresentation of African Americans, Hispanic Americans and Native Americans in mathematics-dependent fields is well known. Since 1990, the MAA Office of Minority Participation and its SUMMA Program have focussed on 7 areas of activity: · developing a consortium, SUMMAC, of mathematics-based intervention projects · establishing mathematics-based intervention projects · attracting minorities into teaching at all levels · establishing mainstreaming projects for minority students on majority campuses · developing an organization for mathematics departments at minority institutions · mentoring minority students in mathematics · creating an archival record of minority PhDs in mathematics and mathematics education. All of these activities are linked to intervention projects, which are seen as a major accessible way for mathematicians and mathematics educators to encourage minority students to study mathematics throughout their college years.

In addition to establishing new projects, the Office of Minority Participation, through SUMMAC, collects and analyses the data that can assist the MAA in this work. The *SUMMAC Forum*, a quarterly newsletter, brings information about projects to all mathematics departments. SUMMAC organizes an annual fall conference where mathematicians can share ideas that will increase the persistence of minorities in mathematics at all levels.

Dr. William A. Hawkins
SUMMA Director

Dr. Florence Fasanelli
Director of SUMMA Intervention Programs

Section I.

Pre-College Projects Sponsored by Colleges and Universities

Summer Minority Student Science Training Program

Department of Mathematics
Alabama A&M University
Normal, AL 35762

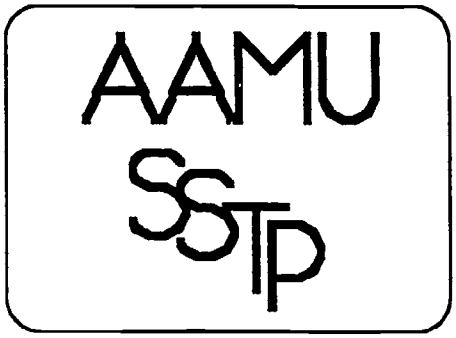
Type of Project	Residential/Commuter
Recruitment Area	Southeast Region and entire U.S. 100% minority
Total Students/Grades	221(minorities)/5th-third year college 100% minority
Total Staff	16 Faculty 3 Graduate Students 2 Undergraduates 3 High School Teachers 85% minority
Application Deadline	April 15, 1993
Project Dates	HS: June 14 - July 17 ES: June 14 - June 26 MS: July 5 - July 17 Apprentice: June 7 - July 24
Cost to the Student	Activity fee of $10 - $20
Scholarship Availability	None
Stipend	Varies from $50 to $1350

Dr. Jerry R. Shipman

Office
205/851-5316

FAX
205/851-7984

The SSTP was first organized at Alabama A&M University in 1976 with a grant from NSF for the purpose of identifying 25-30 high-achieving minority high school students (grades 9-12) in order to provide them with an intense five weeks of summer academic enrichment. Since then, SSTP has expanded to serve minority students in grades 5 through the junior level in college. During the intense two- to five-week enrichment based summer sessions, students study concepts in mathematics, biology, chemistry, physics, computer science, and English. Students interact with minority guest speakers in career exploration seminars and take field trips to learn about science, engineering, and mathematics (SEM) careers. SSTP began a research apprentice program in 1991 for 10th - rising college juniors.



Over 850 students have participated in SSTP activities since 1976. All of the participants in the SSTP activities have been minority students with about 55% women. The high school graduation rate of SSTP participants is 100%. The college entrance rate is 97%. The rate for SEM majors in college is 54%.

Amarillo PREP	**Amarillo Prefreshman Engineering Program** [illegible] of Science and Engineering Am[illegible] College Box 447 Amarillo, TX 79178

Therese Jones

Office
806/371-5091

FAX
806/371-5370

Type of Project	Residential
Recruitment Area	Texas Panhandle 20% minority
Total Students/Grades	92 (minority focused) / 7th-11th 56% minority
Total Staff	4 Air Force officers and 4 Faculty 2 Graduate Students 3 Undergraduates 25% minority
Application Deadline	March 26, 1993
Project Dates	June 14-August 6
Cost to the Student	None
Scholarship Availability	$1,000 to Outstanding PREP student
Stipend	Based on financial need

Amarillo PREP was designated as a site of the state-wide, nationally recognized program, TexPREP (Texas PreFreshman Engineering Program). It identifies high-achieving minority middle school and high school students in order to provide them with academic enrichment to pursue careers in mathematics, science, and engineering. During the intense eight-week mathematics-based summer session, students study logic, algebraic structures, probability and statistics, physics, computer science, engineering and technical writing. Abstract reasoning and problem-solving skills are developed through coursework assignments, exams and laboratory projects. Students meet guest speakers and take field trips to learn about careers in mathematics, science and engineering.

Amarillo PREP grew from 36 students in the summer of 1990, and 47 in the summer of 1991, to 92 students in 1992. All students who have completed the program and reached college age are attending college.

Mathematics & Computer Program for Minority Students

Department of Mathematics
Arizona State University
Tempe, AZ 85287-1804

Type of Project	Commuter/Residential
Recruitment Area	Navajo reservation 100% minority
Total Students/Grades	61(Navajo)/8th 100% minority
Total Staff	6 Faculty + 1 faculty associate 4 staff 8 Undergraduates 4 High School Teachers 57% minority
Application Deadline	April 24, 1993
Project Dates	I: June 1-26; II: June 29-24
Cost to the Student	None
Scholarship Availability	None
Stipend	None

Dr. Joaquin Bustoz

Office
602/965-3791

FAX
602/965-0333

Arizona State University conducts two four-week commuter Young Scholars projects on the Navajo Reservation for 60 students entering the eighth grade. Students are introduced to the experimental nature of mathematics. The topics of number theory, discrete probability, graph theory, and combinatorics are taught and used as experimental material. The students learn to write BASIC computer programs to implement mathematical routines for use in checking conjectures. The students learn problem solving techniques. Problems will be selected and collected from several sources including the Hungarian publication *Matematika Lapok*. Various science activities are correlated with the mathematical focus. For example, the students learn about the mathematics of lenses and build a four-inch reflector telescope which is then used to explore the beautiful night sky on the Navajo reservation. Students return for a second year.

Mathematics-Science Program for Minority Students

Department of Mathematics
Arizona State University
Tempe, AZ 85287-1804

Dr. Joaquin Bustoz

Office
602/965-3791

FAX
602/965-0333

Type of Project	Residential
Recruitment Area	Arizona 100% minority
Total Students/Grades	195 (minorities)/9th-12th 100% minority
Total Staff	9 Faculty + 14 staff 18 Graduate Students 40 Undergraduates 90% minority
Application Deadline	February 28, 1993
Project Dates	June 1-July 2; July 6-August 7
Cost to the Student	None
Scholarship Availability	None
Stipend	None

The ASU Math-Science Program was initiated in 1985 by Professor Joaquin Bustoz. Two hundred minority high-school students throughout Arizona who have expressed an interest in mathematics or science are intensively recruited into two five-week and one eight-week summer program on the ASU campus. They are enrolled in ASU for-credit mathematics courses ranging from Algebra through Calculus and combinatorics, and in science courses such as general chemistry. In addition students also attend presentations by ASU scientists. Once chosen, students can reapply each summer until they graduate from high school if they maintain a B average. ASU students who have previously participated in the program serve as dormitory counselors and tutors. Program staff visit the home of each participating student and explain the program aims to the parents (and student). Program staff speak languages appropriate for these visits (Spanish, Navajo). Parents are urged to visit their children on the campus during the program. These visits are critical. Sixty of the 1989/1990 participants who subsequently enrolled at ASU with mathematics-based majors have a mean GPA of 2.89.

Mathematics & Computer Program for the Pima Reservation

Department of Mathematics
Arizona State University
Tempe, AZ 85287-1804

Type of Project	Commuter
Recruitment Area	Pima reservation 100% minority
Total Students/Grades	70 (Pima) /5th-8th 100% minority
Total Staff	1 Faculty + 12 support staff 4 Graduate Students 23 Undergraduates 90% minority
Application Deadline	None
Project Dates	June 7 - July 2, 1993
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

Dr. Joaquin Bustoz

Office
602/965-3791

FAX
602/965-0333

A four-week intensive summer mathematics program is conducted for St. Peters' 4th-7th grade students. Course content, instructional materials, and the approach of this program emphasizes hands-on activities, the use of manipulatives and visual models, and builds on students' prior knowledge. Computer literacy and the use of calculators is emphasized. Instruction is dynamic; constantly modified to meet the emerging needs of students. ASU staff and St. Peters' faculty will teach this course.

All St. Peters' 8th grade students attend this mathematics enrichment program. The program is designed to increase students' awareness of career opportunities in mathematics, science and technology, and illustrate that mathematics can be fun and challenging without being intimidating. A learn-by-doing approach is employed. Calculators are used extensively and students apply their new computer knowledge. Academic course work is augmented by special presentations about investigative efforts conducted at ASU by mathematics and science faculty.

MathStart

Mathematics and Computer Science Department
Armstrong State College
11935 Abercorn St.
Savannah, GA 31419

Dr. Ed Wheeler

Office
912/927-5317

e-mail
erw@pirates.armstrong.edu

Type of Project	Commuter
Recruitment Area	Savannah, Georgia 100% minority
Total Students/Grades	30 (minorities) / 8th 100% minority
Total Staff	2 Faculty 2 Undergraduates 1 High School Teacher 60% minority
Application Deadline	March 21, 1993
Project Dates	June 21- July 30
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

MathStart is a summer program initiated by the Mathematics and Computer Science Department of Armstrong State College in the summer of 1990. A group of approximately 30 African-American students who are rising eighth graders and have given evidence of strengths in mathematics spend three hours each day for six weeks on the Armstrong campus. The primary focus is individual and group discovery exercises built around the theme, "Mathematics: A Language of Patterns." These exercises are drawn from the study of number sequences, pattern recognition, plane geometry, solid geometry, number theory, and problem solving.

In addition to enrichment activities in mathematics, the students meet regularly with African-American professionals in science and mathematics, compete in problem solving tournaments, hear lectures and see laboratory demonstrations from a variety of scientific disciplines.

Intensive Summer Science Program

Mathematics & Computer Science Department
Bennett College
900 East Washington Street
Greensboro, NC 27401-3239

ISSP

Type of Project	Residential
Recruitment Area	National 100% minority
Total Students/Grades	150 (minorities) / 9th-12th 100% minority
Total Staff	14 Faculty 1 Graduate Student 2 High School Teachers 100% minority
Application Deadline	May 31, 1993
Project Dates	June 20 - July 16
Cost to the Student	$600
Scholarship Availability	Limited
Stipend	None

Dr. Nellouise D. Watkins

Office
919/370-8648

FAX
919/378-0511

The first Intensive Summer Science Program (ISSP) was conducted in 1983 through funding initially provided by the Ford Foundation. ISSP/PREP is a four week college resident program for 9th - 12th grade students designed to help minority and women students make their mathematics functional, to provide them instruction in the sciences, to enhance their communication skills and to make them computer literate for careers in an information-based society. Courses are offered in mathematics (Algebra I, Geometry, Pre-Calculus, Calculus), science (Physical Science, Biology, Chemistry, Physics), communication skills and programming in BASIC and Pascal. Students meet guest speakers, make presentations before their peers and take field trips.

The ISSP/PREP program is a joint project sponsored by Bennett College and North Carolina A&T State University in Greensboro, North Carolina. Over 1000 students have matriculated. The percentage of students attending college majoring in the sciences, mathematics or engineering is over 76%.

