

MET Awards, Grants, and Scholarships

The Mathematics Education Trust (MET) was established by the National Council of Teachers of Mathematics (NCTM) to fund special projects that enhance the teaching and learning of mathematics.

LEGEND: Grades PreK–5 ● Grades 6–8 ● Grades 9–12 ● Prospective Teachers ● Affiliates ● ▶◀ Partial Grade Band

WINTER CYCLE (postmarked by November 8, 2013)

Connecting Mathematics to Other Subject Areas Grants (Supported by the Theoni Pappas Fund) ● Grants of up to \$4,000 are provided to classroom grades 9–12 teachers to develop classroom materials or lessons connecting mathematics to other disciplines or careers.

Classroom Research Grants (Supported by the Edward Begle Fund and NCTM) (PreK-6 ● ◀) Grants of up to \$6,000 are provided to support collaborative classroom-based action research in precollege mathematics education involving college or university mathematics educators.

Classroom Research Grants (Supported by the E. Glenadine Gibb Fund and NCTM) (7-12 ▶ ●) Grants of up to \$6,000 are provided to support collaborative classroom-based action research in precollege mathematics education involving college or university mathematics educators.

Emerging Teacher-Leaders in Elementary School Mathematics Grants (Supported by the Irene Etkowicz Eizen Fund and NCTM) ● Grants with a maximum of \$6,000 will be awarded to a teacher-leader in elementary school mathematics. The recipient will collaborate with other teachers to select specific mathematics content at a grade level that is consistent with the *Principles and Standards for School Mathematics* (NCTM 2000) and develop expertise in this content.

Engaging Students in Learning Mathematics Grants (Supported by the Veryl Schult–Ellen Hocking Fund) ● Grants of up to \$3,000 are provided to classroom teachers currently working at the grades 6–8 level to incorporate creative use of materials to actively engage students in tasks and experiences designed to deepen and connect their mathematics content knowledge.

Equity in Mathematics Grants (Supported by the Iris Carl Fund and NCTM) ● Grants of up to \$8,000 are provided to classroom teachers to incorporate middle school classroom materials or lessons that will improve the achievement of groups of students who have previous records of underachievement.

Future Leaders Initial NCTM Annual Meeting Attendance Awards (Supported by the Edwin I. Stein Fund and NCTM) ●●● Grants of up to \$1,200 + meeting registration are provided for travel, subsistence expenses, and substitute teacher costs of NCTM members who are classroom mathematics teachers in grades PreK–12 and have never attended an NCTM annual meeting.

Improving Students' Understanding of Geometry Grants (Supported by the John & Stacey Wahl Fund) ●● Grants of up to \$4,000 are awarded to classroom grades PreK–8 teachers to develop a project or activities that will enable students to better appreciate and understand some aspect of geometry that is consistent with the NCTM *Principles and Standards*.

Mathematics Course Work Scholarships ● (Supported by the Dale Seymour Fund and NCTM) and **Mathematics Graduate Course Work Scholarships** (Supported by the Dale Seymour Fund and NCTM) ●● Scholarships of up to \$2,000 are provided to classroom teachers working at the required grade level to pursue courses to improve their mathematics content knowledge.

Summer Mathematics Study Grants (Supported by NCTM) ● Grants with a maximum of \$6,000 will be awarded to classroom teachers working at the required grade level who are seeking to improve their understanding of mathematics by completing course work in mathematics content.

Teacher Professional Development Grants (Supported by the John Van de Walle and NCTM) ● (Supported by the Mary Dolciani Fund and NCTM) ●● Grants of up to \$3,000 are provided to classroom teachers currently working at the required grade level to improve their own professional competence as classroom teachers of mathematics.

Using Music to Teach Mathematics Grants (Supported by the Esther Mendlesohn Fund and NCTM) (Grades PreK–2 ◀) Grants of up to \$3,000 are provided to classroom teachers currently working at the grades PreK–2 level for projects and activities that use music to teach mathematical skills and concepts.

Prospective Teacher NCTM Conference Attendance Awards (Supported by the Julius H. Hlavaty Fund and NCTM) ● Grants of up to \$1,200 + conference registration are provided for travel and subsistence expenses to help support attendance at an NCTM annual or regional meeting by full-time undergraduate students who are NCTM student members and are preparing to be precollege mathematics teachers.

