Resources for Math Circles
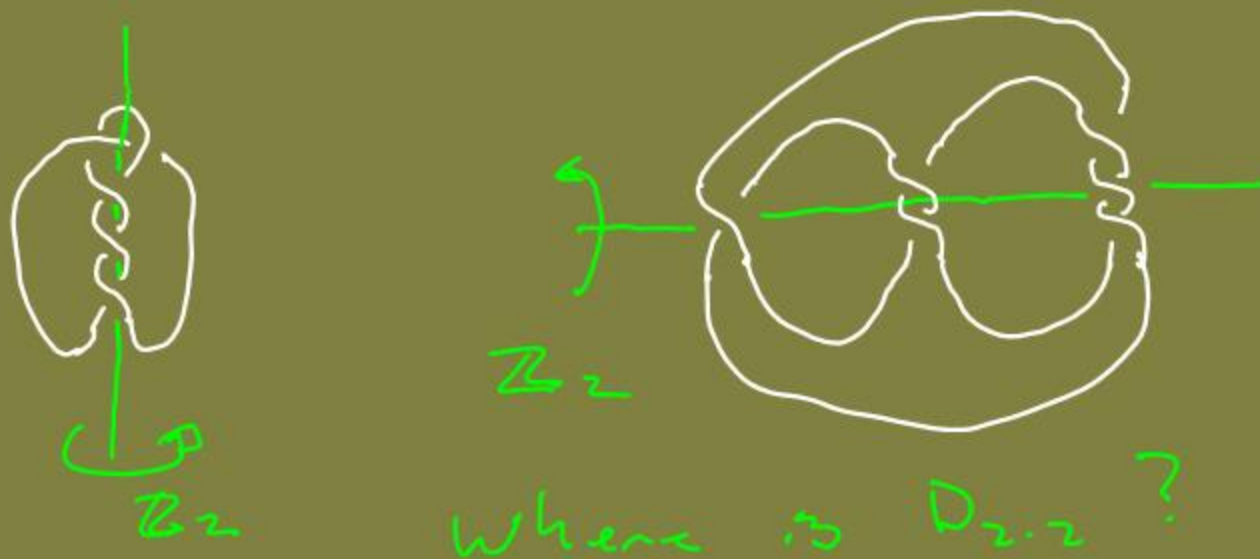
Dave Auckly, MSRI

Books

R. Kaplan and E. Kaplan, The Art of the Infinite: The Pleasures of Mathematics

J. Tanton, Solve This: Math Activities for Students and Clubs

P. Zeitz, The Art and Craft of Problem Solving

M. Gardner, Collected Works - MAA

More Books

W. Markel, Problem Solving Through Recreational Mathematics

J. Sally, J.D. Sally, P. Sally, TriMathlon: a workout byond the school curriculum

I. Peterson, Newton's Clock: Chaos in the Solar System

E. Berlekamp, J. Conway, R. Guy, Winning Ways for Your Mathematical

Journals

Math Horizons

Journal of Recreational Mathematics

Involve

The College Mathematics Journal

Fibonacci Quarterly

Crux Mathematicorum with
Mathematical

AMC Quick Links GO

Math Club
Resources - Web Sites, Books and Formulas

Math Club Home   Organization   Ideas   Calendar   Topic Quizes   Contests   Problems   Websites   Reading   Appendix

▸ **Navigation**

▶ **Join Our Email List!**
Privacy by ✉ SafeSubscribe℠

Contests & Programs
FAQs, AMC 8, AMC 10, AMC 12, AIME, more ...