Intensive
Summer
Science
Program

PROMYS

Program in Mathematics for Young Scientists

Department of Mathematics
Boston University
111 Cummington Street, Rm 142
Boston, MA 02215

Dr. Glenn Stevens

Office
617/353-2563

FAX
617/353-8100

e-mail
promys@math.bu.edu

Type of Project	Residential
Recruitment Area	National
Total Students/Grades	60 / entering 10th-12th 10% minority
Total Staff	7 Faculty 1 Graduate Student 18 Undergraduates 10% minority
Application Deadline	June 1, 1993
Project Dates	June 27- August 7
Cost to the Student	$1,250
Scholarship Availability	Yes
Stipend	Available on need basis

PROMYS offers a lively mathematical environment in which ambitious high school students explore the creative world of mathematics. Through their intensive efforts to solve a large assortment of unusually challenging problems in number theory, the participants practice the art of mathematical discovery--numerical exploration, formulation and critique of conjectures, and techniques of proof and generalization. More experienced participants may also study group theory, dynamical systems, and Bernoulli numbers and zeta functions. Field trips and special lectures by outside speakers offer a broad view of mathematics and its role in the sciences.

PROMYS was founded at Boston University in 1989 by alumni of Arnold Ross's highly successful program that has operated at Notre Dame and more recently at the Ohio State University since 1958. PROMYS aims to continue the Ross tradition of helping young people develop the habits of inquisitive exploration that are so vital to creative research in mathematics and science.

Science and Technology Enrichment Program

Department of Mathematics
California State University, Dominguez Hills
Carson, CA 90747

STEP

Type of Project	Commuter
Recruitment Area	Compton Unified School District 100% minority
Total Students/Grades	40/7th (depending on funding) 100% minority
Total Staff	2 Faculty 4 Undergraduates 8 Middle School Teachers 50% minority
Application Deadline	May 15, 1993
Project Dates	July 12-29
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

Dr. Eunice Krinsky

Office
310/516-3391

FAX
310/516-3627

e-mail
ekrinsky@dhvx20.csudh.edu

STEP is a summer and academic year program for middle school students. The program began with 20 students in 1985 and has grown to accomodate between 150 and 200 students each summer. The participants have opportunities to experience the beauty and fascination of our scientific world. The three week summer institute offers courses in mathematics and science which are designed to reinforce students' understanding of science while also encouraging creativity by having them work on selected topics and projects. The intent of each course is to provide an enrichment experience for the student with many chances for them to have the experience of "doing math or science." The most important feature of the summer camp classes is the fact that each is a hands-on, active participation experience for the students. The aim of each class is to achieve a high level of involvement in the learning experience among the participants. The academic year component continues their explorations through sessions with visiting scientists, special activity groups, and field trips.

MISS

Mathematics Intensive Summer Session

Department of Mathematics
California State University, Fullerton
Fullerton, CA 92634

Dr. David Pagni

Office
714/773-2671

FAX
714/449-5390

e-mail
dpagni@fullerton.edu

Type of Project	Residential
Recruitment Area	Orange County, CA 50% minority
Total Students/Grades	44 (minority-focused) / 12th 80% minority
Total Staff	2 Faculty 4 Graduate Students 2 High School Teachers 50% minority
Application Deadline	May 1993
Project Dates	July 6 - 30
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$200

MISS

July 8 - August 2, 1991
California State University, Fullerton

MISS was initiated in 1990 to address the needs of female high school juniors who were college bound and succeeding in all courses except mathematics. The project wanted to show that through an intensive mathematics experience students could regain the confidence and skills needed to succeed in Algebra II, the gatekeeper to college entrance in California. Students study mathematics for six hours a day during the month of July. Technology in the form of graphing calculators and a rich learning environment with plenty of support has turned the tide for many students who had previously achieved dismal grades in mathematics. Upon returning to high school for their senior year, most made grades or "C" or better in Algebra II. Many have continued on to precalculus and a few are taking calculus the next year.

Young Scholars Modern Mathematics Program

Department of Mathematics
California State University, Los Angeles
Los Angeles, CA 90032

Dr. Rodolfo Tamez

Office
213/343-2161

Type of Project	Commuter
Recruitment Area	Los Angeles area 65% minority
Total Students/Grades	50 (minority-focused)/10th-12th 65% minority
Total Staff	2 Faculty 10 Graduate Students 6 Undergraduates 4 High School Teachers 50% minority
Application Deadline	May 30, 1993
Project Dates	July 1 - August 1
Cost to the Student	None
Scholarship Availability	Scholarships available
Stipend	Based on financial need

California State University, Los Angeles offers a 4 1/2 week program in mathematics beginning in July. Lectures are offered in aspects of modern mathematics such as number theory and group theory. Guest speakers discuss recent developments in mathematics in areas such as cryptography and non-Euclidean geometry. Speakers from industry discuss rewarding and challenging careers in mathematics and science. Graduate counselors and teaching assistants help students with specially designed problem sets.

STEPEE

Step to College/Educational Equity

Department of Mathematics
California State University, Sacramento
Sacramento, CA 95819-6051

Dr. Lloyd Gavin

Office
916/278-7116

Type of Project	Enrichment/Advanced Placement
Recruitment Area	Sacramento County 20% minority
Total Students/Grades	42/9th-12th 87% minority
Total Staff	3 Faculty 48 High School Students 33% minority
Project Dates	Academic year
Cost to the Student	$5 application fee
Scholarship Availability	Not applicable
Stipend	Not applicable

Step-To-College is a California State University System program designed to provide high school students an opportunity to enroll in a college course for college credit. Step-To-College/Educational Equity (STEPEE) is a CSU Sacramento program designed to provide minority high school students enrolled at Sacramento's high schools with diverse student enrollments with an opportunity to take college courses for college credit. All STEPEE courses are taught on the targeted high school campuses by CSUS Arts and Sciences professors

The intent of STEPEE is to encourage minority students to pursue a college education by allowing them to take a college course in the nonthreatening surroundings of their high school world. Other activities of STEPEE include teaching language skills, counseling identified students with college potential, encouraging students to take college entrance exams and providing field trips to cultural events on CSUS's campus.

Middle School Mathematics and Science at San Marcos

Department of Mathematics
California State University, San Marcos
San Marcos, CA 92069

$(MS)^2(SM)$

Type of Project	Commuter
Recruitment Area	North San Diego County
Total Students/Grades	50 (minorities) / 7th 100% minority
Total Staff	3 Faculty 1 Graduate Student 4 Undergraduates 1 High School Teacher 1 High School Student 50% minority
Application Deadline	May 1993
Project Dates	July 5 - 30
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

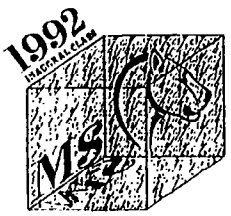
Dr. Carolyn Mahoney

Office
619/752-4090

FAX
619/752-4030

e-mail
CMAHONEY@CSUSM.edu

California State University is the newest campus in the CSU system, established in 1989. An essential component of the actualization of CSUSM's mission, Middle School Mathematics and Science at San Marcos $(MS)^2(SM)$, opened in the summer of 1992. Each year $(MS)^2(SM)$ will select 50 low-income underrepresented sixth grade students to participate in year-round educational opportunities and support. During each of their six summers in the program, students will attend a four week camp staffed by university and community college faculty and pre-college teachers. Students will use calculators and computers as they develop the critical thinking and problem-solving skills that form the basis for mathematical and scientific work. Participants will enjoy frequent field trips to interact with professional mathematicians and scientists, and will be mentored by academic or industrial scientists and local college students. Parental involvement is supported in all project phases.



MIDDLE SCHOOL MATH & SCIENCE AT CAL STATE SAN MARCOS (MS)²(SM)

GAMES	**The Girls and Mathematics Equals Success Experience** Department of Mathematics Christopher Newport College Newport News, VA 23606	
Dr. Stavroula K. Gailey Office 804/594-7081 FAX 804/594-7772	Type of Project Recruitment Area	Commuter Virginia Peninsula 50% minority
	Total Students/Grades	30 (girls only) / 7th-8th 50% minority
	Total Staff	8 Faculty 4 Undergraduates 5 High School Teachers 35% minority
	Application Deadline	April 1, 1993
	Project Dates	July 1 - July 30; First Saturday of every month during academic year
	Cost to the Student	None
	Scholarship Availability	Not applicable
	Stipend	$100 per student

Christopher Newport University conducts a four-week, commuter, Young Scholars (EAI) project in mathematics for 30 female students entering 7th and 8th grade.

The goals of the project are (1) increasing the participants' knowledge of mathematics by providing activities for "doing" mathematics; (2) looking ahead to higher education in terms of the needed middle/secondary school mathematics preparation, admissions, and costs; (3) career counseling about mathematics-based fields including interaction with female practitioners in these areas; (4) helping participants overcome internal and external sociocultural barriers to mathematics; (5) awareness activities for the participants' parents, counselors and teachers in order to strengthen support for student interest in mathematics. Activities include visits to NASA, CEBAF, and workshops developed by the Goudreau Mathematics Museum.

Accelerated Mathematics Support Project

Cleveland Heights High School
13263 Cedar Road
Cleveland Heights, OH 44118-2988

Mark Wessels

Office
216/371-7100

FAX
216/371-6506

Home
216/321-2699

Type of Project	Commuter
Recruitment Area	Cleveland Heights-University Heights City School district 68% minority
Total Students/Grades	115/8th-9th 99% minority
Total Staff	1 Faculty 8 Undergraduates 11 junior instructors (high school students) 10 assistants (9th grade students) 2 volunteers (high school students) 100% minority
Application Deadline	June 5, 1992
Project Dates	June 29-July 31
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

The Cleveland Heights-University Heights AMSuP was developed in 1991 by high school mathematics teacher Mark Wessels and Heights High graduates to encourage more African-American students to enroll in the accelerated mathematics sequence offered by the district. The program accelerates the students before 8th grade and provides support during the school year. During a five week, half day summer program, algebra is introduced in a small group setting with high school and college student instructors. The same older students provide help during the school year in after school tutoring sessions. The second year students review algebra concepts and are introduced to formal geometry. An introduction to probability, logic, and group theory is also included for both groups. Emphasis is placed on study skills through the use of mathematics. No academic entrance requirements are made.

Young Scholars Mathematics Workshop in the Rockies

Department of Mathematics
Colorado College
Colorado Springs, CO 80903

Dr. Michael Siddoway; Dr. Reinhard Laubenbacher

Office
719/389-6541

FAX
719/389-6841

e-mail
msiddoway%ccnode
@colorado.bitnet

Type of Project	Residential
Recruitment Area	National 60% minority
Total Students/Grades	22 / 12th 50% minority
Total Staff	2 Faculty 2 Graduate Students 2 Undergraduates
Application Deadline	May 7, 1993
Project Dates	June 7 - June 25
Cost to the Student	Travel expenses
Scholarship Availability	10 travel scholarships
Stipend	10 awarded up to $150

The Workshop explores mathematics through the solution of some of the great problems which have fueled its development. An emphaisis will be placed on problem solving and the process of mathematical discovery. Studies will center on the areas of number theory, theory of equations, and problem of areas.

Ohio Pre-Freshman Reinforcement and Enhancement Program: Renewable Energy Technology Project

Department of Mathematics, Cuyahoga Community College
Cleveland, OH 44115

OHPREP

Type of Project	Commuter
Recruitment Area	Ohio 20% minority
Total Students/Grades	50 (minority-focused)/5th-12th 81% minority
Total Staff	5 Faculty 1 Graduate Student 5 Undergraduates 2 High School Teachers 2 High School Students 80% minority
Application Deadline	March 6, 1992
Project Dates	June 20 - August 29
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	To be determined

Professor Gaston Ndyajunwoha

Office
216/987-4562

FAX
216/987-4404

The Greater Cleveland Renewable Energy Technology Project was launched in 1992 by Cuyahoga Community College in consultation with NASA's Technology Utilization Unit, the Texas PreFreshman Engineering Program, the National Technical Association (Cleveland Chapter), area colleges and universities, representatives of the US renewable energy industry, and businesses.