NCTM LIFETIME ACHIEVEMENT AWARDS FOR DISTINGUISHED SERVICE TO MATHEMATICS EDUCATION

The NCTM Lifetime Achievement Awards are designed to honor members of NCTM who have exhibited a lifetime of achievement in mathematics education at the national level. The NCTM Lifetime Achievement Awards are presented annually following a nomination and selection process.

SUMMER CYCLE (postmarked by May 2, 2014)

PreK-8 Preservice Teacher Action Research Grants (Supported by the Ernest Duncan Fund and NCTM) ●● A grant with a maximum of \$3,000 will be awarded for action research conducted as a collaborative by university faculty, preservice teacher(s), and classroom teacher(s) seeking to improve their understanding of mathematics in PreK–8 classroom(s).

Professional Development Scholarship Emphasizing the History of Mathematics (Supported by the Father Stanley J. Bezuska Fund and NCTM) ●● A scholarship with a maximum of \$3,000 will be awarded to an individual currently teaching mathematics at the grades 6–12 level to complete credited course work in the history of mathematics, to create and field-test appropriate classroom activities incorporating the history of mathematics, and to prepare and deliver a professional development presentation.

Program of Mathematics Study & Active Professionalism Grants (Supported Lola May/Shirley Frye Fund and NCTM) (PreK-6 ● ◀) A program grant of up to \$24,000 will be awarded to a classroom grades PreK-6 teacher seeking to improve his/her understanding and appreciation of mathematics by completing course work in school mathematics content and pedagogy working toward an advanced degree, and taking an active professional approach toward teaching mathematics. The proposal may outline a study plan for a one-year, a two-year, or a three-year program.

Prospective Middle School Teacher Course Work Scholarships (Supported by the Edward J. Brennan Fund) ● A scholarship, up to \$3,000, will be awarded to a full-time college or university junior who is pursuing a career goal of becoming a certified teacher of middle (grades 6–8) school mathematics.

Prospective 7-12 Secondary Teacher Course Work Scholarships (Supported by the Texas Instruments Demana-Waits Fund) ● Scholarships, up to \$10,000, will be awarded to full-time college or university sophomores who are pursuing a career goal of becoming a certified teacher of secondary (grades 7–12) school mathematics.

School In-Service Training Grants (Supported by the Clarence Olander Fund and NCTM) ●●● Classroom teachers receive up to \$4,000 for support of in-service programs.

OTHER (postmarked by June 1, 2014)

NCTM Affiliate Grants (Supported by the Kenneth B. Cummins Fund and NCTM) ● Grants are offered through the Affiliate Services Committee to initiate professional activities and programs that might otherwise not be possible. For more information on Affiliate grants, call (703) 620-9840, ext. 2104, or e-mail affiliates@nctm.org.

(*The definition of a classroom teacher is an individual who spends half or more of his/her work time teaching in the classroom.) **For more information on MET programs, you can—**(1) read and print your selected MET information by clicking on the highlighted text from www.nctm.org/met; (2) call (703) 620-9840, ext. 2112; or (3) write to MET at NCTM, 1906 Association Drive, Reston, VA 20191-1502. **Tax-deductible contributions in support of these grants and awards are also accepted.**

Tips for Writing Successful Proposals for MET Grants and Scholarships

Basic ideas to help in the preparation of a proposal include the following:

1. Match your proposal to the specifications of the grant sought.

DO make certain your idea fits under the broad umbrella of the grant. Build on the NCTM *Principles and Standards*. State your goals (usually one or two) and objectives clearly. Remember: a goal is a broad statement about what you hope to accomplish. It usually is not measurable. An objective is a specific measurable statement about what you will do.

DON'T be unrealistic by aiming for "pie in the sky."

2. Delineate your plan with utmost care.

DO be specific about what you will do and when you will do it. A timeline shows good planning and brings life to a proposal. Write clearly and succinctly. Demonstrate the alignment of planned activities to your goals, objectives, and grant requirements.

DON'T expect proposal readers to guess what you are going to do; you must tell them your plan. Don't use excess verbiage or unnecessary language, but be very clear on your intent.