Calendar/Registration
ONLINE, AMC 8 Brochure, AMC 8 Form , AMC 10/12 Brochure, AMC10/12 Forms

Publications
Descriptions, Order form, Rixstine

Who's Who
Sponsors, State Directors, Committees, Lincoln Staff

Students
Tips, Reading List, Problems,

Here we provide useful resources including websites, books, and formula pages.

| Web sites (pdf) | Books (pdf) | Formulas (pdf) |

| Competitions | General | Reference | History | Teaching | Mentoring | Books | Journals | Circles | Fairs/Scholarships | Camps | Miscellaneous |

Competitions

http://archives.math.utk.edu/contests/ -- list of competitions at varying levels

http://bigcheese.math.sc.edu/contest/ -- University of South Carolina HS Math Contest

http://cemc.uwaterloo.ca/ -- Canadian Mathematics Competitions

http://courses.ncssm.edu/goebel/statecon/state.htm -- North Carolina State HS Mathematics Contest

http://endeavor.macusa.net/mathpropress/index.htm -- math problems, high school

http://math.furman.edu/tournament/tournament.html -- Furman University Wylie Mathematics Tournament, Greenville, SC

http://math.uww.edu/mathmeet/ -- Purple Comet M/HS Math Meet

http://mathcircle.berkeley.edu/ -- problems, high school

http://mathforum.org/library/view/41814.html -- Maritime Mathematics Competition, University of Prince Edward Island,

http://nciml.org/NCIMLCoachesGuide.pdf -- Nassau County Interscholastic Mathematics League Long Island, NY

http://regentsprep.org/Regents/math/math-a.cfm#1 -- – competitions prep

http://web.mit.edu/hmmt/ -- Harvard-MIT Mathematics Tournament, MA

http://www.amatyc.org/SML/ -- American Mathematical Association of Two Year Colleges Student Mathematics League

http://www.arml.com/ -- American Regions Math League, past questions, high school

http://amc.maa.org/mathclub/6,0-Resources.shtml

Thinking Mathematics!
A resource for teachers and students

HIGH SCHOOL MATHEMATICS ...AND BEYOND!!

Home   About   Books   Learn to Think!   Think Cool Math!   Think Curriculum!

Type here to search...   **search**

Welcome!

Thinking Mathematics is an uncluttered and joyous approach to school mathematics ... middle school, high school and beyond! This site is based on, and extends further, the material that appears in the book series *THINKING MATHEMATICS!* Experience joyous, accessible, true mathematics.

Follow "jamestanton" on twitter.com.

On this site you will find ..

- **Curriculum Tidbits:** Written essays - and VIDEO ESSAYS!! - for teachers and students on typical highschool topics. Learn the joyous way to think about them!

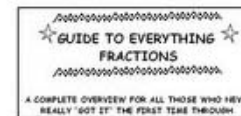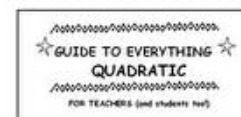**There have been over 21,000 video views from this site!** CHECK THEM OUT!

- **Cool Mathematics:** Essays on unusual topics to surprise and curious visual puzzles to delight.
- **Think Mathematics!:** A course on how to think like a mathematician! It's for students and for teachers.
- **Books:** Materials to obtain for your very own.

This website is new and growing. More and more material appears regularly. Enjoy!

BACK BY POPULAR DEMAND ... THE "MATH WITHOUT WORDS" BOOK
Seventy-five wordless puzzles (and brief solutions!) in book form for just $27.50. Order here. And there is also the **2010/2011 MATH WITHOUT WORDS** calendar. It's bright and colourful and cheery and very mathy! Each month offers a big and bold wordless

FREE DOWNLOAD

GUIDE TO EVERYTHING QUADRATIC
FOR TEACHERS (and students too!)

GUIDE TO EVERYTHING FRACTIONS
A COMPLETE OVERVIEW FOR ALL THOSE WHO NEVER REALLY 'GOT IT' THE FIRST TIME THROUGH

Free! - Guide to Everything Quadratic
Also Free! - Guide to Fractions
This guide to fractions is based on lessons 10 and 11 of a course "Number Sense and Mathematical Thinking" soon to appear on this site!

BOOKS

- Teachers ' and students' Guide to Everything Quadratic
- Thinking Mathematics! (TEN VOLUMES)
- Solve This: Mathematical Activities for Students and Clubs
- Encyclopedia of Mathematics

http://www.jamestanton.com/

Math Delights

Delightful mathematics for teachers, parents, and kids

HOME

I founded Math Delights in 2008 to share some of my favorite mathematics-based activities, games, magic tricks, puzzles, and problems for kindergartners through 6th graders (5 - 12 year olds). Here are links to get you started.