Academic enrichment and energy-related career awareness activities, use of cooperative learning, hands-on and research-methodology teaching and learning strategies, high expectations for teachers and students, a supportive learning environment, guardian/parental involvement in the African-centered educational process, multi-year involvement of students and renewable energy technology transfer/export are the key elements of this program.

This program is part of the Greater Cleveland Science, Engineering and Mathematics Center's initiative to maintain about 1,700 minority students annually in the K-12 segment of the science, engineering and mathematics (SEM) pipeline with the expectation that at least 80% will successfully complete college-track courses, graduate and pursue SEM degrees in college.

Corpus Christi PREP	**Corpus Christi Prefreshman Engineering Program** Mathematics Department Del Mar College Corpus Christi, TX 78404

Dr. William Mareth

Office
512/886-1570

FAX
512/886-1182

Type of Project	Commuter
Recruitment Area	Corpus Christi 57% minority
Total Students/Grades	190 (minority-focused) /8th-10th 85% minority
Total Staff	16 Faculty 4 Graduate Students 8 Undergraduates 32% minority
Application Deadline	March 5, 1993
Project Dates	June 5 - July 30
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend (Lunch)	Available for 40 individuals

Corpus Christi PREP was started in 1987 as a satellite of the San Antonio PREP program. High achieving students from grades 7-9 are identified and recruited for the eight-week summer program. Goals of the program include stimulating student interest in mathematics, science, and engineering; increasing their awareness of mathematics-based careers; increasing their computer literacy; and improving their reasoning and problem-solving skills. CC PREP has two components: the first-year students study mathematical logic, programming in Pascal, principles of engineering, and engineering problems; the second-year students study algebraic structures (mostly finite models), graphical analysis and solution of problems, engineering, and Pascal. Students also meet guest scientists and engineers who give presentations, and the students go on 3-4 field trips during the eight weeks.

Historically, 78% of our students have been minority and 49% have been young women. We have had 361 students to complete at least one year of PREP since 1987. Of the 361, there were 73 of college age last summer. Of the 73, we were able to contact 57, all but two of whom were in college. Of the 55, there were 37 mathematics, engineering or science majors.

El Paso Prefreshman Engineering Program

Department of Mathematics
PO Box 20500
El Paso Community College
El Paso, TX 79998

El Paso PREP

Type of Project	Commuter
Recruitment Area	El Paso County, TX 72% minority
Total Students/Grades	71 (minority-focused)/7th-12th 96% minority
Total Staff	4 Faculty 1 Graduate Student 8 High School Students 75% minority
Application Deadline	March 29, 1993
Project Dates	June 15-August 6
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Available on need basis

Dr. Sam Self

Office
915/534-4081

FAX
915/534-4114

El Paso PREP was organized at the El Paso Community College in 1988 for the purpose of identifying high achieving minority middle school and high school students in order to provide them with academic enrichment to pursue careers in mathematics, science, and engineering. During the intense eight-week mathematics-based summer session students study logic, algebraic structures, probability and statistics, physics, computer science, engineering, and technical writing. Abstract reasoning and problem solving skills are developed through coursework, assignments, examinations, and laboratory projects. Students meet guest speakers and take field trips to learn about careers in mathematics, science, and engineering.

Over 143 students have completed one summer of El Paso PREP. Of them 96% have been minority and 54% women. The high school graduation rate is 100%.

Summer Studies in Mathematics

Hampshire College
Box NS
Amherst, MA 01002

Dr. David C. Kelly

Office
413/549-4600 x375

FAX
413/549-0707

e-mail
dkelly@hamp.hampshire.edu

Type of Project	Residential
Recruitment Area	National
Total Students/Grades	50-60/10th-12th
Total Staff	4 Faculty 3 Graduate Students 4 Undergraduates
Application Deadline	Rolling admissions
Project Dates	July 4 - August 14
Cost to the Student	$1224
Scholarship Availability	Yes
Stipend	Based on need

the 22nd
HAMPSHIRE COLLEGE
SUMMER STUDIES
IN MATHEMATICS

HAMPSHIRE COLLEGE
SUMMER STUDIES
IN MATHEMATICS

Hampshire College, Amherst, Massachusetts
With the support of the National Science Foundation

Since 1971, Hampshire College has hosted Summer Studies in Mathematics. With the anticipated support of the National Science Foundation, we look forward to again inviting 50-60 highly motivated and talented students for a stimulating six-week encounter with mathematics in an intense, demanding, and rewarding atmosphere. Working in small classes, led by college and university faculty with the assistance of graduate students and talented undergraduate math majors, participants will actively engage in the processes of mathematical thought. We will investigate a wide range of problems, seeking patterns, making conjectures in the language of mathematics, and cooperatively creating proofs.

The daily schedule includes four hours of classes each morning and informal evening problem sessions. Our afternoons are left free for relaxation and recreation.

Applicants are asked to write a letter describing their interest in mathematics, to obtain the sponsorship of a teacher, and to work on our "Interesting Test."

Summer Science Camp in Mathematics for Rising 7th grade Underrepresented Minority Students and Girls

Hampton University
Hampton, VA 23668

SSCM

Type of Project	Commuter
Recruitment Area	Hampton and Newport News area 35% minority
Total Students/Grades	45 (minorities)/7th
Total Staff	3 Faculty 1 Graduate Student 3 Undergraduates 3 High School teachers
Application Deadline	March 1, 1993
Project Dates	July 5-23
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	None

Dr. Ann E. Trahanovsky-Orletsky

Office
804/727-5549

FAX
804/722-4130

The Hampton University will initiate a four-week Summer Science Camp in Mathematics for 48 rising 7th grade students. The 1st week of the project will provide an opportunity for four middle school teachers, intern instructors, to work with the college professors. In addition, a parent or guardian of the participants will also attend these first week activities. The next three weeks will be devoted to providing enrichment experiences, instruction and activities for rising 7th grade students.

Daily instruction in geometry, probability and statistics in an experimental mode with emphasis on scientific research methodology will be the main focus. Problem-solving techniques, the graphic calculator and the computer will be used. Students will also learn: study skills and writing for success in mathematics; overcoming mathematics anxiety; careers and people in mathematics. Local field trips will be conducted to business and professional operations. Guest speakers will provide information on exciting careers in mathematics.

There will be four follow-up activities held on campus on Saturdays: two in the Fall and two in the Spring. They will include minds-on and hands-on activities developed and presented by the students using the skills and techniques acquired during the Summer Science Camp. Additional classroom/laboratory activities will be presented by the professors.

Austin PREP	**Austin Prefreshman Engineering Program** Austin PREP Huston-Tillotson College 1820 East 8th Street Austin, TX 78702

Dr. General Marshall

Office
512/476-7421 x274

FAX
512/474-0762

Type of Project	Commuter
Recruitment Area	Austin 35% minority
Total Students/Grades	70 (minority focused)/7th-11th
Total Staff	2 Faculty + 4 officers 1 Graduate Student 4 Undergraduates 1 High School Teacher 38% minority
Application Deadline	April 15, 1993
Project Dates	June 7-July 30
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Available based on need

Austin Prefreshman Engineering Program was organized in 1990 for the purpose of identifying high achieving middle and high school students interested in science and engineering careers. Female and minority students are targeted. During an eight-week session, students are provided challenging academic enrichment activities which are mathematically based. Students study logic, physics, algebraic structures, probability and statistics, computer science, engineering, problem solving, technical writing, and research and study. Abstract reasoning and problem solving skills are reinforced through assignments, examinations, and projects. Students meet guest speakers and take field trips to learn about careers in mathematics, science, and engineering. In the past field trips have included Austin-based firms such as the University of Texas at Austin Engineering Schools, Microelectronics & Computer Technology Corporation, Sematech, Motorola, and the Balcones Research Center.

103 students have completed at least one summer in the program. The first high school graduates will be in the Class of 1993.

Mathematics for Everyone Workshops

Department of Mathematics
Jackson State University
Jackson, MS 39217

Type of Project	Residential	**Ms. Edna Holbrook**
Recruitment Area	60 mile radius of Jackson State University 42% minority	Office 601/968-2161
Total Students/Grades	36 (minority-focused)/7th-9th 90% minority	FAX 601/968-2718
Total Staff	2 Faculty 1 Graduate Student 6 Undergraduates 1 High School Teachers 94% minority	
Application Deadline	April 30, 1992	
Project Dates	July 13-August 3	
Cost to the Student	None	
Scholarship Availability	Not applicable	
Stipend	$10 a week	

The Mathematics for Everyone Workshop Series began on the Jackson State University campus in the summer of 1991. The workshop series funded by the National Science Foundation is designed to encourage mathematically promising middle school students to take the high school mathematics courses necessary for careers in mathematics or science. The three week summer session and the monthly academic year workshops are composed of numerous learning activities designed to teach mathematical concepts while highlighting the enjoyment and challenge of mathematics. During the summer, participants study mathematics through its application to such areas as biology, engineering and physics. The academic year workshops expose students to such mathematical topics as topology, number theory and non-Euclidean geometry. Participants also examine the accomplishments of African-Americans and women in mathematics and science. Learning activities include experiments, math-fair-type projects, field trips and interaction with mathematicians in a variety of occupations.

AYAM	**Academic Year Academy in Mathematics** Department of Mathematics James Madison University Harrisonburg, VA 22807

Dr. Diane Spresser

Office
703/568-6184

FAX
703/568-6920

e-mail
fac-spresser@
vax1.acs.jmu.edu

Type of Project	Commuter
Recruitment Area	Virginia Shenandoah Valley 5% minority
Total Students/Grades	I: 100; II: 20 (minority-focused)/ 6th-12th 20% minority
Total Staff	3 Faculty 16 High School Teachers 5% minority
Application Deadline	September 30, 1993
Project Dates	I: Academic year (students); II: July 6-24 (teachers)
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Available based on financial need

A Y A M

The James Madison University Academic Year in Mathematics (AYAM) is a new project designed to increase mathematical opportunities for middle school and high school students, especially minority students. AYAM is also intended to (a) provide assistance to teachers of grades 6-12 with new curricular materials, especially in discrete mathematics, for small groups of students in a cooperative learning environment; and (b) integrate calculators and computer technology in mathematics. Teachers establish small groups of five or six students, self-selected from individual academic-year mathematics classes in grades 6-12. Each student group meets with the teacher on a regular basis in its own school throughout the academic year for enrichment activities in discrete mathematics; activities include field trips and career counseling to encourage further study of mathematics and science. Each group produces at least one group project in mathematics for oral and written presentation.

Summerscience

P.O. Box 599
Lawrence University
Appleton, WI 54912-9986

Type of Project	Residential
Recruitment Area	United States
Total Students/Grades	15 (per class)/11th-12th
Total Staff	1 Faculty 2 Undergraduates
Application Deadline	May 15, 1993
Project Dates	June 20-July 2
Cost to the Student	$795
Scholarship Availability	Based on financial need
Stipend	Not applicable

Diana Janssen, Coordinator;
Prof. Richard Sanerib

Office
800-227-0982

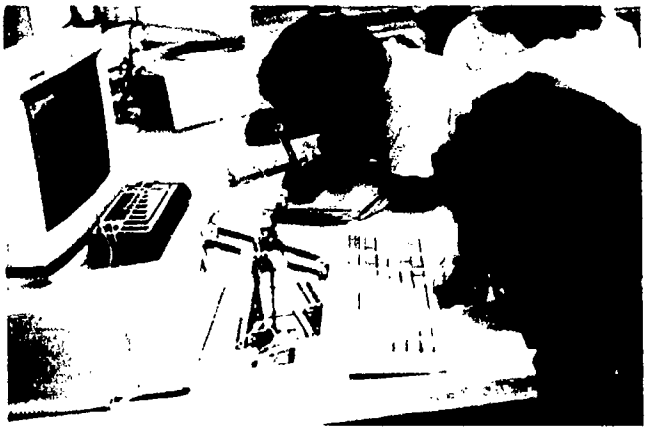
FAX
414-832-6782

The Summerscience Program at Lawrence University presents motivated high school juniors and seniors with the opportunity to explore and investigate topics in science and mathematics not traditionally offered in high school. Students interact with Lawrence faculty in one of five areas: biology, chemistry, geology, mathematics/computer science, and psychology. Students successfully completing the two weeks of course work and independent study are awarded two semester hours of college credit. Summerscience began in 1988 with 22 students; in 1992, some 66% of the 48 Summerscience students were women and 17% were minorities.