3. Observe technical guidelines.

DO read directions on the Request for Proposals (RFP) carefully and make certain to include everything mentioned **and** in the order mentioned (i.e., in the order of the proposal guidelines). Not following directions is a major reason many proposals are not funded. Have a sound budget. Get estimates about costs to be incurred and the length of time needed to complete the project.

DON'T exceed the page limit, font size, or budget limits. Don't exaggerate or be unrealistic about the budget or resources needed for the project.

4. Emphasize the benefits.

DO show how a funded grant will benefit any participants. If the RFP calls for student participation, focus on the expected impact on student learning.

DON'T philosophize in the proposal. Show a direct need for the work and have a creative solution to any specific problems.

5. Describe possible long-term implications.

DO have an evaluation plan that measures all stated objectives. Describe how assessment information will be collected, used, and reported.

DON'T over generalize implications or promise more than you can deliver.

6. Enlist the support of your principal, supervisor, and colleagues.

DO make certain that persons who write recommending letters indicate their strong support and commitment to you and your project. Provide them with a copy of your proposal so that they will understand the details and requirements of the project.

DON'T forget to have someone not connected to your project read both it and the RFP to see whether all guidelines are met, the proposal is sensible, your thinking is clear, and there are no mechanical errors. A new pair of eyes can be very helpful.

Algebra I

Team Name:

The Fickle Farmer Problem

Members:

A farmer has 36 meters of fencing. (Farmers would really have a lot more fencing than that but since we are not using calculators I am trying to keep our numbers small.) This farmer wishes to fence a pasture for horses. The farmer asks you for some help in the design. Each time the farmer wants to use all 36 meters of fencing.

1. At first the farmer wants to construct a rectangular pasture. Draw 5 possible rectangular pastures (with sides labeled) and determine the area and perimeter of each. For example, the farmer's pasture could look like this:



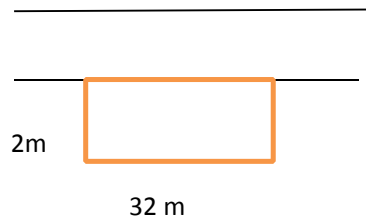
16 m

Area = 32 m^2

Perimeter = 36 m

2. Draw THE rectangle which gives the maximum (largest) area. (It might not be the one of the ones your team drew above.)

3. The fickle farmer decides to fence the pasture by using one side of a river as a boundary and *only 3 sides of fence*, hoping that the area will be bigger. Draw at least 3 possible rectangular pastures and give the area of each. For example, the farmer's pasture could look like this:



Area = 64 m^2

4. Draw THE rectangular pasture (bordered by a river) which gives the maximum (largest) area. (It might not be the one of the ones your team drew above.)

5. The fickle farmer is unsatisfied with all of these rectangular pastures. Come up with at least two more shapes the farmer could use to construct a pasture. Draw these shapes and place appropriate dimensions (using all 36 meters of fencing, and no river boundary). Is there a shape which maximizes the area of the pasture?



Circuit Training – Solving Linear Inequalities Name _____ # _____

Solve the first inequality in the space provided and then graph the solution on a number line. Circle your solution. Find your solution among the choices. Put #2 in the problem blank. Work that question and proceed in this manner until finished.

Answer: $x \leq 7$ # _____ $3x-4 \geq 20$	Answer: $x \leq 30$ # _____ $2 > x-3x + 4$
Answer: $x < \frac{3}{2}$ # _____ $-9(x + 2) + 3(x-1) \leq 15x$	Answer: $x \leq -6$ # _____ $3(x + 1) < 2x + 2 + x + 1$
Answer: $y \leq \frac{3}{4}x-3$ # _____ $3\pi + 4\pi \geq \pi x$ (solve for x)	Answer: $y \geq -\frac{4}{3}x + 4$ # _____ $3x-4y \geq 12$ (solve for y)
Answer: $x \geq 8$ # _____ $-2x + 3 < 17$	Answer: $x > -7$ # _____ $\frac{x}{2}-4 \leq -10$
Answer: $x = \text{no solution } \emptyset$ # _____ Three increased by twice a number is at least -7. Write the inequality and then solve it!	Answer: $x < 20$ # _____ Seventeen is less than twice the sum of a number and three. Write the inequality and then solve it!