- **Delights** (math activities, games, problems, puzzles)
- **Resources** (websites, books, videos, papers, and guidelines)
- **About Us** (license, acknowledgments, images)
- **Contacts**

Friends, colleagues, and teachers pointed me to the material on this website. I hope you, too, will tell me about any other delightful material that you find.

Nancy Blachman
Email me

Google Search ☑ Math Delights only

Math Delights

- ➡ HOME
- ➡ Introduction
- ➡ Delights
- ➡ Resources
- ➡ Agenda
- ➡ About Us
- ➡ Contacts

http://mathdelights.org/

Mathematical Circles Topics

Last Updated: April 9, 2009.

Return to my home page.
Want to send me mail? tomrdavis@earthlink.net.

Mathematical Circles are for students of high school age or younger who want to increase their abilities to reason about mathematical problems. Students who study in circles learn to do mathematical olympiad-style problems (essay or proofs, not quick answer).

The web pages for a couple of the local circles are here:

Bay Area Circles and BAMO (Bay Area Mathematical Olympiad)
San Jose State University Math Circle
UC Berkeley Math Circle

An extensive discussion about how to lead a math circle can be obtained here:

So You're Going to Lead a Math Circle

I have been volunteering time at three local circles (in Berkeley, San Jose, and Palo Alto, California) for the past nine years, and have prepared handouts for some of those sessions. Those handouts are almost all available here in both PostScript format (files with a .ps extension) or files in Adobe Acrobat format (files with a .pdf extension).

Free Dynamic Geometry Software

I've written a program called "Geometer" similar to Geometer's Sketchpad or Cinderella that is freely available together with complete documentation, tutorials, and hundreds and hundreds of examples. It runs on a PC or Mac, and you can obtain a copy of it here.

Rubik's Cube and Mathematics

Here is a web page that allows you to download a program that simulates Rubik's cube for the PC or Mac, complete documentation, and a paper on using the cube to teach something about the mathmatics of permutations and group theory.

Math for Teachers

Of course all the handouts below are used for math circles so in a sense, all can be used by teachers. However, recently I have been adding some pedagogical advice to some of them, perhaps making them easier to use in a classroom setting. The handouts in this section all have at least a little of such advice and some have a lot. Each of the handouts in this section is listed twice: once here and once in the appropriate topic-sorted section.

There is a series of workshops for teachers, called "teacher's circles", that may be of interest. Here is the website:

http://mathteacherscircle.org

Exploring Pascal's Triangle:
pascal.pdf(148 KB)

An Introduction to Zome:
ZomeIntro.pdf (504 KB)

Julia Robinson Zome Exercises (used for Julia Robinson Festival at Google and Pixar):
googlezome.pdf (148 KB)

An Unusual Way to Combine Numbers
numbercombine.pdf (216 KB)

A Game That's Not a Game
pilesubdivide.pdf (216 KB)

Mathematical Card Tricks
CardTricks.pdf (216 KB)

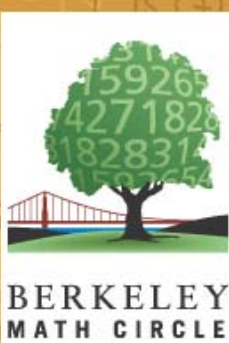Conway's Rational Tangles
tangle.pdf (48 KB)

Huge numbers with short descriptions:
bignumbers.pdf (84 KB)

http://www.geometer.org/mathcircles/index.html

Berkeley Math Circle

Sponsored by UC Berkeley, the Hilde Mosse Foundation through MSRI, and Parents' Contributions

BAMO
Bay Area Mathematical Olympiad

BAMO Info

Welcome to the Berkeley Math Circle!

Donate to the BMC

The Berkeley Math Circle (BMC) is a weekly program for over 160 San Francisco Bay Area high and middle school students. The weekly sessions are on Tuesdays from 6 to 8 pm on the UC Berkeley campus. The program is jointly sponsored by the UC Berkeley Math Department, the Mosse Foundation For Arts and Education through the Mathematical Sciences Research Insitute (MSRI), and Parents' Contributions.