Specifically, the Summerscience Math/Computer Science course focuses on recursion and symmetry and the beauty and precision of mathematical theory and its application. No previous computer experience is assumed.

LOYOLA/ASPIRA PREP	**Loyola/Aspira Pre-Freshman Enrichment Program** Department of Mathematical Sciences Loyola University of Chicago Chicago, IL 60626	
Dr. Dale Reed **Dr. Eric Hamilton** Office 312/508-3567 FAX 312/508-3514 e-mail reed@math.luc.edu	Type of Project	Commuter
	Recruitment Area	Chicago (Humboldt Park) 82% minority
	Total Students/Grades	36 (bilingual: English/Spanish)/ 7th-9th 100% minority
	Total Staff	2 Faculty 3 Undergraduates 3 High School Students 82% minority
	Application Deadline	April 15, 1993
	Project Dates	June 28- August 3
	Cost to the Student	None
	Scholarship Availability	Not applicable
	Stipend	$120

Loyola University of Chicago, in conjunction with Aspira of Illinois, offers a bilingual (English/Spanish) six week, commuter program integrating computer science, engineering, and physics for thirty-six Hispanic students. Students are provided with interest-stimulating experiences which enable and motivate them to take college-preparatory courses in science, engineering, and mathematics. The summer session is reinforced by a thirteen-week academic year session.



The interdisciplinary activities begin with an introduction to basic computer architecture, after which students assemble IBM-compatible microcomputers for subsequent use in the program. Each week students are guided through experiments in three labs: Digital electronics, Computer science, and Engineering design using computers to control small mechanical devices the students build. The summer session includes career-oriented field trips to universities, businesses, and research centers. Students are granted a high school course credit through the Chicago Public Schools.

Now in its second year, Loyola/Aspira PREP is part of the Access 2000 network, an NSF Comprehensive Regional Center for Minorities.

NSF/Loyola University Young Scholars Project

Department of Mathematical Sciences
Loyola University of Chicago
Chicago, IL 60626

YSP

Type of Project	Commuter
Recruitment Area	Chicago 50% minority
Total Students/Grades	40 (minority-focused)/11th-12th 60% minority
Total Staff	2 Faculty 2 Graduate Students 1 Undergraduate 2 High School Students 30% minority
Application Deadline	May 1, 1993
Project Dates	July 5 - August 13 Academic year Saturdays
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$275 plus a computer

Dr. Eric Hamilton

Office
312/508-3582

FAX
312/508-2385

e-mail
erh@dedekind.math.luc.edu

The precursor of the Young Scholars Project was designed by Eric Hamilton for Northwestern University's Center for Talent Development in 1984. NSF began funding an amplified version at Loyola University in 1987. The project integrates computer science, mathematics and physics for forty high school juniors and seniors. Students perform labs in digital electronics, engineering and computer architecture under a research physicist. They receive a mathematically-enriched introduction to programming. The project involves a rigorous summer session followed by Saturday morning classes during the school year. The summer includes visits to various R&D and production facilities.

After finishing the project, participants keep IBM-compatible computers, assembled in the electronics lab, and take the Advanced Placement Computer Science examination. The project accounts for approximately half of the Illinois African-American and Hispanic students who take the AP Computer Science AB test. The YSP has been replicated as a bilingual project for middle school students with DOE/PREP funding, as well as for high school students under a DOE Math/Science Leadership Award.

CHAMP

Cooperative Highly Accelerated Mathematics Program

A315 Wells Hall
Michigan State University
East Lansing, MI 48824

Dr. Peter Lappan

Office
517/353-3832

FAX
517/336-1562

e-mail
21144pal@msu.bitnet

Type of Project	Commuter
Recruitment Area	Lansing, MI and vicinity 10% minority
Total Students/Grades	80 (midwest talent search)/ 7th-10th 12% minority
Total Staff	4 Faculty 5 Graduate Students 3 Undergraduates
Application Deadline	May 10, 1993
Project Dates	Academic year
Cost to the Student	$125
Scholarship Availability	None
Stipend	None

In operation since 1986, CHAMP is a two-year academic program designed to allow mathematically gifted students to master within a two-year period the standard high school mathematics curriculum. CHAMP covers the equivalent of one year of high school mathematics in each of its four semesters. CHAMP courses are taught one afternoon each week on the campus of Michigan State University by mathematics professors. Students in CHAMP receive high school credit for CHAMP courses. Students qualify for CHAMP on the basis of SAT scores. The minimum qualifying scores are SAT-Math 500 and SAT-Math + Verbal 900. These scores must be attained before the completion of the 8th grade.

Of the more than 230 students who have attended CHAMP, approximately 12% are minority and 35% are women. Most of the approximately 150 students who have completed CHAMP have studied Calculus, and of those who are now in college, more than half are majoring in mathematics, science, or engineering.

Summer Mathematics Program for Michigan Minority Youth

Department of Mathematics
Michigan State University
East Lansing, MI 48824

Type of Project	Residential
Recruitment Area	Michigan
Total Students/Grades	60/7th-8th; 20/9th-11th 100% minority
Total Staff	6 Faculty 1 Graduate Student 12 Undergraduates 7 High School Teachers 76% minority
Application Deadline	March 31, 1993, pending funding
Project Dates	June 20-July 30
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$200-$300

Dr. Irvin E. Vance

Office
517/353-4693

FAX
517/336-1562

e-mail
21144iev@msu.BITNET

The Summer Mathematics Program for Michigan Minority Youth is one of eleven programs of the Michigan Minority Mathematics-Science Project (MMM-SP) at Michigan State University. The program brings eighty African-American, Hispanic-American, and Native American middle and high school students to campus for a six-week comprehensive program. The students study mathematics, science (physics, chemistry, or biology), computer science, and written and oral communications. Mathematical problem-solving, hands-on science and the use of technology in solving problems are features of the academic program. Counseling, guidance, career exploration, and field trips related to academic programs are included. Parents and guardians of participants must agree to participate in workshops designed to assist them in guiding minority youth through the mathematics and science pipelines. Academic year activities include conferences on campus involving parents/guardians and mentors; and staff visits to the schools of participants. Students may participate for three years. All prior participants are invited to attend academic year conferences.

PAC	**Program for Acceleration in Math & Computer Science Careers for Minority Students** Monmouth College 29 Hillsdale Ave. Long Branch, NJ 07740	
Ms. Mary Gilmore Office 908/229-7649	Type of Project	Commuter
	Recruitment Area	Local area
	Total Students/Grades	129 (minority-focused)/3rd-12th 90% minority
	Total Staff	18 Faculty 2 Graduate Students 4 Undergraduates 2 High School Teachers 37 High School Students 90% minority
	Application Deadline	Ongoing as space is available
	Project Dates	Two 10-week sessions during academic year
	Cost to the Student	None
	Scholarship Availability	Not applicable
	Stipend	Not applicable

PAC was started in September 1984. The program was established in response to a growing awareness that Blacks and Hispanics are acutely underrepresented in the high technology professions. The program consists of mathematics development to strengthen basic skills and introduce mathematics required for understanding computer science; computer science development to establish literacy and hands-on experience; and tutoring/counseling to address remedial areas, to improve work ethic attitudes, to improve self images, and to identify minority role models. Field trips are scheduled to high technology companies.

SummerMath

302 Shattuck Hall
Mount Holyoke College
South Hadley, MA 01705

Type of Project	Residential
Recruitment Area	National 35% minority
Total Students/Grades	100/8th-12th 41% minority female
Total Staff	9 Faculty 12 Graduate Students 9 Undergraduates 20% minority
Application Deadline	June 1, 1993
Project Dates	June 27 - August 7
Cost to the Student	$3,300 for boarding
Scholarship Availability	Through cooperating schools
Stipend	None

Dr. Charlene Morrow
Dr. James Morrow

Office
413/538-2608

FAX
413/538-2391

e-mail
cmorrow@mhc.bitnet

SummerMath is an intensive, six-week program that provides new perspectives and new experiences in mathematics, computing, and science for young women. The program emphasizes greater conceptual understanding and affirmation of young women as capable members of a learning community. Students at Summer Math actively engage in problem solving and justify their means of solution. The atmosphere of the program is one of challenge and support: the challenge of rigorous study and of justifying thinking about difficult problems and the support of a community of teachers, residential staff, and peers. SummerMath helps students become independent, but not isolated, learners. In this way, students acquire confidence in their ability to excel. SummerMath completed its first decade in 1991 and currently enrolls over 100 students, recruited nationally and internationally. New in 1992 is a Senior Focus component, designed to help students with the transition to college. The program has been greatly enhanced in pedagogy and in personnel by the rich resources of the Five Colleges.

YSP	**Young Scholars Summer Science Camp** Department of Mathematics and Computer Science Northern Kentucky University Highland Heights, KY 41099

Dr. Linda Sheffield, Co-Director

Office
606/572-5431

FAX
606/572-5566

e-mail
in%"sheffield$L@nkuvax"

Type of Project	Commuter
Recruitment Area	Northern Kentucky, Southern Ohio, Southeast Indiana 10% minority
Total Students/Grades	40/8th-9th 50% female and 15% minority
Total Staff	2 Faculty 1 Graduate Student 2 Undergraduates 2 High School Teachers
Application Deadline	April 9, 1993
Project Dates	June 14 - July 9
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Available for transportation

The NKU-YSP was begun with funding from NSF in 1988 with the goal of encouraging high-ability, high-potential students to take more mathematics and science in high school and to continue with careers in technical fields. The program consists of a four-week Summer Science Camp and school-year Saturday programs. The Summer Science Camp is built around the theme of Space and Aeronautics and integrates mathematics, physics and engineering in problem solving and experimental situations. Mathematics topics include logic, geometry, trigonometry, statistics, algebra and computer programming. Students enjoy weekly field trips and speakers.

Each year, the program has 40 eighth and ninth grade students, 50% of whom are female and 10-25% of whom are ethnic minorities or students with disabilities. Eleven of the students from the first year are currently completing their first year of college, many of them on full scholarships. All but two of these students are majoring in technical fields. All high school Young Scholars are enrolled in mathematics and science.

Occidental Partnership to Increase Mathematics Opportunity

Department of Mathematics
Occidental College
Los Angeles, CA 90041-3392

OPTIMO

Type of Project	Residential
Recruitment Area	Northeast Los Angeles, west Pasadena, south Glendale
Total Students/Grades	32 (minority focused)/8th-9th 75% minority
Total Staff	4 Faculty 6 Undergraduates
Application Deadline	April 30, 1993
Project Dates	July 11-August 7
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$200

Dr. Donald Goldberg

Office
213/259-2822

FAX
213/259-2958

e-mail
don@oxy.edu

OPTIMO began in the summer of 1993 with 16 students. Working in small teams led by a college mathematician and college students, OPTIMO students work on problems related to algebra, geometry, and numbers. Students are encouraged to seek patterns, to reason carefully, and to write and speak clearly. Some problems build on students' recent study of beginning algebra; other allow students to explore, invent, and discover.

In addition to learning and problem-solving in mathematics, students gain hands-on experience using computers and calculators to explore mathematical questions. Students are encouraged to work on individual problems to present to each other and to prepare a journal of their work.