<p>Answer: $x \leq -12$ # _____ $3x + 2x - 0.5 > -5.5$</p>	<p>Answer: $x \geq -47$ # _____ $3x - 4 < -x + 2x - 1$</p>
<p>Answer: $x \geq -1$ # _____ $3(2 - 5x) + 5(3x + 1) \geq \frac{1}{2}(-30)$</p>	<p>Answer: $x > -1$ # _____ $-4(x - 7) \geq -92$</p>
<p>Answer: $x < -6$ # _____ $1.5x - 2x - 1 \geq \frac{1}{2}(x + 10)$</p>	<p>Answer: $x > 5.5$ # _____ The perimeter of an equilateral triangle is at most 72. Write the inequality and then solve it!</p>
<p>Answer: $x \leq 24$ # _____ $4x + 3y \geq 12$ (solve for y)</p>	<p>Answer: $x \geq -5$ # _____ Three decreased by half a number is greater than -7. Write the inequality and then solve it!</p>
<p>Answer: $x > 1$ # _____ $10 \geq \frac{x-3}{-5}$</p>	<p>Answer: $x =$ infinitely many solutions ∞ # _____ $-\frac{4}{3}x + 9 > 17$</p>

Cooperative Learning **Methods List**

I HAVE USED

Cooperative Learning Methods

Flash Card Games

Pairs Check

Send-A-Problem

Round Table

Write-What-I-Say

Workstation Review

Speed Dating

Cooperative Management

Team Test Taking

I do, You do, We do

Grouping

Numbers

Draw Sticks

Cards

Hand Chosen

I WOULD LIKE TO USE

Cooperative Learning Methods

Numbered Heads

Share and Compare

Pair Learning

Telephone

Jigsaw

Inside-Outside Circle

Cooperative Management

Team Notebook

Quiet Signal

Class Meetings

Grouping

Ranking

Mix - Freeze – Group

9-Week groups**

Method Definition

Pairs Check: Students pair up to work on a worksheet. One student works while the other “coaches” and checks their work. Then they switch roles.

Send-A-Problem: Each student makes up a problem and writes it on a flashcard. They work it with their group and write the answer on the back. Teams pass cards to the next team to work.

Roundtable: Group members take turns working a problem as they move a piece of paper around the circle

Round Robin: Group members take turns talking or discussing a problem around the circle

Share & Compare: Groups compare their work with other groups by sending a student from their group around the room

Workstation Review: Review problems are set up around the room. Groups rotate to each station to work the problem or set of problems.

Inside / Outside Circle: Students sit in two concentric circles, with the inside facing out and the outside facing in

Numbered Heads: Students in groups number off, teacher poses a question, group members put their heads together, and Teacher calls on group and number

What this could look like in the Math Class

-Solving Systems: One student solves a system using elimination or substitution, while the coach observes. The “coach” then checks the Solution by graphing.

-Solving for Y: Each student in a group writes a two-variable equation (using the variable y with a coefficient greater than one) and pass to next group to solve for y^*

-Solving for Y (each member completes one step before passing)
-Graphing a system of inequalities

-Word Problems

-Solving Systems of Equations

-Compound Inequalities

All Chapter reviews*

Math Worksheets (speed dating) completed by working each problem with a different partner*

Questioning Method: I will have my students in colored groups with each member numbered off 1-4 (Example Student: Red 3)

Draw What I Say: Students take turns giving commands to the class who attempt to write it / draw it

Jigsaw: Each student in a group specializes in a specific aspect of the learning unit. They meet with other team members that share that aspect and master the material, then return to their group to teach it.

Think-Pair-Share: Class is given a problem, students think individually, work in groups or pairs, then share with the class

Telephone: One student from each team steps out of the room. The teacher teaches new material to the remaining students. When the absent student returns, the group is responsible to teach them before they are quizzed!

-Writing Algebraic Expressions verbally and mathematically*

-Areas and Perimeters of different shapes

-Writing equations given point and slope, y-intercept and slope, or two points

-Solving Systems of Equations

-Word Problems, etc.

-Matrices

-Writing equations for given lines