Emulating famous Eastern European models, the program aims at drawing kids to mathematics, preparing them for mathematical contests, introducing them to the wonders of beautiful mathematical theories, and encouraging them to undertake future careers linked with mathematics, whether as mathematicians, mathematics educators, economists, or business entrepeneurs. Read more about the BMC.

Breaking news for BMC students and parents.

Multiple Levels of Berkeley Math Circle

In the 2010-2011 academic year, Berkeley Math Circle will have four levels meeting on Tuesday evenings in Evans Hall on the UC Berkeley campus:

- BMC Elementary with four sessions, two in room 891, from 6 to 7 and from 7 to 8, and two more in room 61, also from 6 to 7 and from 7 to 8. Limited to grades 1 to 3.
- BMC Beginner from 6:30 to 8 in room 939. Limited to grades 4 to 6.
- BMC Intermediate from 6 to 8 in room 740. Recommended for grades 6 to 9.
- BMC Advanced from 6 to 8 in room 736. Recommended for grades 9 to 12.

http://mathcircle.berkeley.edu/

MSRI Home > Education

For Educators

For Postdocs

For Graduate Students

For Undergraduates

For K-12 Educators

For General Public

Library

Educational Items for Sale

Julia Robinson Mathematics Festival - Festival Activities

Julia Robinson Mathematics Festival

Educational Program of

MSRI — Mathematical Sciences Research Institute

Julia Robinson Mathematics Festival Activities

- Home
- News
- Festivals
- Festival Activities
- Problem Solving Challenge
- Support Us
- About Us
- Media
- Contact Us

The Difficulty columns tell you what range of difficulties you'll find in each activity. Level 1 should be accessible to a typical 6th grader, perhaps with some discussion with a mathematically competent adult. Level 3 is for very strong middle school students, or high school students with some problem-solving experience. Level 5 is probably challenging enough for the activity's authors, and may include some unsolved problems.

Name	Topics	Years	1	2	3	4	5
Area Attack!	Area	2007, 2008, 2009	*	*	*		
Bag of Tricks - Bayesian Statistics	Bayes' theorem, probability, judgement	2007	*	*			
Big, Bigger, Biggest!	Factorials, comparisons, divisibility, Pascal's triangle, calculus	2008, 2009	*	*	*	*	

http://www.msri.org/web/msri/static-pages/-/node/211

http://www.artofproblemsolving.com/index.php

search the math circle: [   ] [go]

Books and Articles

Bozo Sapiens: Why to Err is Human
by Michael and Ellen Kaplan

"Out of the Labyrinth: Setting Mathematics Free"
by Robert Kaplan and Ellen Kaplan

"Chances Are . . . : Adventures in Probability"
by Ellen Kaplan and

The Math Circle

This is the home page of The Math Circle, a program of courses **founded** in 1994, designed for students who enjoy math and want the added challenge of exciting topics that are normally outside the school curriculum. Its teachers are experienced, committed, and enthusiastic. Our classes encourage a free discussion of ideas; while the courses are mathematically rigorous, the atmosphere is friendly and relaxed.

Fall 2010-Spring 2011 Schedule Information is available!

Math Circle Summer Teacher Training Institute

We will hold our second Math Circle Summer Teacher Training Institute on the Campus of Notre Dame, in South Bend Indiana, from July 5th to 11th, 2010.

Demonstrations of our approach, practice sessions in running Math Circles, discussions of theory and practice, and conversations about selected math topics will be hosted by Bob and Ellen Kaplan, and Amanda Serenevy.
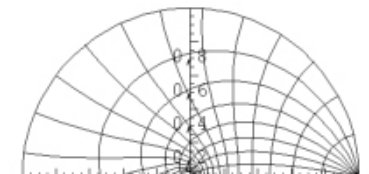
Tuition is $800 for the week, room and board included.

Inquiries can be made by e-mail to **kaplan@math.harvard.edu**.

Our Philosophy

"What you have been obliged to discover
by yourself leaves a path in your mind
which you can use again when the need
arises."   --G. C. Lichtenberg

[learn more...]

http://www.themathcircle.org/

Math Teachers' Circle Network

The Math Teachers' Circle Network brings together Math Teachers' Circles (MTCs) throughout the United States. Our mission is to establish the foundation for a culture of problem solving by fostering the enjoyment of mathematics among middle school math teachers.