RYSP	**Ross' Young Scholars Program** Department of Mathematics 231 West 18th Avenue Ohio State University Columbus, OH 43210-1174	
Dr. Arnold Ross Office 614/292-1569 FAX 614/292-1479 e-mail aer@mps.ohio-state.edu	Type of Project Recruitment Area Total Students/Grades Component I Component II Total Staff Application Deadline Project Dates Cost to the Student Scholarship Availability Stipend	Residential United States 70/9th-12th High achieving participants 100% minority, imbedded in Component I 6 Faculty 4 Graduate Students 8 Undergraduates May 1, 1993 June 20- August 14 $1280 + travel expenses Full scholarship for every qualified minority accepted Not applicable

The objective of the Ross Young Scholar Program is to break ground for those who have a strong desire to pursue careers in mathematics, science or technology -- in short to provide a vivid apprenticeship to research. We are governed by the knowledge that science floats on a sea of mathematics; therefore, the basis of our program is intensely mathematical. As a point of departure, we choose discrete mathematics which is very accessible; its ideas are increasingly important in all of mathematics as well as in science and technology. Also, discrete mathematics provides an environment rich in opportunities for observation, conjecturing, testing conjectures for possible counterexamples, and ultimately achieving a measure of security through reasoned argument--all important components of scientific thinking. The program provides involvement in problem-solving not only as a means for acquisition of techniques, but also for achieving appreciation of new ideas. Number Theory (taught to all first year participants) serves as an underpinning for discrete mathematics, followed by Combinatorics, among other things, in the second summer of our multi-level program.

Young Scholars Summer Program

Department of Mathematics
Rose-Hulman Institute of Technology
5500 Wabash Avenue
Terre Haute, IN 47803-3999

YSSP

Type of Project	Residential
Recruitment Area	United States
Total Students/Grades	30/9th-11th
Total Staff	3 Faculty 3 Undergraduates
Application Deadline	June 25, 1993
Project Dates	July 26 - August 14
Cost to the Student	$450
Scholarship Availability	Scholarships Available
Stipend	None

Dr. George Berzsenyi

Office
812/877-8474

FAX
812/877-3198

e-mail
berzseny@cma.
rose-hulman.edu

The USA Mathematical Talent Search (USAMTS) is a year-round, year-after-year nationwide competition in creative mathematical problem solving for high school students, encouraging scientific endeavor as an on-going activity. Its associated Young Scholars Summer Program (YSSP) gives an opportunity to the 30 most successful participants of the USAMTS to work together more intensively, to improve their problem-solving skills (both individually and in group settings), and to explore coherent, axiomatic bodies of mathematics on the campus of Rose-Hulman in a 3-week long session. During the YSSP, the students are also given opportunities to explore careers in science, engineering, and mathematics, with the guidance of practicing professionals. Since the participants of the YSSP are expected to continue their excellent work in the USAMTS, the USAMTS and its YSSP are reciprocal activities. While the USAMTS involves over 300 students each year, the YSSP component is limited to 30 participants. With the continued growth of the USAMTS, a parallel expansion of its YSSP is to be expected.

Rutgers Young Scholars Program in Discrete Mathematics

Science and Engineering Resource Center, Room 221
Busch Campus, Rutgers University
Piscataway, NJ 08855-1179

Dr. Robert Davis
Dr. Michael O'Nan
Dr. Joseph Rosenstein

Contact:
Valerie DeBellis

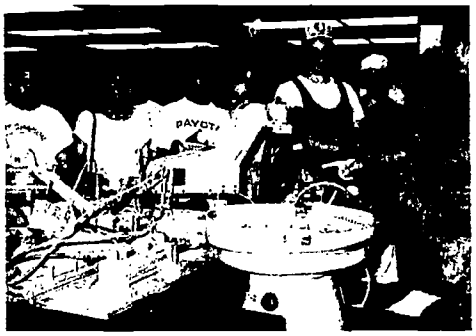
Office
908/932-4065

FAX
908/932-3477

e-mail
joer@math.rutgers.edu

Type of Project	Residential
Recruitment Area	New Jersey 22.3% minority
Total Students/Grades	40/11th-12th 17.3% minority
Total Staff	7 Faculty 5 Graduate Students 7 Undergraduates 21.1% minority
Application Deadline	April 9, 1993
Project Dates	July 5-30
Cost to the Student	$750.00
Scholarship Availability	Full & partial scholarships available
Stipend	Not applicable

Rutgers University has sponsored since 1990 a four-week, residential Young Scholars Program in Discrete Mathematics for 40 students entering the 11th and 12th grades. A total of 110 students, including 55 women, 36 Asian students, 10 Hispanic students, and 9 Black students participated during 1990-1992. The purposes of the program are to introduce students to discrete mathematics, an accessible field with many applications and many open problems; to increase students' problem-solving ability; and to expose them to a wide variety of mathematical scientists as role models. These purposes further the overall goal of encouraging students to consider careers in mathematics and the sciences. Among the topics discussed are applications of graphs, algorithms in graph theory, mathematical formulations of fairness, iteration and fractals, and number theory. The staff each summer includes 7 faculty members, 8 teaching assistants who are graduate and undergraduate students majoring in mathematics or compute science, and 4 residential life staff members. The program includes speakers from industry, field trips, computer activities, and career orientation workshops. Follow-up sessions are held on four Saturdays during the school year; programs include speakers, continuation of summer activities, computer activities, and mathematical puzzles and contests.



Mathematics and Physics of Water

Department of Mathematics
Seattle University,Seattle, WA 98122
Heritage College, Toppenish, WA 98948

Type of Project	Commuter/Residential
Recruitment Area	Seattle and Yakima Valley
Total Students/Grades	50 minority females/8th
Total Staff	4 Faculty 2 Graduate Students 2 Undergraduates 60% minority
Application Deadline	April 1993
Project Dates	July 26 - August 20
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

Sister Kathleen Sullivan

Office
206/296-5931

FAX
206/296-2179

Peter Alexander

Office
509/865-2244

Seattle University (urban campus) and Heritage College (Yakima Indian Reservation) will jointly conduct a four-week summer program in mathematics and physics for 50 minority girls entering eight grade. Students will study physical systems, progressing from simple properties of water to interactions with external forces to relationships between human activity and water resources; mathematical functional forms, progressing from linear relationships to polynomial to periodic functions; and scientific method, progressing from student laboratory experiments to research facilities to field studies. The first three weeks will be on the two campuses. In week four all 50 girls will continue their explorations together at a wilderness science camp. During the academic year students will attend field trips and work in small groups on projects with female mentors.

This is the first summer of a three-year project funded by NSF's Summer Science Camp Program.

Project JUMP START

Department of Mathematics
Seattle University
Seattle, WA 98122

Sister Kathleen Sullivan

Office
206/296-5931

FAX
206/296-2179

Type of Project	Commuter
Recruitment Area	Seattle 60% minority
Total Students/Grades	70 middle school students 60% minority
Total Staff	1 Faculty 7 Undergraduates 75% minority
Application Deadline	December and June
Project Dates	January 10 - February 28
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

JUMP START is a computer-basketball camp for middle school students. Working in small groups under the direction of Seattle University coaches, campers build robots and run them through an interface to the Apple IIgs computer. They then move to the gym to practice team work in another setting. JUMP START began as a summer program in 1990 and was extended to Sunday afternoons during the winter quarter 1992 through a Department of Energy grant. Professional engineers volunteer their time to work with the students, providing creative ideas as well as role models and information about careers in science and engineering. An open house on the last day for teachers and families features a video of camp activities, a Lego-Logo-Laser-Light-Show and a game of turtleball, all created by Seattle University students. The open house also offers an opportunity to talk to the parents about career and educational opportunities for their children.

Environmental Issues for Model City U.S.A.

Academic Affairs
Southwest Missouri State University
Springfield, MO 65804-0089

Type of Project	Residential
Recruitment Area	Missouri 13% minority
Total Students/Grades	30 / 9th-10th 27% minority
Total Staff	4 Faculty 3 Graduate Students 1 Undergraduate 1 High School Teacher 11% minority
Application Deadline	April 20, 1993
Project Dates	July 6 - August 2
Cost to the Student	None
Scholarship Availability	On financial-need basis
Stipend	$100 per student

Dr. M. Michael Awad

Office
417/836-5112

FAX
417/836-8432

Southwest Missouri State University conducts a four-week, summer residential Young Scholars project having multidisciplinary focus for 30 students entering grades nine and ten.

Participants examine problems and propose solutions for environmental issues associated with sanitary landfills. Emphasis is on critical decision making, problem solving, conceptual and mathematical modeling, computer simulation, and laboratory and field techniques. Classroom presentations prepare students for subsequent field, laboratory, and research activities. Career information in science and mathematics, including necessary educational preparation, is presented. Participants are expected to develop a scientific understanding of environmental issues and ethical solutions to environmental problems. Each participant presents his/her research project to peers, teachers, counselors, and project staff advisors in conjunction with follow-up activities.

Southwest Texas State Honors Summer Math Camp

Department of Mathematics
Southwest Texas State University
San Marcos, TX 78666

Dr. Max Warshauer

Office
512/245-2551

FAX
512/245-3847

e-mail
mw@swtexas.bitnet

Type of Project	Residential
Recruitment Area	Texas 50% minority
Total Students/Grades	40 (minority-focused)/11th-12th 60% minority
Total Staff	6 Faculty 1 Graduate Student 3 Undergraduates 20% minority
Application Deadline	April 30, 1993
Project Dates	June 13-July 10
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$48

The Southwest Texas State University Honors Summer Math Camp began in 1990 with 11 high school students; in 1992, some 314 students applied for the 40 available positions. This 4-week residential program, sponsored by the National Science Foundation Young Scholars Program, is for students entering the 11th and 12th grades in high school. The curriculum includes a course in Elementary Number Theory with computer lab using *Mathematica*; a course in *Combinatorics and Problem Solving*; an Honors Seminar Course; and a follow-up intervening year research project which students do at their home high school under the supervision of individual faculty advisors.

The goal is to excite young students about doing mathematics, to teach the students to reason rigorously and precisely, and to develop inquisitive, questioning minds. This is a cooperative program in which the students work together exploring new ideas and share in the excitement of finding the simple mathematical ideas which underlie and explain seemingly complex problems. Extracurricular activities include weekly seminars by guest speakers, picnics, and weekend excursions which give the participants a chance to relax and enjoy the local surroundings.

Texas A&M Prefreshman Enrichment Program

Department of Mathematics
Texas A&M University
College Station, TX 77843-3368

TAMUPREP

Dr. James Boone

Office
409/845-3261
409/845-7638

FAX
409/845-6028

Type of Project	Commuter
Recruitment Area	25-mile radius of campus
Total Students/Grades	30 / 7th-8th 57% minority
Total Staff	2 Faculty 3 Graduate Students 2 Undergraduates 1 High School Teachers 2 Staff 40% minority
Application Deadline	April 1, 1993
Project Dates	May 31-July 2
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

TAMUPREP has provided exciting mathematics, science and engineering experiences for 30 children who are entering 7th or 8th grade each summer since 1989. This five-week program features the research facilities of scientists and engineers at TAMU, problem-solving and critical thinking skills, skills to communicate in writing and speech, historic and contemporary role models, encouragement to pursue science and college preparation studies, and maximum access for students from underrepresented groups.

The daily activities include: Logic and Problem Solving, Engineering, Science and Society, Writing and Speaking Lab, Applications of Science Lab, and Computer Lab. Enrichment and motivational activities are included which consist of laboratory demonstrations, hands-on activities, and tours of research facilities on campus, NASA, and Dow Chemical.

Lubbock PREP

Lubbock Prefreshman Engineering Program

Department of Mathematics
Texas Tech University
Lubbock, TX 79409-1042

Dr. Benjamin Duran

Office
806/742-2585

FAX
806/742-1389

Type of Project	Commuter
Recruitment Area	Lubbock area 51% minority
Total Students/Grades	190 (minority-focused)/7th-10th 45% minority
Total Staff	11 Faculty 3 Graduate Students 6 Undergraduates 4 High School Teachers 3 High School Students 37% minority
Application Deadline	March 15, 1993
Project Dates	June 7 - August 6
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Based upon financial need

Lubbock PREP was organized by Texas Tech University in 1986 for the purpose of identifying high-achieving junior high and high school students and providing them with academic enrichment to pursue careers in mathematics, science, and engineering. During the intense eight-week mathematics-based summer session, students study logic, problem solving, probability and statistics, science, calculus, computer science, engineering, and technical writing. Abstract reasoning and problem solving skills are developed through coursework assignments, examination, and laboratory projects. Students meet guest speakers and take field trips to learn about careers in mathematics, science, and engineering. Lubbock PREP meets on the campus of Texas Tech University. Over 244 students have successfully completed at least one summer of Lubbock PREP. Of these 51% have been minority and 53% women. The high school graduation rate is 100% and the college entrance rate is 97%. The rate at which students pursue science and engineering in college is 66%.

Academic Camp with Computer Emphasis

Natural Sciences and Mathematics Department
Transylvania University
300 N. Broadway
Lexington, KY 40508

Type of Project	Residential
Recruitment Area	Kentucky 25% minority
Total Students/Grades	50 total/ Session I. 8th-10th; Session II. 10th-12th 25% minority
Total Staff	9 Faculty 5 Undergraduates 2 High School Teachers 1 High School Student 10% minority
Application Deadline	May 1, 1993
Project Dates	I. June 6-June; II. June 13-June 18
Cost to the Student	$250
Scholarship Availability	Limited
Stipend	None

Dr. James E. Miller

Office
606/233-8155

FAX
606/233-8797

The camp has been in existence since 1982 and has an annual enrollment of 70 students. It offers a one-week study of computer fundamentals and computer programming in the languages BASIC or Pascal. The camp also introduces the student to four areas of academic study other than computer science through microcourses. A one and one-half hour program on the taking of standardized examinations is a part of the daily activities. From personal observation it has accomplished the task of helping to relieve the tension of taking such exams as well as how to study for these exams.

The specific goals of the camp are to 1) enhance students' awareness of various academic disciplines; 2) introduce and help to prepare students in the stimulating and advancing field of computer science; 3) assist in the taking of, as well as help remove fear of, standardized examinations; 4) help students understand the dedication and preparation necessary for pursuit of academics beyond high school.

Turtle Mountain Community College
Pre-Engineering Summer Session

P.O. Box 340
Turtle Mountain Community College
Belcourt, ND 58316

Prof. Sunil Karnawat

Office
701/477-5605

FAX
701/477-5028

Type of Project	Commuter
Recruitment Area	Turtle Mountain reservation 100% minority
Total Students/Grades	15/10th-12th 10[illegible]inority
Total Staff	2 Faculty 2 High School Students
Application Deadline	Early April 1993
Project Dates	July 1-14
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$50

The TMCC-PRESS program was initiated in the summer of 1992. The program is composed of coursework in mathematics and engineering with a substantial experimental component involving engineering equipment such as surveying equipment. The engineering component strives to provide students with a conceptual application of mathematics to real life problem-solving and design processes that an engineer uses. In addition, an overview of the different fields of engineering is given. Students participate in hands-on activities such as drafting simplified technical drawings first on drawing paper and then on a computer using a CAD program.

The mathematics component is the core of all the project activity. Participants work together solving specially prepared problems that emphaslze the design processes used by engineers. Mathematical topics covered include set theory, number theory, and computer science.

Summer Mathematics Program for Whiteriver Apache Students

Department of Mathematics, Building #89
University of Arizona
Tucson, AZ 85721

Type of Project	Residential
Recruitment Area	Whiteriver 100% minority
Total Students/Grades	12 (Apache)/8th-9th 100% minority
Total Staff	2 Faculty 2 High School Teachers 50% minority
Project Dates	May 31 - June 4, 1993
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

Dr. Fred Stevenson

Office
602/621-6880

e-mail
frstv@math.arizona.edu

The Apache Summer Mathematics Camp was founded in 1989. Its purpose is to provide a non-traditional experience in mathematical exploration. Twelve students from Whiteriver Junior High School on the White Mountain Apache Reservation visit the University of Arizona campus for one week. During their stay they are introduced to the computer and work on exploratory problems. They write up their results and present them to their peers.

The students live in a dormitory and are chaperoned by their junior high school mathematics teacher and his spouse. Thirty-two students have completed the camp; 97% have been Native American, 59% have been female.

Summer Program for Gifted Junior High School Mathematics Students

Department of Mathematics
University of Arizona
Tucson, AZ 85721

Dr. Fred Stevenson

Office
602/621-6880

e-mail
frstv@math.arizona.edu

Type of Project	Residential
Recruitment Area	National 25% minority
Total Students/Grades	16/9th 25% minority
Total Staff	2 Faculty 2 Graduate Students
Application Deadline	Mid-March 1993
Project Dates	July 19 - July 31
Cost to the Student	$250
Scholarship Availability	Partial
Stipend	$100

The Arizona Summer Mathematics Research Camp was founded in 1986. Its purpose is to provide an experience in mathematical research for 16 motivated and talented students entering 9th grade. At the beginning of the two-week program, the students are given a list of exploratory problems. After a day of pondering, they pick a particular problem and go to work. They may work alone or in small groups. During the first week, the students are also given classes in the use of the computer to help in their research. In the second week, the students write up their results. These are collected and made into a journal for the students to keep. On the program's last day the students present their findings.

Ninety-six students have completed the camp; 25% have been underrepresented minority students, 42% have been female.

Young Scholars Program

Department of Mathematics
University of Chicago
5734 University Avenue
Chicago, IL 60637

Type of Project	Commuter
Recruitment Area	Chicago area 15% minority
Total Students/Grades	100/7th-12th 35% minority
Total Staff	6 Faculty 3 Graduate Students 15 Undergraduates 30% minority
Application Deadline	May 1, 1993
Project Dates	July 6-July 30
Cost to the Student	None
Scholarship Availability	None
Stipend	None

Dr. Paul Sally
Dr. Diane Herrman

Office
312/702-7388
312/702-7332

FAX
312/702-9787

e-mail
sally@zaphod.uchicago.edu

The University of Chicago conducts a four-week, commuter, Young Scholars project in mathematics, physics, and computer science for 100 students entering grades 7-12.

This project is designed principally for students who attend the Chicago public schools. The goal is to identify mathematically talented students, especially members of minority groups and females, early in their schooling, and maintain contact with them over a period of several years. The program has three components, one for students entering grades 7 and 8, one for students entering grades 9 and 10, and one for students entering grades 11 and 12. In summer 1993, the focus of the program will be on geometry, symmetry, and topology, with accompanying courses in neural networks and astronomy at the high school level. Each component operates on a two-year cycle with students progressing to the next level after completing a given cycle. Our intention is to provide participants with a rich diverse experience in computer science, mathematics, and physics. A follow-up program, focusing on problem solving, will meet regularly on Saturdays throughout the academic year.

Summer Science Camp

Science and Engineering Center
University of the District of Columbia
4200 Connecticut Ave., N.W.
Washington, DC 20008

Dr. Winson Coleman

Office
202/282-7338

FAX
202/282-3677

Type of Project	Commuter
Recruitment Area	Metropolitan D.C. 70% minority
Total Students/Grades	60/7th-8th 80% minority
Total Staff	8 Faculty and staff 96% minority
Application Deadline	May 30, 1993
Project Dates	July 6 - 31
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Available

This program is designed to provide a wealth of academic experiences in the sciences for a select group of 60 urban youth from the District of Columbia. Activities, tested in other pre-college programs administrated by the Science and Engineering Center, will be used to provide a non-traditional learning environment that will allow the participants to acquire knowledge resultant to his/her participation in "hands on" activities involving creative mathematics, computer science and electrical engineering.

Saturday Academy

Science and Engineering Center
MB 4201
University of the District of Columbia
Washington, DC 20008

Type of Project	Commuter
Recruitment Area	Metropolitan D.C. 70% minority
Total Students/Grades	400/4th-8th 100% minority
Total Staff	40 Faculty and staff 96% minority
Application Deadline	I. September 11, 1992 II. January 11, 1993 III. May 11, 1993
Project Dates	I. September 26-December 5 II. January 30-April 10 III. July 5-August 6
Cost to the Student	None
Scholarship Availability	None
Stipend	Not applicable

Dr. Winson Coleman

Office
202/282-7338

FAX
202/282-3677

The Saturday Academy, located on the campus of the University of the District of Columbia, is designed to provide enrichment experiences for academically talented minority youth without cost to them. These experiences are in creative mathematics, electrical engineering, and computer science.

Participants in the program are students who have been identified as academically talented students from the metropolitan Washington D.C. area. To be selected for this program, students must have an overall B average, be recommended by their mathematics/science teacher or counselor, and must have a parent or guardian willing to attend two Saturday sessions and an orientation session. Finally, the student must agree to the program's mandatory attendance requirements; more than one unexcused absence results in dismissal from the program.

Summer Program in Mathematics and Computer Science

Department of Mathematics
University of the District of Columbia
Washington, DC 20008

Dr. Beverly Anderson

Office
202/282-7328

Type of Project	Commuter
Recruitment Area	Washington, D.C. 70% minority
Total Students/Grades	40 (minority focused)/9th-10th 100% minority
Total Staff	7 Faculty and staff 96% minority
Application Deadline	May 15, 1993
Project Dates	June 28 - July 30
Cost to the Student	None (transportation provided)
Scholarship Availability	Not applicable
Stipend	Not applicable

The Summer Program in Mathematics and Computer Science at the University of the District of Columbia was started in 1982 for the purpose of demonstrating that more underrepresented minority students will pursue careers in mathematics-based fields and will take more calculus-track and calculus courses while in high school if they are given the academic enrichment and made aware of their career options early in their high school years. During the intensive five-week summer session, students study finite algebraic and topological systems, Pascal, probability, and statistics. Abstract reasoning and problem-solving skills are emphasized. The students take field trips, view video tapes and films, and particpate in a forum on careers in mathematics-based fields.

The classes are held in classrooms and a computer laboratory on the Van Ness campus of the university. About 400 students have completed the program. Over 90% are minority students and about 50% are women.

Hawaii-SSTP in Calculus-Physics

University of Hawaii, Hilo
523 W. Lanikaula Street
Hilo, HI 96720-4091

Type of Project	Residential
Recruitment Area	Hawaii (majority) 33% minority
Total Students/Grades	32/11th 50% minority
Total Staff	5 Faculty 5 College Students 35% minority
Application Deadline	March 8, 1993
Project Dates	June 14 - July 30
Cost to the Student	$1,400 (in-state) $2,000 (out-of-state)
Scholarship Availability	Yes
Stipend	Based on financial need

Prof. Suk R. Hwang

Office
808/933-3319

FAX
808/933-3693

Hawaii-SSTP in Calculus-Physics is an enrichment program designed for scientifically gifted and motivated high school students. The 7-week residential and co-educational program comprises six coordinated study activities (coursework, laboratory, computer programming, recitation/discussion, field trips, research participation). The program started with an NSF grant in the summer of 1979 and continued to operate with additional NSF grants until the end of 1981. Since 1982 the program has been funded through the State of Hawaii and private donations. The program became the prototype of a statewide enrichment program for gifted public high school students in the State of Hawaii. By the conclusion of the project last summer, the 14th year, all 423 participants--except one--completed the project requirements.