American Institute
of Mathematics
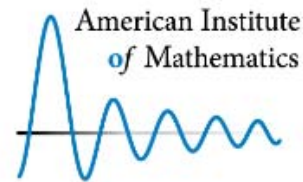
The Math Teachers' Circle Network is a project of the American Institute of Mathematics.

- Home
- About Us
- Member Circles
- Workshops
- Resources
- Contact

http://www.mathteacherscircle.org/

Circle on the Road
University of Houston
March 18-20, 2011

annual meeting of the National Association of Math Circles
http://www.mathcircles.org/

Organized by: Dave Auckly, Matthias Kawski, Jeff Morgan, Mark Saul, and Sam Vandervelde

This workshop will bring together people who have experience running math circles and teams of people who wish to start a math circle.

The workshop will begin on Friday, with discussions and presentations related to math circles. On Saturday several sample math circle sessions will be offered, and the workshop will conclude on Sunday with more discussions and presentations.

http://www.msri.org/web/msri/scientific/workshops/show/-/event/Wm562

MSRI
Mathematical Sciences
Research Institute

$C = 2\pi r$ $A = \frac{1}{2} Cr$
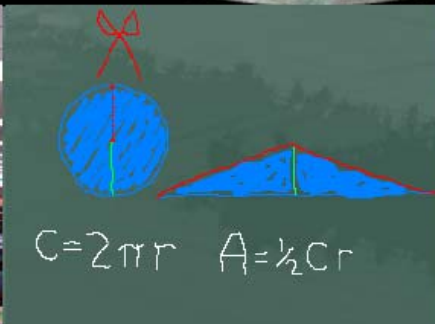
NAMC/ MSRI Math Circle Grants
Now Accepting Applications
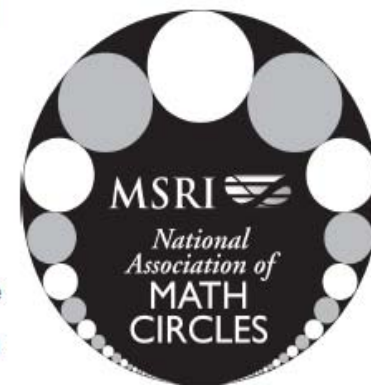
MSRI and the NAMC are now accepting applications for math circle grants. These grants are to help establish new Math Circles or expand existing ones. Right now the seed program is taking proposals; we may have other math circle grants available in the future.

Seed program: Seed program grants are each $2,000.00. These funds may be used as stipends for session instructors and for supplies. In order to receive this funding a circle must be registered with the NAMC.

To apply for a NAMC/ MSRI Math Circle Grant
Send an e-mail with the following information to associatedirector@msri.org
 * When the math circle was originally formed (or when will it start).
 * The audience of the circle e.g. *teachers, enriched students in grades 6-8, students recruited from Central High School.*
 * Location and the number of meetings planned for 2010-2011.
 * Key personnel and background.
 * Several planned session topics.
 * How a check should be made out and where it should be sent, should the grant be funded.

How to register a Math Circle on http://mathcircles.org
To start the process of adding your program to our listing you'll need to obtain a user account. https://www.mathcircles.org/user/register

Having this account will allow you to edit content on the website and contribute to the forums. In addition you'll be added to our mailing list where we'll be sending out regular updates about the NAMC including information about funding opportunities and upcoming NAMC community events.

After you have registered for a user account and signed into that account you'll be able to add your Math Circle by visiting: https://www.mathcircles.org/node/add/mathcircle

Your program will then be added to the website. You'll be able to find it on the list of programs: http://www.mathcircles.org/Wiki_ExistingMathCirclePrograms
and on the map: https://www.mathcircles.org/FindAMathCircleNearYou_USMap

Fund Sources in New Orleans

Large employers: Exxon, Shell, South Central Bell,
   Hibernia Corp, Martin Marietta Manned Space System,
   Union Carbide Corp, Hilton Hotels, …

Do parents of any of your students work for one of these?