Houston PREP	**Houston Prefreshman Engineering Program** Department of Mathematics and Computer Science University of Houston-Downtown Houston, TX 77002

Dr. Richard A. Alo

Office
713/221-8012

FAX
713/221-8086

e-mail
alo@dt.uh.edu

Type of Project	Commuter
Recruitment Area	Houston and Harris County 52% minority
Total Students/Grades	300/7th-10th 70% minority
Application Deadline	March 2, 1993
Project Dates	June 8-July 31
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

Houston PREP is one of eleven programs of the Texas Prefreshman Engineering Program which provides educational enrichment opportunities for high ability middle school and secondary school students interested in pursuing science or engineering careers. The emphasis of this program is on study and research work in mathematics, physics, engineering, science, and technical writing. PREP strongly encourages women and students from minority groups who have been traditionally underrepresented in science and engineering to apply for participation. Three hundred first year students from the 7th, 8th, and 9th grades of the Greater Houston Area will be selected to participate in the Summer Program. Second and third year students will be selected from previous PREP participants. This summer program consists of the following academic programs: First year--logic and its application to mathematics, introduction to engineering, introduction to computer science. Second year -- algebraic structures, introduction to physics. Third year -- introduction to probability and statistics, technical writing. All years -- problem-solving seminar, research and study, career awareness, guest speakers, and field trips.

Houston Saturday Academy

Department of Computer and Mathematical Sciences
University of Houston-Downtown
Houston, TX 77002

Type of Project	Commuter
Recruitment Area	Houston and Harris county 52% minority
Total Students/Grades	40/7th-10th 70% minority
Total Staff	3 Faculty 33% minority
Application Deadline	September 1993
Project Dates	Academic year Saturdays
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

Dr. Richard A. Alo

Office
713/221-8012

FAX
713/221-8086

e-mail
alo@dt.uh.edu

The Houston Summer Academy seeks to sharpen mathematical communication (written and oral) skills; strengthen problem formulation and problem-solving skills; develop better reasoning skills and a higher level of abstraction; and to show that mathematics is a creative form of art and great fun.

Students attend two sessions every Saturday between October 24 and May 1, 1993. In these sessions student discuss a group of concepts and problems as well as complete worksheets containing questions inviting the students to investigate, rather than providing them with the answers immediately.

Topics covered are number theory, combinatorics of finite sets, probability, geometry, logic, coding theory, graph theory, optimization and algorithms, game theory, and fuzzy logic.

UMTYMP	**Talented Youth Mathematics Program** **Summer Enrichment Program** School of Mathematics, 15 Vincent Hall University of Minnesota Minneapolis, MN 55455	
Dr. Harvey Keynes **Ms. Laura Cavallo** Office 612/625-2861 FAX 612/626-2017	Type of Project Recruitment Area	Commuter Minneapolis/St. Paul, Minnesota
	Total Students/Grades	40/6th-9th 56% minority
	Total Staff	2 Faculty 3 Graduate Students 2 High School Teachers 56% minority
	Application Deadline Project Dates	May 29, 1993 June 15-July 2 Enrichment Institute June 15-July 2 Cray Summer Institute
	Cost to the Student Scholarship Availability Stipend	None Not applicable Not applicable

UNIVERSITY OF MINNESOTA

TALENTED YOUTH MATHEMATICS PROGRAM UMTYMP

These summer enrichment institutes are open to female students, students of color and economically disadvantaged students who have been accepted into the University of Minnesota Talented Youth Mathematics Program (UMTYMP) or who have been designated as near-qualifiers from the previous UMTYMP entrance exams and are still interested in participating in UMTYMP during the coming year. Outstanding Minnesota secondary school teachers present a variety of mathematics enrichment topics different from the usual curriculum, and focus on problem-solving techniques using a graphing calculator. The TI-81 graphing calculator is supplied to each student for use during the institute. In addition, career speakers are an integral part of the program. Field trips and tours to places like the University of Minnesota Geometry Center and 3M are provided. These institutes are a great opportunity to get acquainted and socialize with other mathematically talented students. Many lasting friendships have originated in the UMTYMP summer institutes and classrooms.

Mathematics and Marine Science Program

Department of Mathematics
Kingsbury Hall
University of New Hampshire
Durham, NH 03824

Type of Project	Residential
Recruitment Area	New Hampshire & Southern Maine
Total Students/Grades	25/10th
Total Staff	4 Faculty 2 Graduate Students

Dr. Ernst Linder
Ms. Sharon Meeker

Office
603/749-1565

FAX
603/749-3997

Application Deadline	April 15, 1992
Project Dates	July 1-19
Cost to the Student	$100
Scholarship Availability	Based on need
Stipend	None

The University of New Hampshire Math and Marine Science Program (M&M) was organized by the New Hampshire/Maine Sea Grant Program and the Mathematics Department at the University of New Hampshire for rising 10th graders who were capable of doing high-level work in mathematics and science. It is a field-based program with data being taken in three locations and analyzed, using statistical methods learned in the mathematics portion of the program. Computer technology is an important part of the program. During the intense three weeks of the summer portion of the program students must frame hypotheses, collect data, analyze it, and formally present their conclusions. Guest speakers introduce the students to a variety of science, engineering and mathematics-related careers. Four days during the school year constitute follow-up "reunion" sessions with planned activities in science and mathematics for the students, their teacher-mentors and their parents. The program began in 1988, and about 125 students have completed the course. Almost all are studying science, mathematics or engineering related fields when they enter college.

University of Puget Sound Academic Challenge Project

Department of Mathematics
University of Puget Sound
Tacoma, WA 98416

Dr. David Scott

Office
206/756-3565

FAX
206/756-3500

e-mail
scott@ups.edu

Type of Project	Commuter/7th-10th; Residential/11th-12th
Recruitment Area	Tacoma metropolitan area
Total Students/Grades	60 (minority focused)/7th-12th 67% minority
Total Staff	5 Faculty 1 Graduate Student 7 Undergraduates 3 High School Teachers 2 Professionals 44% minority
Application Deadline	May 15
Project Dates	June 22-July 17
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	Not applicable

The University of Puget Sound's Academic Challenge Project is a minority focused mathematics and science based summer enrichment program for students who will be going into grades 7-12 in the fall.

Two different programs are offered. One is a commuter program with classes in mathematics, science, computers and English for students in grades 7-10. The other is a residential program in mathematics for students in grades 11 or 12. The curriculum for the commuter students is organized around the theme of computers and features logic, problem solving, electricity and magnetism, and computer programming in Hypercard. The curriculum for the residential students is an introduction to contemporary mathematics and covers such topics as statistics, scheduling and networks. Field trips related to the subjects are part of the program.

This summer marks an expansion of a program begun in 1990 with 26 students. The 1990 and 1991 summer program were two weeks long and students were in grades 8 through 10.

Brownsville Prefreshman Engineering Program

The University of Texas, Brownsville
83 Fort Brown
Brownsville, TX 78520

Brownsville PREP

Type of Project	Commuter
Recruitment Area	Cameron County, Texas 82% minority
Total Students/Grades	150 (minority focused)/7th-11th 95% minority
Total Staff	2 Faculty 11 Undergraduates 5 High School Teachers 1 High School Student 89% minority
Application Deadline	February 28, 1993
Project Dates	June 14 - August 6
Cost to the Student	None
Scholarship Availability	Not Applicable
Stipend	Based on need

Mr. Roger Contreras

Office
512/544-8204
512/544-8960

FAX
512/548-0020

Brownsville PREP was organized by the University of Texas, Pan American at Brownsville in 1986 for the purpose of identifying high achieving middle and high school students with the potential to become scientists, mathematicians or engineers and to provide them with academic enrichment and reinforcement in the pursuit of these fields. Forty-three students participated in the first program with enrollment consistently increasing to 125 by the 1992 program. During this intense eight-week mathematics-based summer program students study Logic, Algebra I, Algebra II, Probability and Statistics, Precalculus, Calculus, Physics, Computer Science, Engineering and technical writing. Abstract reasoning and problem solving skills are developed through coursework, special assignments, examinations, and laboratory projects. A career awareness component involves guest speakers as well as field trips to learn about careers in science, mathematics and engineering.

Three hundred twelve students have completed one summer of Brownsville PREP with 93% being minority and 48% women.

San Antonio PREP	**San Antonio Prefreshman Engineering Program** PREP Office University of Texas at San Antonio San Antonio, TX 78285	
Dr. Manuel Berriozábal Office 512/691-4496 FAX 512/691-4500	Type of Project Recruitment Area Total Students/Grades Total Staff Application Deadline Project Dates Cost to the Student Scholarship Availability Stipend	Commuter San Antonio, Texas 62% minority 1,800 / 6th-11th 80% minority 20 Faculty 70 High school teachers, Air Force & Navy officers, civilian industrial engineers, scientists, mathematicians 110 Program assistant mentors 60% minority February 1, 1993 June 14-August 6 None Not applicable Based upon financial need

San Antonio PREP was organized by The University of Texas in 1979 for the purpose of identifying high achieving minority middle school and high school students in order to provide them with academic enrichment to pursue careers in mathematics, science, and engineering.

During the intense eight-week mathematics-based summer session students study logic, algebraic structures, probability and statistics, physics, computer science, engineering and technical writing. Abstract reasoning and problem solving skills are developed through coursework assignments, examinations and laboratory projects. Students meet guest speakers and take field trips to learn about careers in mathematics, science and engineering.

San Antonio PREP meets in 9 locations in the city. Over 3400 students have completed one summer of San Antonio PREP, 79% have been minority and 51% women. The high school graduation rate is 100%. The college entrance rate is 94%. Science and engineering rate is 56%. Beginning in 1992 an internship for mathematicians who are interested in replicating PREP is available.

The Texas Prefreshman Engineering Program, coordinated by Berriozabal, was organized in 1986 and replicates San Antonio PREP in 10 other cities around the state.

Modeling Acid Deposition: An Introduction to Scientific Methods

Department of Mathematics
University of Wisconsin, Superior
Superior, WI 54880

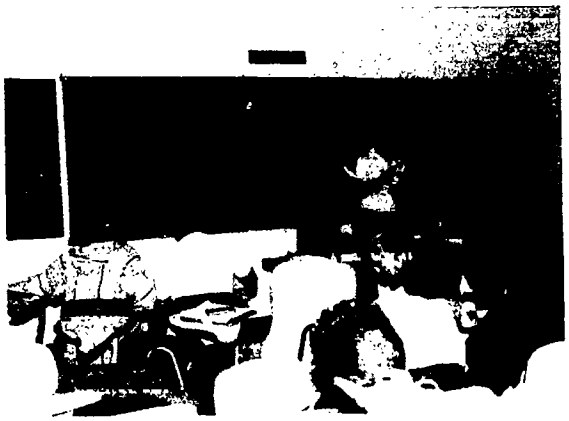
Type of Project	Residential
Recruitment Area	Regional and national
Total Students/Grades	20/11th-12th 20% minority
Total Staff	5 Faculty 3 Undergraduates 2 High School Students
Application Deadline	April 19, 1993
Project Dates	June 21 - July 23
Cost to the Student	$30 activity fee
Scholarship Availability	Not applicable
Stipend	$100-$500 based on need

Dr. Francis Florey

Office
715/394-8322

FAX
715/394-8454

e-mail
fflorey@uwsuper.edu



Modeling Acid Deposition: An Introduction to Scientific Methods was first held on the University of Wisconsin-Superior campus in 1988. Funding for the program has been provided by grants from the National Science Foundation Young Scholars program. Sixteen eleventh and twelfth graders participated initially, while 20 students, four of whom are minorities, will participate this summer. Pollutant sources, chemistry of acid deposition and effects of acidification are introduced. Stressing the role of mathematical modeling, participants use techniques of exploratory data analysis to analyze National Atmospheric Deposition Program (NADP) data. Five teams of four students each use computers to develop multiple linear regression models of the pH of acid rain. At a two day camp-out students inspect a NADP sampling station and the Little Rock Lake acidification project. Using a VCR tape of the activities, participants relate their summer experiences to classmates in their high schools.