Do you work for a university that has a development officer?

community & society

malaria

math and science

womens economic opportunity

community investment

human rights

safety, health and the workplace

– transparency

▼ worldwide giving

 – employee volunteerism

 – giving guidelines

 ▷ 2009 worldwide giving report

Corporate Citizenship Report

quick links

- Malaria Initiative
- Clinton Global Initiative 2009
- Mickelson ExxonMobil Teachers Academy
- Transparency Initiative

ExxonMobil giving guidelines

ExxonMobil's success in the energy and petrochemical industries makes it possible for us to contribute to the well-being of the local areas where we make significant investments, provide products and pay taxes.

We believe that well-designed contributions programs contribute to society by raising the standard of living and the stability of the communities in which we live and do business. They also align with our pledge of good corporate citizenship and contribute to ExxonMobil being the partner, neighbor, employer and supplier of choice around the world.

Therefore, the purpose of ExxonMobil's contributions program, whether conducted through the U.S. based ExxonMobil Foundation, or through the corporation or international affiliated companies' operations, is to meet important community needs in ways that are compatible with our business interests.

Typically, ExxonMobil chooses to work with community organizations with which we have established or proactively developed relationships. ExxonMobil does not seek and rarely funds unsolicited grant applications and project proposals.

Worldwide, ExxonMobil's community investment focus areas include:

Education — As a science and knowledge-based company, we contribute to educational programs worldwide. Particular focus areas are science and math and the education of women and girls;
Health — We have a long tradition of working to improve public health and reduce health-related barriers to development in the communities where we operate;
Environment (biodiversity & conservation) — We recognize the importance of conserving biodiversity — the variety of life on earth;
Employee involvement — We encourage and support our employees and retirees who choose to make their own contributions of time, skills and money to community activities.

tools

- print page
- e-mail page
- add page to favorites
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- share

A A A text size

http://www.exxonmobil.com/Corporate/
community_contributions_guidelines.aspx

School In-Service Training Grants for Grades 9-12 Teachers

Support by the Clarence Olander Fund and NCTM

"As the mathematics curriculum coordinator, I have seen the classroom pedagogy changes that have occurred in pilot teachers' classrooms as a result of this inservice training. All three of our Algebra teachers have changed their teaching dramatically from a teacher-centered classroom to a student-centered classroom. Two out of three Geometry teachers have as well. The other Geometry teacher admits that the study team strategies he learned were very effective for his students. This grant has opened the door for a standards-based curriculum change at our high school, and I would like to thank NCTM for the opportunity created by this grant ~ (Tony Pickar) D.C. Everest Senior High School, 2008–09 Awardee

The purpose of this grant is to provide financial assistance to secondary schools for in-service education in mathematics. For 2011–2012, grants of a maximum of $4,000 each will be awarded to secondary schools. Costs may include honoraria and expenses for consultants, materials, substitute time, and conference or workshop registrations. No funds may be used for staff travel or equipment. Proposals must address the following: need, mathematics content, scope of the plan, other contributing sources of funding, number of teachers and students impacted, distribution of costs, urban-rural isolation, and multiethnic student body.

Only schools with at least one current (as of April 29, 2011) Full Individual or E-Members of NCTM are eligible to apply for this grant. No school may receive more than one award administered by the Mathematics Education Trust in the same academic year. Past

http://www.nctm.org/resources/content.aspx?id=2942

TOYOTA
TAPESTRY
GRANTS FOR
SCIENCE TEACHERS

NSTA
National
Science
Teachers
Association

General Information & Proposal Guidelines

What are Toyota TAPESTRY Grants for Science Teachers?

A partnership between Toyota Motor Sales, U.S.A., Inc. and the National Science Teachers Association, the Toyota TAPESTRY Grants for Science Teachers program offers grants to K–12 science teachers for innovative projects that enhance science education in the school and/or school district. Fifty large grants totaling $500,000 will be awarded this year. To apply for funding, qualified teachers must write a Toyota TAPESTRY proposal according to the proposal requirements. All proposals must be submitted by 11:59 p.m. ET Wednesday, February 23, 2011. Recipients of Toyota TAPESTRY grants will be notified in April 2011. Nonrecipients will be notified in June 2011.