Villanova HHMI-NSF	**HHMI/NSF Young Scholars Summer Program in Biology and Mathematics** Department of Mathematical Sciences Villanova University Villanova, PA 19085

Dr. William Fleischman

Office
215/645-4850

FAX
215/645-7889

e-mail
fleischma@vuvaxcom

Type of Project	Residential
Recruitment Area	New York City-Washington Corridor 50% minority
Total Students/Grades	37/10th-11th 54% minority
Total Staff	5 Faculty 3 Graduate Students 2 Undergraduates 30% minority
Application Deadline	April 10, 1993
Project Dates	June 20 - July 31
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$100 per week

The Villanova Summer Program includes course work in biology with application-oriented mathematics enrichment and a substantial experimental component involving both biology and mathematics. Participants work closely with Villanova faculty from the Departments of Biology, Mathematical Sciences, and Computing Science. They make extensive use of computing equipment in two of the University's modern laboratories.

The 1993 Summer Program will include topics in Physiology, Population Biology, and Genetics, with substantial attention to the mathematical and computational aspects of the biological subject matter. Laboratory experiences include: use of the physiograph to record and analyze heart rate. electrocardiograms, and respiration rates; enzyme assays; ultracentrifugation; measurement of basal metabolism rates; hemoglobin electrophoresis; actual and computer-simulated experiments in genetics. In addition, participants use the University's scanning and transmission electron microscope. Mathematical topics include: difference equations, models of population growth and competition; construction of life tables; Lineweaver-Burk plots to analyze enzyme kinetics; and techniques of data analysis including lines of best fit.

Richmond Area Young Scholars Program

Department of Mathematical Sciences
Virginia Commonwealth University
Richmond, VA 23284-2014

Type of Project	Commuter
Recruitment Area	Richmond, VA 35% minority
Total Students/Grades	30 (minorities)/7th 100% minority
Total Staff	5 Faculty 2 Graduate Students 1 Undergraduate 6 High School Teachers 64% minority
Application Deadline	None
Project Dates	June 29 - July 17
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	$20 plus a calculator

Dr. Reuben Farley

Office
804/367-1319

FAX
804/367-8785

e-mail
rfarley@cabell.vcu.edu

Virginia Commonwealth University will conduct a three week, commuter, Young Scholars Project in Mathematics and Physics for thirty students entering seventh grade.

The Richmond Area Young Scholars Program emphasizes mathematics and physics and is designed for rising 8th grade African American students in the Richmond area. Honors topics instruction will be provided by university faculty and by pre-college faculty who are members of the active Mathematics Teacher Professional Network. Student interest in mathematics and physics will be nurtured, students will report on small group interactions with industry and academic researchers, and students will conduct and report on small scale research projects. Academic year follow-up activities include regular mentor contact and group activities through the Richmond Area Mathematics and Science Center.

Young Scholars Program in Math and Science

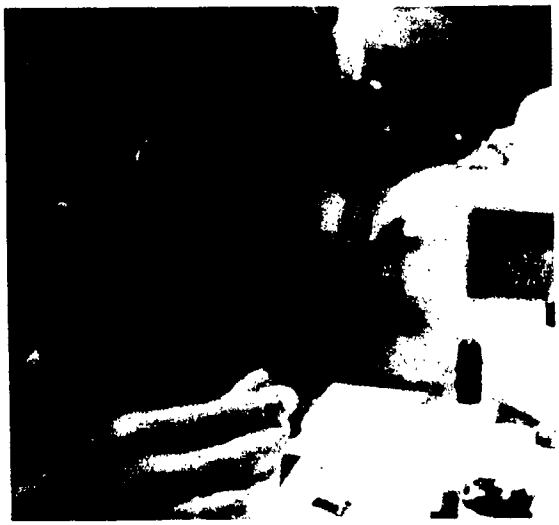
A1110 Butterfield
Wesleyan University
Middletown, CT 06456

Dr. Robert A. Rosenbaum and Professor J. Miller

Office
203/347-9411 x2481

FAX
203/343-3931

Type of Project	Residential
Recruitment Area	Connecticut
Total Students/Grades	60-65/9th-10th 65% minority
Total Staff	7 Faculty 10 Graduate Students 8 Undergraduates 24 High School Students 24% minority
Application Deadline	March 1993
Project Dates	June 27 - July 30
Cost to the Student	$1,500
Scholarship Availability	45 full scholarships
Stipend	$250 for scholarship students



This is a five-week residential summer program on the Wesleyan campus for ninth and tenth graders from Hartford, New Haven, Bridgeport, Stamford, and Waterbury. The curriculum includes enrichment courses in mathematics, biology and chemistry, earth science and physics, and writing; seminars in ethics and career awareness; and projects directed by Wesleyan science faculty. The program also offers field work and social, cultural, recreational, athletic, and camping activities. Scholars return for follow-up sessions during the academic year.

Section II.

Pre-College Projects Conducted by Organizations

Comprehensive Enrichment Program

Administered by: AISES
1630 30th Street, Suite 301
Boulder, CO 80301-1014

Type of Project	Residential
Recruitment Area	National 100% minority
Total Students/Grades	30 American Indians / 8th-11th 100% minority
Total Staff	12 Faculty 5 Graduate Students 18 Undergraduates 5 High School Teachers 5 High School Students (interns) 60% minority
Application Deadline	March 1993
Project Dates	2-4 weeks
Cost to the Student	Travel only
Scholarship Availability	Limited hardship travel available
Stipend	Not applicable

Ms. Cathy Abeita

Office
303/492-8658

FAX
303/492-3400

The American Indian Science and Engineering Society (AISES) pre-college enrichment program promotes academic and cultural enrichment while providing opportunities for interaction with American Indian roie models in science, engineering and mathematics-related professions. Content areas are mathematics, physical sciences, life sciences, computer sciences and engineering. (8th - math; 9th - physics; 10th - life; 11th - engineering and computers).

The program is open to American Indian students with 3.0 GPA, interested in mathematics or science. Applicants must provide a personal essay, transcript and a letter of reference from a mathematics or science teacher.

Programs are held in Wisconsin, New Mexico, Iowa, California and New York.

Mathematics & Science Summer Institute

International Educational Network
3001 Veazey Terrace, N.W.
Washington, D.C. 20008

Dr. Edward Lozansky

Office
202/362-7855

FAX
202/364-0200

Type of Project	Summer Camp
Recruitment Area	International
Total Students/Grades	I: 70; II: 70 ages 14-18 20% minority
Total Staff	5 Faculty 8 Counselors 20% minority
Application Deadline	June 1, 1993
Project Dates	I: LaSalle Academy, Long Island June 27-July 23 Washington, D.C. (optional) July 18-23 II: Moscow and St. Petersburg July 6 -August 3
Cost to the Student	I: $1,725; II: $1,875 plus airfare/visa
Scholarship Availability	Based on ability and need
Stipend	Not applicable

International Educational Network (IEN) was established in 1985 to promote international cooperation in Mathematics and Science among academically talented high school students. Over 1,700 high school students from France, Switzerland, the United States and Russia have participated in the exchange programs held in the United States and Moscow.

IEN works closely with the National Science Teachers Association, Brookhaven National Laboratory, The Russian Academy of Science and Moscow State University to offer challenging and interesting courses. Classes are held during the morning in advanced mathematics, physics and molecular biology by prominent Russian and American scientists and mathematicians. Afternoons and evenings are spent attending lectures, touring laboratories, as well as various historical and cultural sites and participating in recreational activities.

Participants have the rare opportunity to interact with eminent mathematicians and scientists working on the frontiers of new discovery and research. The close interaction between students and professors exchanging ideas, concepts and material is a definite inspiration to the students.

Mathematics and Science Education Network Pre-College Program

University of North Carolina at Chapel Hill
201 Peabody, CB #3345
Chapel Hill, NC 27514

Type of Project	Mathematics/science enrichment
Recruitment Area	Regions surrounding Raleigh, Greensboro, Charlotte, Elizabeth City, and Fayetteville 90% minority
Total Students/Grades	2000 (females and minorities)/ 6th-12th 90% minority
Total Staff	18 Faculty 20 Graduate Students 20 Undergraduates 39 High School Teachers 14 High School Students 60% minority
Application Deadline	June 1, 1993
Project Dates	July [dates vary by center]
Cost to the Student	None
Scholarship Availability	Not applicable
Stipend	None

Carol Malloy, Assistant Director;

Office
919/962-1316

e-mail
Malloy@ecsvax.bitnet

The MSEN Pre-College Program is designed to increase the number of historically underrepresented students -- minorities and females-- who graduate from high school with sufficient interest and preparation to pursue mathematics and science based fields at the university level. The objective is to increase the number of underrepresented students moving into careers in science, technology, engineering and teaching.

To achieve these goals, the Pre-College Program offers students academic enrichment classes in the schools, after school clubs, Saturday Academy Sessions, Summer Scholars Programs, and other special trips and competitions. The MSEN Pre-College Program has completed six full years of operation with notable success.

NM MESA, Inc.	**Mathematics, Engineering, Science Achievement Enrichment Program** NM MESA, Inc. University of New Mexico, Farris Engr. #137 Albuquerque, NM 87131	
Ms. Patricia L. Chavez Office 505/277-5831 FAX 505/277-0278	Recruitment Area	New Mexico 52% minority
	Total Students/Grades	3,000/6th-12th 88% minority
	Total Staff	12 Faculty 1 Undergraduate 75 High school and middle school teachers 85% minority
	Application Deadline	September 1, 1993/on-going
	Project Dates	Academic year & summer
	Cost to the Student	None
	Scholarship Availability	Based on level of participation
	Stipend	None

New Mexico became a partner in the national MESA initiative in 1982 with 25 ninth grade participants. A not-for-profit organization, NM MESA, Inc. currently offers precollege programs in 44 schools representing 18 districts in New Mexico. The program is committed to promoting educational enrichment to students from ethnic groups historically underrepresented in mathematics, engineering, science and related fields. Participating students, now totalling 3,000, receive educational enrichment experiences and practical help necessary to achieve academic excellence and to prepare for university-level programs in these fields. This practical help includes: academic tutorials; independent study groups; academic, university, and career advising; field trips; leadership workshops; summer enrichment; employment programs; and scholarship incentive awards.

More than 95% of NM MESA pre-college program graduates have gone on to study at colleges and universities. Of this group, more than two-thirds have chosen majors in related fields.

Prime Universities Program

PRIME, Inc.
The Wellington
135 South 19th Street, Suite #250
Philadelphia, PA 19103

PRIME

Type of Project	Commuter
Recruitment Area	Public, Parochial, and Private schools 90% minority
Total Students/Grades	1,036 (minority-focused)/ 7th-11th 90% minority
Total Staff	58 Faculty 30 Graduate Students 69 High School Teachers 75% minority
Application Deadline	April 1, 1993
Project Dates	July 6 - July 30
Cost to the Student	None
Scholarship Availability	None
Stipend	None

Dr. Alexander Tobin

Office
215/561-6800

FAX
215/561-6810

The PRIME Universities Program (PUP) consists of five consecutive years of sequential summer enrichment instruction. The program begins at the post-7th grade level and extends throughout the post-11th grade level.

Programs at each grade level are offered on college campuses and consist of a unique focus as well as provide intensive instruction in mathematics, communication skills, science and computer applications. At the post-7th grade level focus is on building vocabulary and reading comprehension levels. At the post-8th grade level focus is on mathematics and at the post-9th grade level on written and oral communication. At the post-10th and 11th grade level students may choose one of four tracks to follow: engineering, actuarial science, computer science or pharmacy and allied health.

Unique aspects of the PUP programs include specialized curricula, individual counseling and tutoring, hands-on career awareness and exploration activities, and a residential experience simulating college life at the post-11th grade level.

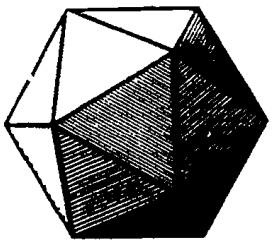
State Index

Virginia

Washington

Wisconsin

Project Director Index



The Mathematical Association of America