Announcement

Toyota Motor Sales, U.S.A., Inc. and the National Science Teachers Association are pleased to announce the 21st Toyota TAPESTRY Grants for Science Teachers program. This year, 50 grants of $10,000 each will be awarded to K–12 teachers of science in the United States. The category is Environmental Science.

Who May Submit the Online Proposal?

The project director should begin the online proposal. This is the person who will be in charge of the project and implement it during the 2011–12 school year. The project director must be a middle or high school science teacher who teaches a minimum of two science classes per day or an elementary teacher who teaches some science in the classroom. All applicants must have a minimum of at least two years science teaching experience in a K–12 school not including the current school year. Staff people (up to four allowed) may also work on the proposal. Applicants may submit only one proposal per year as Project Director. Please be aware that Toyota TAPESTRY awards are conditional upon the awardee (project director) being employed at the same school for the duration of the proposed project.

How Do I Apply?

The online application is available from the TAPESTRY home page. The project director is asked to begin the application process by creating a login and password. You are not required to complete the application process in one session; the proposal is saved as you submit each section. There are examples of components as you begin each section. For questions or assistance with the application process, please contact tapestry@nsta.org.

K–12 Eligibility

The program is open to middle and high school science teachers residing within the 50 United States and U.S. territories and possessions and it is also open to elementary teachers who teach some science in the classroom or are teaching specialists. Middle and high school teachers must teach at least two science classes per day. All applicants must have at least two years science teaching experience in a K–12 school not including the current school year. Only the Project Director has to meet the above criteria. The project staff may consist of educators of any discipline, administrators, parents, students or anyone who will be directly involved in the project. An individual teacher or a team of up to five people may submit a proposal. The Project Director will be the contact person for the team and will be the sole administrator of the grant money. Applicants may submit

http://www.nsta.org/pd/tapestry/guidelines.htm

MAA MATHEMATICAL ASSOCIATION OF AMERICA

About Us | Membership | Publications | Professional Development | Meetings | Competitions | Support the MAA | Funding Opportunites

Sections

Program Objectives

Sample Projects

Nature of the Grant

Application Information

Dolciani Mathematics Enrichment Grants (DMEG)

The Mary P. Dolciani Halloran Foundation has provided funding for the Mathematical Association of America (MAA) to award grants for projects designed to develop mathematical enrichment programs for talented students in middle school or high school. The goal of the program is to interest students who are ready for more challenge in the study of mathematics and encourage them to further their mathematical studies.

Proposals are sought from college and university mathematical sciences faculty working in partnership with middle and/or high school mathematics teachers. Interested middle and high school teachers are strongly encouraged to seek out college and university mathematic sciences faculty in the formulation of proposals to benefit middle and high school students. The Foundation is particularly interested in projects originating from the middle or high schools. Proposed projects may replicate existing successful projects, adapt components of such projects, or be new.

Objectives

Projects should provide enrichment and extension activities for students which lead to heightened interest in and appreciation of mathematics. The projects should encourage students to continue studies of mathematics in high school and college and should better prepare them for those studies. Projects are designed to provide active enrichment activities, beyond classroom coursework, for students who show promise or interest in mathematics and are not intended for remedial help for students who need assistance in order to succeed in their coursework in mathematics. Undergraduate and graduate students may provide role models and work directly with students under the tutelage of faculty from both the college or university and middle or high school. Participating in the DMEG Projects should benefit graduate, college, and pre-college students.

Active engagement in doing mathematics and mentoring of each student participant are essential features. Students should be made aware of career opportunities in mathematics and mathematically intensive disciplines.

Projects should be conducted over a sufficient period of time to engage student participants in learning and applying new and interesting mathematics that they will not otherwise encounter in their classes. Projects may be conducted during summer, during the school year, on weekends, or after school. The Dolciani Halloran Foundation funding may be used to supplement existing enrichment programs in order to increase the number of students participating in those programs or may be used to initiate new projects. Program funding is restricted to activities that are not typically part of school budgets.

Sample Projects

http://www.maa.org/dolciani/

http://www.mathcircles.org/